

February 13, 2007

Mr. J. David Rives
Designated Representative
Dominion Generation
5000 Dominion Boulevard
Glen Allen, VA 23060

Re: Petition for Approval of a Multi-Fuel F-Factor for Units 1 and 2 at the Altavista Power Station (Facility ID (ORISPL) 10773)

Dear Mr. Rives:

The United States Environmental Protection Agency (EPA) has reviewed the September 20, 2006 petition submitted under §75.66 by Dominion Generation (Dominion), in which Dominion requested approval of a multi-fuel F-factor value for Units 1 and 2 at the Altavista Power Station. EPA approves the petition, with conditions, as discussed below.

Background

Dominion owns and operates two spreader stoker coal-fired boilers, Units 1 and 2, at the Altavista Power Station in Altavista, Virginia. Units 1 and 2 are each rated at a maximum heat input capacity of 382 million Btu per hour. The units exhaust to the atmosphere through a common stack. Each boiler is capable of combusting either coal alone or coal mixed with wood residue (i.e., wood dust or wood chips).

Altavista Units 1 and 2 are subject to the Acid Rain Program and to the NO_x Budget Trading Program. These programs require Dominion to continuously monitor and report sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon dioxide (CO₂) emissions and heat input for Units 1 and 2, in accordance with 40 CFR Part 75. Prior to 2006, only coal was combusted in Units 1 and 2. However, Units 1 and 2 are also capable of burning wood, and beginning in April 2006, Dominion conducted a series of trial burns of coal and wood residue mixed together in varying proportions. Dominion intends to co-fire coal and wood in Units 1 and 2 in the coming months and years.

To quantify the hourly NO_x emission rates and heat input rates for Altavista Units 1 and 2, Dominion uses Equations F-6 and F-15 in Appendix F to Part 75. Both of these equations contain a fuel-specific, carbon-based F-factor (F_c). Table 1 in section 3.3.5 of Appendix F provides a list of default F_c values for different types of fuel. For bituminous coal and wood residue, the default F_c values are 1,800 scf CO₂/mmBtu and 1,830 scf CO₂/mmBtu, respectively, and these values may be used without requesting approval by the Administrator

when coal or wood residue is the only fuel being combusted in a unit. However, when different types of fuel are co-fired, Part 75 requires a site-specific F-factor to be calculated using Equation F-8 in Appendix F. The F-factor is prorated according to the fraction of the total heat input derived from each type of fuel. Further, section 3.3.6.3 of Appendix F states that when non-fossil fuels such as wood residue are combusted in combination with fossil fuel, the prorated F-factor value is subject to approval by the Administrator. To satisfy the requirements of section 3.3.6.3 of Appendix F, Dominion submitted a petition to EPA on September 20, 2006, requesting approval of a prorated default F_c value of 1806 scf CO₂/mmBtu for Altavista Units 1 and 2, to be used whenever wood residue is combusted.

Dominion used a combination of fuel sampling results and process operating data to derive the proposed F_c value. For each day of the June, July, and August 2006 trial burns, Dominion calculated the heat input (HI) from each type of fuel and then expressed the heat input from wood combustion as a percentage of the total heat input. The daily HI percentages from wood ranged from 0.2 to 19.7% and averaged 7.6%, 6.9%, and 8.8% for June, July, and August, respectively. The proposed prorated F_c value of 1806 scf CO₂/mmBtu was determined by substituting an assumed HI percentage of 20% from wood (which is slightly above the highest daily value for any of the trial burns) into Equation F-8.

EPA's Determination

EPA conditionally approves the proposed F_c value of 1806 scf CO₂/mmBtu for Altavista Units 1 and 2. During the three-month trial burn period from June-August 2006, the percentage of HI from wood combustion averaged about 8%, which corresponds to a prorated F_c value of 1802 scf CO₂/mmBtu. The percentage of HI from wood exceeded 15% on only 4 of the 82 days on which coal and wood were co-fired, and never exceeded 20% (which corresponds to the proposed F_c value of 1806 scf CO₂/mmBtu). Therefore, the Agency believes that if (as stated by Dominion in the September 20, 2006 petition) the manner of operating Units 1 and 2 during the trial burn period is representative of how the units will be operated in future years, then the proposed F_c value will be conservatively high and should prevent emissions from being under-reported.

Conditions of Approval

EPA conditions its approval of the September 20, 2006 petition on Dominion complying with the following requirements for Altavista Units 1 and 2:

- (1) For all hours in which coal is the only fuel combusted in the units, Dominion shall use an F_c value of 1800 scf CO₂/mmBtu in the emissions and heat input calculations;
- (2) For all hours (if any) in which wood residue is the only fuel combusted in the units, Dominion shall use an F_c value of 1830 scf CO₂/mmBtu in the emissions and heat input calculations;
- (3) Except as provided in paragraph (5), below, Dominion shall use the

approved F_c value of 1806 scf CO₂/mmBtu in the emissions and heat input calculations for all hours in which coal and wood are co-fired in the units;

- (4) Dominion shall recalculate a prorated F_c value at the end of each calendar month, in the manner described in the supplementary information provided to EPA on January 11, 2007. That is, based on the measured process feed rates and fuel sampling data for the month, determine the total heat input to the units and calculate the percentages of the total HI contributed by coal and wood for the co-fired hours. Then, use Equation F-8 to calculate the prorated monthly F_c value for the co-fired hours. Provided that the recalculated monthly F_c value does not exceed the approved value of 1806 scf CO₂/mmBtu, the approved value may continue to be used for co-fired hours;
- (5) If, for any month, the recalculated F_c from paragraph (4) above exceeds the approved F_c value of 1806 scf CO₂/mmBtu, Dominion shall use the recalculated value in the next month's emissions and heat input calculations. The recalculated value shall continue to be used for co-fired hours until a monthly F_c value \leq 1806 scf CO₂/mmBtu is obtained, at which time, Dominion may resume using the approved value of 1806 scf CO₂/mmBtu; and
- (6) Dominion shall keep records of the monthly F_c determinations described in paragraph (4) above, active for three years.

EPA's determination relies on the accuracy and completeness of the information provided by Dominion in the September 20, 2006 petition and the supplementary information provided on January 11, 2007. This determination is appealable under Part 78. If you have any questions or concerns about this determination, please contact Robert Vollaro, at (202) 343-9116. Thank you for your continued cooperation.

Sincerely,

/s/
Sam Napolitano, Director
Clean Air Markets Division

cc:

Frank Jacocks, Dominion Generation
Rebecca Cobb, Virginia DEQ
Robert Vollaro, CAMD