

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

W. L. STEWART
VICE PRESIDENT
NUCLEAR OPERATIONS

December 23, 1985

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. Lester S. Rubenstein, Director
PWR Project Directorate #2
Division of PWR Licensing-A
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Serial No. 85-750B
NO/ALM/vlh
Docket No. 50-338
License No. NPF-4

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT NO. 1
GENERAL DESIGN CRITERION 17 MODIFICATION STATUS

Virginia Electric and Power Company has completed General Design Criterion (GDC) 17 required modifications for North Anna Unit 1 as discussed in our letters of November 28, 1984 and June 28, 1985, Serial Nos. 253F and 85-491. We have resolved the questions concerning analysis data versus plant performance data of several MOVs that were discussed in our letters to you dated October 21, 1985 and November 15, 1985, Serial Nos. 85-750 and 85-750A, and determined that no additional GDC 17 required modifications are necessary.

We would like to clarify our position on MOV enhancements, specifically the installation of torque switch limiter plates, that is referenced in your Safety Evaluation (SE) dated November 13, 1984, and our letters of February 26, 1982 and May 15, 1984, Serial Nos. 76 and 253. As discussed below, ensuring protection of the motor after the MOV performs its intended safety function is a concern raised in our GDC 17 analysis, and installation of the torque switch limiter plates is but one method of providing this protection. However, it is now our intention to address this concern thru administrative measures that control torque switch settings.

Our GDC 17 analysis has shown that the 26 MOVs that are required to operate when the emergency bus voltage is at 80% of rated voltage will perform their intended safety function. The attached diagram is intended to illustrate the relationship of this and several other MOV characteristics in order to facilitate discussion of our analysis. This diagram implies that when the motor voltage drops to 80% the maximum developed torque output possible also decreases due to the proportional relationship between motor voltage and torque. The GDC 17 concern for proper MOV operability is addressed by ensuring that the MOV's maximum developed torque output possible at 80% rated voltage is higher than the torque required to operate the valve.

AD - J. Knight (ltr only)
EB (BALLARD)
EICSB (ROSA)
PSB (GAMMILL)
RSB (BERLINGER)
FOB (BENAROYA)

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At reduced voltages, we had a concern that the motor may not develop sufficient torque to operate the torque switch when seating a valve or upon initiation of a mechanical overload (i.e., valve blockage, operator binding, etc.). If this occurs, possible damage to the motor may result. To protect the motor from damage, we verified by analysis that the motor's maximum developed torque output possible at 80% rated voltage is higher than the torque switch setting range for normal and accident operation. We had further planned to install torque switch limiter plates to prevent raising the torque switch setting above the 80% voltage capability of the motor. However, the installation of torque switch limiter plates is not required since the same measure of control is presently being achieved through administrative measures.

The administrative control is being accomplished by 1) maintaining a controlled document that specifies the maximum allowable torque switch setting (consistent with our GDC 17 analysis) and the design torque switch setting for operation of the valve, and 2) implementing a procedure that requires review of this controlled document prior to resetting any of the 26 MOV torque switches. These two administrative measures will provide adequate assurance that the MOV torque switch settings would not be altered without first performing a review to determine the acceptable range. This type of administrative control is successfully utilized for other plant equipment and systems. Therefore, it is our intention to control torque switch settings through administrative measures rather than installing limiter plates as stated in previous correspondence.

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

Very truly yours,


for W. L. Stewart

Attachment

VIRGINIA ELECTRIC AND POWER COMPANY TO Mr. Harold R. Denton

cc: Dr. J. Nelson Grace
Regional Administrator
NRC Region II

Mr. Morris W. Branch
NRC Resident Inspector
North Anna Power Station

Mr. Leon B. Engle
NRC North Anna Project Manager
PWR Project Directorate #2
Division of PWR Licensing-A

Max. developed torque possible
at 100 % rated voltage

Max. developed torque possible
at 80 % rated voltage

GDC17 max. torque switch
setting

Torque required to operate
valve

*Allowable torque switch setting
range for normal and accident
valve operating conditions*

Increasing
Torque

MOV CHARACTERISTICS