

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

R. H. LEASBURG  
VICE PRESIDENT  
NUCLEAR OPERATIONS

May 20, 1982

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
Attn: Mr. Robert A. Clark, Chief  
Operating Reactors Branch No. 3  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Serial No. 233  
PSE&CS/WCS/KSB:cdk  
Docket Nos. 50-338  
50-339  
License Nos. NPF-4  
NPF-7

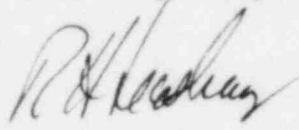
Gentlemen:

GENERAL DESIGN CRITERIA 17 ANALYSIS  
NORTH ANNA UNIT NOS. 1 AND 2

The purpose of this letter is to formalize our responses to your questions concerning our General Design Criteria 17 submittal, Serial No. 076, dated February 26, 1982. These responses were discussed with Messrs. L. B. Engle, A. Udy and R. Trevatte in a telephone conference on April 15, 1982. The questions and responses are provided in Attachment I entitled "General Design Criteria 17 - Response to NRC Questions".

The outstanding items identified in this letter will be answered by May 28, 1982.

Yours very truly,



R. H. Leasburg

WCS:cdk:2356A

Attachment

cc: Mr. J. P. O'Reilly, Regional Administrator  
Office of Inspection and Enforcement  
Region II

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ATTACHMENT I  
GENERAL DESIGN CRITERIA 17  
RESPONSE TO NRC QUESTIONS  
NORTH ANNA UNIT NOS. 1 AND 2

NRC Question 1

"Appendix A shows that the reserve transformers are the preferred offsite source of power for all Class 1E buses. Attachment I, Section V indicates that this is correct - the normal mode of operation for the station, Attachment I, Summary, Section 1 indicates otherwise. Clear up this inconsistency."

Vepco Response

Attachment I, Summary, Section 1 indicates that the normal to emergency bus ties established an additional source of offsite power to the emergency bus under normal conditions. However, the RSSTs are still the preferred offsite source of power to the emergency buses.

NRC Question 2

"Wasn't USST 1B, via bus 1B, to be the preferred source for bus 1H, and USST 1A, via bus 1A, to be the preferred source for bus 2J (rather than RSST C via bus F)?"

Vepco Response

No; the reserve station service transformer is the preferred source and the normal station service transformer is an alternate source.

NRC Question 3

"Will Unit 2 emergency to station service bus ties be installed? There is no analysis to support the 2H and 2J bus tie."

Vepco Response

Vepco plans to install the Unit 2 emergency to station service bus ties in order to provide more operating flexibility. The analysis for these ties has been included in our GDC-17 effort, but the schedule for installation has not been determined at this time. There is no analysis required to support the 2H to 2J bus tie, since the tie may only be operated during Modes 5 and 6.

NRC Question 4

"It is possible for buses 1H, 2J and 2H to be powered by RSST C simultaneously. Your operating restriction, which should be a technical specification limiting condition of operation, only addressed what action is needed for bus 2J when bus 2H is connected to transformer C. It should also make provision for bus 1H."

Vepco Response

Based on our operating restriction, Bus 2J will not be supplied from RSST C at the same time bus 2H is supplied from RSST C. With regard to Bus 1H, it is immaterial which Unit 2 bus is being fed from RSST C. No operating restriction concerning Bus 1H is required when bus 2H is connected to bus 2C.

Presently, the Unit 2 normal to emergency bus ties are not installed. We are exploring the possibility of incorporating into our technical specification the operating restriction concerning use of the tie between buses 2H and 2C.

NRC Question 5

"What will be the setpoints for your overvoltage alarms? Will there be coincidence logic on each bus? Will they be designed to IEEE Std. 279?"

Vepco Response

The design of the overvoltage protection has not be finalized. We estimate the conceptual design will be completed in approximately one month. We will answer this question at that time.

NRC Question 6

"Is it possible for the switchyard voltage to be between 505 and 520 KV prior to an accident? The analysis assumes that the voltage drops to 505 KV with a unit trip. What will the resultant switchyard voltage be if the initial voltage is less than 520 KV?"

Vepco Response

Yes, we do go below 520 KV, but we believe it is a good basis for the voltage analysis for the following reasons:

- 1) The case studied was a two unit simultaneous trip at 520 KV which would result in a maximum voltage drop of 13 KV. We added 2 KV for margin resulting in a voltage of 505 KV.

2) Operating below 520 KV reduces the 15 KV drop because of the following:

- a) A lower than scheduled voltage will result in more VARS being supplied from outside the Vepco system to hold the voltage higher.
- b) A lower voltage at heavy load will result in a larger percentage of the load being supplied outside the nuclear plant along with a higher percent of the Volt-Amperes Reactive (VARs) also being supplied outside the nuclear plant. This will also reduce the 15 KV voltage.
- c) From our past records lower voltages occur more often with one unit on line at a time. A one unit trip only results in a drop of 5 KV at the nuclear station.

3) According to our records (voltage charts) we have only operated below 505 KV with two units on line for .03% of the operating time.

Therefore, we feel that the 505 KV to 535 KV analysis used in GDC-17 is valid.

NRC Question 7

"What is the typical feeder voltage drop (both steady-state and transient conditions) from a 480 V bus to:

- a. a MCC contactor
- b. a non-MOV load, and
- c. a MOV load

And from a 480 V MCC to:

- a. a non-MOV load, and
- b. a MOV load?"

Vepco Response

Additional calculations are required to provide a typical voltage drop from a 480 V bus to a MCC contactor. The computer program used in our analysis calculates a maximum control cable lead length based on bus voltage and contactor voltage requirements. This calculation will be completed in approximately one month and the results will be submitted at that time.

The additional information required to answer this question is available within existing calculations and will be supplied with the rest of the outstanding items.

NRC Question 8

"What is the basis for the interrupting rating of the generator breaker?"

Vepco Response

Included in the generator breaker technical specifications are impedance values from which the maximum symmetrical and asymmetrical faults, which the breaker would be required to interrupt, can be calculated. These values are a result of computer analyses of potential worst case electrical faults. The breaker will interrupt the worst case generator contribution to a fault and it will interrupt the worst case system contribution to a fault.

NRC Question 9

"What is the current schedule for the review being conducted by the MOV and valve manufacturers?"

Vepco Response

Staggered receipt of information from the valve manufacturer is expected over the next three (3) months. Review by the MOV manufacturers is ongoing and will continue as additional information is supplied by Vepco and/or the valve manufacturer.