

# Vepco

VIRGINIA ELECTRIC AND POWER COMPANY, RICHMOND, VIRGINIA 23261

January 31, 1979

Mr. James P. O'Reilly  
Office of Inspection & Enforcement  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Serial No. 300A  
PSE&C/MLM:adw

Docket No. 50-339

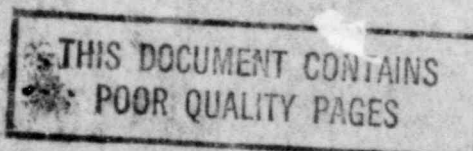
Dear Mr. O'Reilly:

In compliance with 10CFR50.55(e), NRC Region II was notified on April 28, 1978 that the maximum dose rates on the operating floor of North Anna Unit 2 could exceed the values presented in the FSAR, resulting in excess exposure to operating personnel. A detailed radiation survey was performed within selected areas of the reactor containment building at North Anna Unit 1 on June 27 and 28, 1978. The results of the survey indicated that the higher than expected neutron dose rates experienced in the Unit 1 containment were a result of neutron streaming from the reactor cavity. Also, the principal contribution to the gamma dose rate was determined to be from neutron capture in the concrete and liner of the containment.

An interim report was submitted to NRC Region II on May 25, 1978 (Serial No. 300) stating that we were investigating several methods of reducing the higher than anticipated radiation levels. Stone & Webster Engineering Corporation as the architect engineer for Vepco has designed a collar/saddle shield for North Anna Unit 2 to reduce the dose rates on the operating floor of the reactor containment. The location of the supplemental shield is somewhat different from shielding solutions proposed at other plants. The "usual" solution to this shielding problem has been the design of an annular shield above the reactor vessel head. The novel design for the shield which we propose has a substantial advantage over previous designs in that removal of the shield is not required during refueling operations.

Attached you will find Description of Neutron Supplementary Shield which describes in detail the collar/saddle shield and the radiation analysis performed to determine the adequacy of the supplemental shield. Also, a comprehensive reevaluation of the RPV support system was conducted in a manner similar to that described in Appendix 5A, Section 5A.4.4 of the FSAR. Details of this analysis are presented in the attached document.

Vepco will obtain experimental confirmation of the adequacy of the shield design for North Anna Unit 2 following startup of Unit 2.



**Vepco**

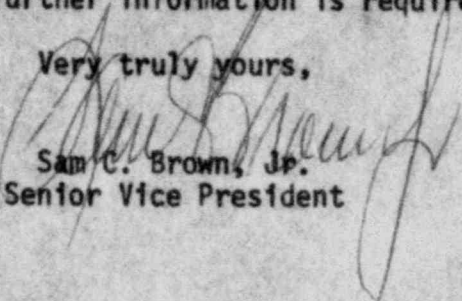
Mr. James P. O'Reilly

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We consider this to be the final report under the provisions of 10CFR50.55(e). Please contact me if further information is required.

Very truly yours,

  
Sam C. Brown, Jr.  
Senior Vice President

**Attachment**

cc: Mr. John G. Davis, Acting Director  
Office of Inspection & Enforcement

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation