



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

SEP 27 2001

OFFICE OF  
AIR AND RADIATION

Martin L. Bowling, Jr.  
Designated Representative  
Dominion Generation  
5000 Dominion Boulevard  
Glen Allen, VA 23060

Re: Petition to Monitor NO<sub>x</sub> Emissions From Yorktown Units 1 and 2  
at the Common Stack

Dear Mr. Bowling:

This is in response to your June 6, 2001 petition under § 75.66 in which Dominion Generation (Dominion) requested to switch from monitoring nitrogen oxides (NO<sub>x</sub>) emissions on an individual-unit basis to monitoring NO<sub>x</sub> emissions at the common stack, for Units 1 and 2 at the Yorktown Power Station (Yorktown). For the reasons discussed below, EPA grants the petition.

Background

Units 1 and 2 at Yorktown are coal-fired boilers that share a common stack. The units are regulated under Phase II of the Acid Rain Program and must monitor and report sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and carbon dioxide (CO<sub>2</sub>) emissions according to 40 CFR Part 75. The units are also required to meet a NO<sub>x</sub> emission limit under 40 CFR Part 76. Yorktown Units 1 and 2 are tangentially-fired boilers and under § 76.7, are required to meet an annual NO<sub>x</sub> emission limit of 0.40 lb/mmBtu, starting January 1, 2000. However, notwithstanding this requirement, EPA established in § 76.8 a special provision under which an individual Phase II unit could submit an early election plan and thereby elect to comply early (i.e., starting in 1997), but with the less stringent Phase I limit under § 76.5. For tangentially-fired boilers, the Phase I limit is 0.45 lb/mmBtu.

The general purpose of the early election provision is to provide some flexibility for units to comply early but without resulting in more total NO<sub>x</sub> emissions than in the absence of such flexibility. See 59 FR 13538, 13558 (1994). Each unit must demonstrate that it meets the Phase I limit each year from 1997 through 2007. If the demonstration is made each year, the unit does not become subject to the Phase II limit until 2008. If the unit fails to make a demonstration for a year, the unit's early election plan is terminated and the Phase II limit becomes applicable.

Dominion designated Yorktown Units 1 and 2 as early election units under § 76.8. Prior to this designation, Yorktown Units 1 and 2 had no NO<sub>x</sub> emission limits, and NO<sub>x</sub> emissions from the units were measured at the common stack under Part 75. After this designation, NO<sub>x</sub> emissions were measured using certified duct-mounted NO<sub>x</sub> monitoring systems on the individual units in order to show that each unit is meeting the 0.45 lb/mmBtu NO<sub>x</sub> limit. On April 2, 1998, Dominion (then known as Virginia Power) petitioned EPA to use the common stack monitoring system, instead of the duct monitoring systems. On June 11, 1998, EPA denied the petition, citing the fact that Unit 1 did not have low-NO<sub>x</sub> burners as the principal reason for denial.

Dominion has since installed low-NO<sub>x</sub> burners on Unit 1 and began reporting NO<sub>x</sub> emission data with the burners in operation on May 16, 2000. On June 6, 2001, Dominion submitted a petition to EPA under § 75.66, once again requesting to discontinue reporting data from the duct-mounted NO<sub>x</sub> monitoring systems on Units 1 and 2 and to use the common stack monitoring system. According to Dominion, the petition should be approved because: (a) both units now have low-NO<sub>x</sub> burners; (b) both units are early election units and have the same NO<sub>x</sub> emission limit of 0.45 lb/mmBtu; and (c) both units have met the 0.45 lb/mmBtu limit each year since they became early election units.

#### EPA's Determination

EPA approves Dominion's June 6, 2001 petition to use the certified NO<sub>x</sub> monitoring system installed on common stack CS0 at Yorktown and to discontinue reporting NO<sub>x</sub> emission rate data from Units 1 and 2 on an individual-unit basis. The Agency's determination is consistent with prior cases involving early election units at a common stack, in which EPA has allowed an exception to the requirement under § 76.8 to demonstrate compliance on an individual-unit basis. In each of those cases, two conditions were met: (1) each unit at the common stack had installed low NO<sub>x</sub> burners; and (2) the low NO<sub>x</sub> burners were either guaranteed to meet the applicable Phase I emission limit or were shown to be capable of meeting such limit on a long-term basis. To make such a showing a minimum of 720 hours of quality-assured monitored NO<sub>x</sub> emission rate data was required to be obtained for each unit either at the duct leading from the unit to the common stack or at the common stack, while only that unit was in operation. Under those limited circumstances, EPA approved early election plans for the units and allowed compliance with the Phase I limits to be demonstrated at the common stack on an average basis for the group of units. See Acid Rain Program Policy Manual question and response 34.1, attached as an enclosure to this letter.<sup>1</sup>

