VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

August 31, 2000

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 00-424
NL&OS/SLW R0'''
Docket Nos. 50-338/339
License Nos. NPF-4/7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 AND 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
GENERIC LETTER 99-02 SUBMITTAL AND
PROPOSED TECHNICAL SPECIFICATION CHANGES
LABORATORY TESTING OF NUCLEAR-GRADE ACTIVATED CHARCOAL

On June 3, 1999, the NRC issued Generic Letter (GL) 99-02 documenting the staff's position that testing nuclear-grade activated charcoal to standards other than ASTM D3803-1989, does not provide assurance of compliance with the current licensing basis as it relates to dose limits. Consistent with that determination, GL 99-02 required testing of new and used charcoal to ASTM D3803-1989 starting 60 days after issuance of the GL. In addition, the GL requested an 180-day response committing to testing charcoal using ASTM D3803-1989 and, if necessary, the submittal of a Technical Specification (TS) amendment request reflecting the ASTM D3803-1989 protocol.

In a November 29, 1999 letter (Serial No. 99-339B), Virginia Electric and Power Company requested changes to the Technical Specifications as required by GL 99-02. The proposed changes will revise the testing requirements in Technical Specification Section 4.7.7.1, "Control Room Emergency Ventilation System" and Section 4.7.8.1, "Safeguards Area Ventilation System" to be consistent with ASTM D3803-1989. Subsequently, in a letter dated August 3, 2000, the NRC transmitted the following Request for Additional Information (RAI).

"1. Since the residence times are directly related to the actual system face velocities, in accordance with GL 99-02, Requested Action No. 2, please indicate the actual system face velocities and how they were determined. The actual system face velocity can be calculated by dividing the worst-case design-basis accident flow rate (typically TS flow rate, nominal +10% upper value) by the total exposed surface area of the charcoal filter media. In accordance with GL 99-02, if this value is greater than 110 percent of 40 ft/min, then the TS should be revised to specify that value as the test face velocity. (The guidance on calculation of the residence times

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in American National Standards Institute (ANSI) N510-1975, Section 8.3.3, and American Society of Mechanical Engineers (ASME) AG-1-1997, Division II, Sections FD and FE, Articles I-1000, can be used to calculate the actual system face velocities)."

The North Anna charcoal adsorbers for the Safeguards Area Ventilation and the Control Room Emergency Ventilation System were designed to have an average residence time of .25 sec. for a 2 in. charcoal bed depth corresponding to a nominal face velocity of 40 fpm. The Safeguards Area Ventilation subsystem feeds into the Auxiliary Building Ventilation filter. The original architect/engineer specification provided the ventilation filter assembly data. The filter assembly capacity is listed as 39,200 scfm for the Auxiliary Building Ventilation filter and 1000 scfm for the Control Room Emergency Ventilation filter. To validate the original design, a new face velocity calculation was performed per American National Standards Institute (ANSI) N510-1975, Section 8.3.3, using nominal design values, but subtracting the area of baffle, margin and blank area from the gross area of the adsorber-bed. (The area of baffle, margin and blank area may not have been subtracted in the original design evaluation.) Using the nominal design values from initial licensing, the calculated face velocity is 40.9 fpm for the Auxiliary Building Ventilation adsorber and 38.3 fpm for the Control Room Emergency Ventilation adsorber.

It should be noted that post-accident procedures for the Auxiliary Building Ventilation System identify a specific ventilation configuration (including the Safeguards Area Ventilation), which has been measured during recent testing. The worst case flow observed during recent testing was 31,580 cfm. Based on these actual results, the anticipated post-accident face velocity through the charcoal adsorber would be approximately 33 fpm.

For the Control Room filters the accident analysis assumes a nominal 1000 cfm flow rate consistent with the design specification. The Technical Specifications however permit a flow rate of 1000 cfm ±10%. Recent surveillance testing has shown the flow rate to be below 1000 cfm and typically in the range of 900-940 cfm. However, if the flow rate were to reach the upper range of the existing Technical Specification (1100 cfm), the resulting maximum face velocity could be 42.1 fpm.

If you have any further questions or require additional information, please contact us.

Very truly yours,

William R. Matthews
Vice President – Nuclear Operations

Attachments: None

Commitments made in this letter: None

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COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by William R. Matthews, who is Vice President - Nuclear Operations, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 31st day of August, 2000.

My Commission Expires: 3/31/04.

Maggie McClure
Notary Public

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