

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

R. H. LEASBURG  
VICE PRESIDENT  
NUCLEAR OPERATIONS

September 30, 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. 547  
NO/SWB:ms  
Docket Nos. 50-338  
50-339  
License Nos. NPF-4  
NPF-7

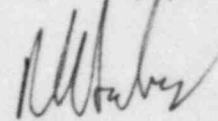
Gentlemen:

APPENDIX R POST FIRE SAFE SHUTDOWN REVIEW  
NORTH ANNA POWER STATION UNITS 1 AND 2

The purpose of this letter is to revise the North Anna Power Station Appendix R Post Fire Safe Shutdown Review submitted by Vepco letter Serial No. 370 dated June 22, 1982. In a meeting between Vepco and the NRC in Bethesda, MD August 5, 1982, the NRC requested that Vepco provide the consequences of a stuck open PORV in regard to time available for operator action. The results of a study which calculated the time available after a "stuck open PORV event" before an unsafe condition is reached are documented in the attached revised pages to the North Anna Power Station Appendix R Post Shutdown Review. In addition, revised procedural commitments have been established as described by the attached pages. Please substitute these pages for the pages in the original document.

If you have any questions, please contact us.

Very truly yours,



R. H. Leasburg

Attachment

cc: Richard C. DeYoung, Director  
Office of Inspection and Enforcement  
Washington, D. C. 20555

Mr. James P. O'Reilly, Regional Administrator  
Office of Inspection and Enforcement  
Region II  
Atlanta, Georgia 30303

A006

<u>VALVES</u>	<u>FUNCTION</u>
1-MOV-1700	RHR Interlock Valve
2-MOV-2700	RHR Interlock Valve
1-MOV-1701	RHR Interlock Valve
2-MOV-2701	RHR Interlock Valve
1-PCV-1455C	Pressurizer Relief
2-PCV-2455C	Pressurizer Relief
1-PCV-1456	Pressurizer Relief
2-PCV-2456	Pressurizer Relief
1-HCV-MS104	Atm. Decay Heat Release
2-HCV-MS204	Atm. Decay Heat Release
PCV-MS-101A	Stm. Gen. Pressure Control
PCV-MS-201A	Stm. Gen. Pressure Control
PCV-MS-101B	Stm. Gen. Pressure Control
PCV-MS-201B	Stm. Gen. Pressure Control
PCV-MS-101C	Stm. Gen. Pressure Control
PCV-MS-201C	Stm. Gen. Pressure Control

In order to assure that spurious operation of these valves do not affect safe shutdown, the following conclusions have been determined and the additional precautions as listed below will be taken.

The RHR interlocks valves protect the high-low pressure interface between the RHR system and the reactor coolant system. In order to open this high-low interface it is necessary to open both MOV-1700 and MOV-1701. In order for a fire to cause this event a hot short would have to occur inside the breaker. A short in the control circuit outside the breaker could not cause the valve to be driven open. The breakers are located in the cable vault on separate emergency buses. The possibility of a single fire causing the same type of short in both breakers is remote. However, normal station procedure calls for the breakers for one of the series MOVs to be open at all times when the primary plant is above the residual heat removal system operating pressure.

The power operated pressurizer relief valves control circuit could become damaged by a fire in the Emergency Switchgear or the Control Room that would cause the power operated pressurizer relief valves to open. Conservative calculations indicate that greater than 20 minutes are available for operator action prior to the start of core uncover assuming no safety injection or charging pump flow from the opposite unit and a stuck open PORV. While not an unsafe condition, it is not desirable to approach the start of core uncover; therefore, the following provisions will be implemented to avoid approaching an unsafe condition:

- (a) In the event of a fire in the Emergency Switchgear Room or the Control Room, procedures will require increased surveillance on PORV indication.

- (b) In the event of a fire in the Control Room or Emergency Switchgear Room procedures will require opening the control power breaker when status indication of either PORV is lost or conflicting status indication exists. The control loop is powered from a 120V breaker and opening the breaker would close the valve. The breaker can be opened in less than 4 minutes after conditions warrant opening the breaker.
- (c) In the event Control Room evacuation is required, the breakers will immediately be opened regardless of the status of the PORVs.

The atmospheric decay heat release valves and the steam generator pressure control valves have similar control circuits since the valves will fail closed if the control circuit power is de-energized. The procedural guidelines dealing with the alternate shutdown methods during a fire will give the location of the control circuit breakers.

#### 1.c METHODOLOGY

"Provide a table that lists all the cables in the fire area that share a common enclosure with circuits of the alternative or dedicated shutdown systems and the function of each cable listed."

##### RESULTS

The study revealed no circuits that share a common enclosure with circuits of the alternative shutdown systems.

#### 1.d METHODOLOGY

"Show that fire-induced failures (hot shorts, open circuits or short to ground) of each of the cables listed in 1a, 1b and 1c will not prevent operation or cause maloperation of the alternative or dedicated shutdown method."

##### RESULTS

The results of 1a, 1b and 1c above addressed how maloperation of the alternative method would be prevented and how spurious operation of equipment would not adversely affect shutdown.

#### 1.e METHODOLOGY

"For each cable listed in 1a, 1b and 1c where new electrical isolation has been provided or modification to existing electrical isolation has been made provide detailed electrical schematic drawings that show each cable is isolated from the fire area."

##### RESULTS

No new electrical isolation is required to be made as a result of the methodology required by the studies listed above.

The following discussion addresses one additional conclusion reached by this study.