EPA previously denied a June 11, 1998 petition for Yorktown Units 1 and 2 to use the common stack monitor because Unit 1 did not have installed low-NO<sub>x</sub> burners. However, according to the June 6, 2001 petition, this deficiency has been corrected, and low NO<sub>x</sub> burners have been installed and operational on Unit 1 since May 16, 2000. Further, a summary of NO<sub>x</sub> emission rate data obtained with the duct-mounted monitoring systems on Units 1 and 2

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<sup>1</sup> Note that Policy Question 34.1 was retired in October, 1999, since the window of time for early election applications had expired. However, the substance of the answer to Question 34.1 is still relevant to Dominion's June 6, 2001 petition request.

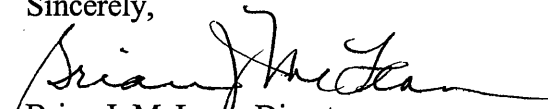
(submitted as an attachment to the June 6, 2001 petition) shows that Units 1 and 2 have individually met the 0.45 lb/mmBtu emission limit on a long-term basis with their low-NO<sub>x</sub> burners in operation. In particular, Unit 2 has demonstrated compliance in the period from January 1, 1998 through March 31, 2001, and Unit 1 has demonstrated compliance in the period from May 16, 2000 (when the low NO<sub>x</sub> burners were installed) through March 31, 2001.

To verify that for each unit at least 720 hours of historical quality-assured data have been collected which demonstrate compliance with the Phase I NO<sub>x</sub> emission limit of 0.45 lb/mmBtu, EPA examined the recent NO<sub>x</sub> emission data reported for Yorktown Units 1 and 2 in the quarterly electronic data (EDR) reports submitted by Dominion. For Unit 1, data from the 3<sup>rd</sup> quarter of 2000 through the 2<sup>nd</sup> quarter of 2001 were checked; only data collected after the commencement of operation of the low NO<sub>x</sub> burners were examined. Over this four calendar quarter period, Unit 1 operated for 8,131 total hours, and the quarterly average NO<sub>x</sub> emission rates ranged from 0.398 to 0.429 lb/mmBtu. For the same time period, Unit 2 operated for 8,357 hours, with quarterly average NO<sub>x</sub> emission rates ranging from 0.366 to 0.419 lb/mmBtu.

Since each unit has low-NO<sub>x</sub> burners and has met the 0.45 lb/mmBtu limit on a long-term basis when operating with such burners, EPA finds that there is reasonable assurance that each unit is meeting the Phase I limit so long as that limit is met at the common stack. Consequently, EPA approves Dominion's request to use the common stack monitor. Reporting of NO<sub>x</sub> emission rate data from the individual units is no longer required, effective as of the date of this petition response.

EPA's determination in this letter relies on the accuracy and completeness of the information provided by Dominion in the June 6, 2001 petition and in the quarterly EDR reports, and is appealable under Part 78. If you have any further questions or concerns about this matter, please contact Robert Vollaro, at (202) 564-9116. Thank you for your continued cooperation.

Sincerely,

  
Brian J. McLean, Director  
Clean Air Markets Division

Enclosure

cc: Linda Miller, EPA Region III  
Frank Daniel, Virginia DEQ  
Robert Vollaro, CAMD

**Retired Questions**

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**Question 34.1      RETIRED**

**Topic:** Common Stack Monitoring Considerations

**Question:** A utility has several Phase II units using a common stack. The utility is considering the option of early election for these Phase II units. What are the NO<sub>x</sub> monitoring options for the units? In particular, when may the utility use just a single NO<sub>x</sub> CEMS on the common stack?

**Response:** In all cases, it is acceptable for the early election units to be monitored individually for NO<sub>x</sub> emission rate in lb/mmBtu under 40 CFR 75.17(a)(1), (a)(2)(iii)(A) or (b)(1). Each NO<sub>x</sub> CEMS must include a NO<sub>x</sub> pollutant concentration monitor, a diluent monitor for either CO<sub>2</sub> or O<sub>2</sub>, and a DAHS. (It is not necessary to install a flow monitoring system on the individual units if there is a flow monitor on the common stack.)

If a utility plans to install new NO<sub>x</sub> CEMS for the early election units, then the DR should submit a revised monitoring plan on a date no later than the date the DR submits a Phase I NO<sub>x</sub> compliance plan indicating that the units will be early electing. Each NO<sub>x</sub> CEMS should be installed and provisionally certified no later than January 1, 1997.

Part 76 states that each individual early election unit must demonstrate that it meets the Phase I NO<sub>x</sub> emission limitation each year, starting from the effective date of the early election through December 31, 2007 (see 40 CFR 76.8(e)(3)(i)). If units share a common stack and the NO<sub>x</sub> emission rate is measured only on the common stack, it is not possible, without additional information, to determine if each individual unit actually met the Phase I NO<sub>x</sub> emission limitation. Thus, monitoring on the common stack with a stack NO<sub>x</sub> CEMS may not ensure compliance with the requirement in 40 CFR 76.8 that each individual early election unit meet the Phase I emission limitation.

The restrictions on early election unit averaging are consistent with this approach. Under Part 76, early election units are not allowed to participate in an emissions averaging plan before the year 2000. An early election unit may participate in an emissions averaging plan in the year 2000 or thereafter. However, the revised Phase II emission limitation must be used for that unit in the calculation to determine whether there is group compliance with the plan.

EPA will consider approving early election plans with just a single, common-stack NO<sub>x</sub> monitor in the following circumstances:

- (1) The utility may monitor for NO<sub>x</sub> on the common stack and show that the group of units on the stack meets, on an average basis, the strictest of the NO<sub>x</sub> emission limitations applicable to one or more of the units if:
  - (a) Every unit sharing the common stack is an early election unit, and each of the units using the common stack has installed low NO<sub>x</sub> burner technology (LNBT); and
  - (b) EPA's Acid Rain Division concludes that the DR has demonstrated that each unit is currently meeting and is capable of continuing to meet the applicable Phase I NO<sub>x</sub> emission limitation individually until January 1, 2007. Two acceptable ways of demonstrating this are to show that either:
    - (i) Each of the units using the common stack has installed LNBT with a performance guarantee that the unit will meet the Phase I limitation, and the performance guarantee has been met for each unit. In making this demonstration, the utility must provide the performance data and resulting report for each unit from the acceptance testing required under the contract with the LNBT vendor; or
    - (ii) Each of the units using the common stack has installed LNBT that is not guaranteed to meet the applicable Phase I NO<sub>x</sub> emission limitation, and each unit meets the Phase I emission limitation, based upon at least 720 operating hours of quality-assured monitored NO<sub>x</sub> emission rate data. The 720 operating hours of data must either be from (1) a certified CEMS installed on the common stack, when the unit is the only boiler emitting to the common stack, or (2) EPA reference methods 7E and 3A in Appendix A of 40 CFR Part 60 measured in the duct from each unit. In addition, it must be shown that the data were obtained during a period representative of normal operation of the unit.
- (2) The utility may monitor for NO<sub>x</sub> on the common stack and the DR may demonstrate that each unit is meeting the applicable Phase I NO<sub>x</sub> emission limitation individually if the DR petitions the Agency for a means for apportioning NO<sub>x</sub> emissions from a common stack monitor, subject to approval by EPA's Acid Rain Division. The utility must demonstrate to EPA's satisfaction that the apportionment methodology ensures the complete and accurate estimation of NO<sub>x</sub> emission rate to each unit. EPA notes that these requirements are difficult to meet; to date, no petitions for

## Retired Questions

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NO<sub>x</sub> apportionment from a common stack have been approved.

For further background on this issue, see Draft Acid Rain NO<sub>x</sub> (Part 76) Policy Manual, April 1994, Question 5.1; and see Appendix B to the Acid Rain Program Policy Manual, Letter from M. Sheppard, EPA: Acid Rain Division to M. Cashin, Minnesota Power and Letter from L. Kertcher, EPA: Acid Rain Division to R. J. Gronquist, Jamestown Board of Public Utilities.

**References:** § 75.17, § 75.31, 40 CFR Part 75, App. A (2.1.2.1), § 76.5, § 76.7, § 76.8(a)(5), § 76.11

**Key Words:** Common stack, Early election, NO<sub>x</sub> averaging

**History:** First published in October 1996, Policy Manual Update #10; retired in October 1999 Revised Manual