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REGISTRATION SERVICES

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

December 23, 1980

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
Attn: Darrell G. Eisenhut, Director  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Serial No. 1009  
NO/SWB:jmj  
Docket Nos. 50-280  
50-281  
50-338  
50-339  
License Nos. DPR-32  
DPR-37  
NPF-4  
NPF-7

Dear Mr. Denton:

FIRE PROTECTION REVIEW  
NORTH ANNA AND SURRY POWER STATIONS

NRC letter dated November 24, 1980 transmitted a copy of 10 CFR50.48 and the new Appendix R to 10 CFR50 as published in the Federal Register. The purpose of this letter is to provide a response to the Appendix R requirements as applicable to Surry and North Anna Power Stations and specifically address the NRC letter dated November 24, 1980 in regard to the Surry Power Station fire protection.

Appendix R requires licensees to submit a design description of modifications needed to satisfy the requirements of Section III.G. The following describes the modifications required to provide alternative or dedicated shutdown capability and it's associated circuits, independent of cables, systems or components in the area for Surry and North Anna Power Stations.

Surry Units 1 and 2

The following alternate shutdown systems approved by the Fire Protection Safety Evaluation Report are required to comply with Section III.G of Appendix R.

1. Cross connection of Unit 1 and Unit 2 charging pumps.
2. Alternate source of charging pump service water.
3. Remote panel with alternate capability for monitoring parameters required for safe shutdown.

Design descriptions of the above modifications were previously submitted by VEPCO letters Serial Nos. 869 and 885 dated October 29, 1980 and October 31, 1980. In addition the Safe Shutdown Evaluation submitted by VEPCO letter Serial No. 885 dated October 31, 1980 demonstrated the ability to perform a safe shutdown in event of a fire in any area once these modifications are installed.

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North Anna Units 1 and 2

The following alternate shutdown systems approved by the Fire Protection Safety Evaluation Report are required to comply with Section III.G of Appendix R.

1. Cross connection of Unit 1 and Unit 2 charging pumps.
2. Remote panel with alternate capability for monitoring parameters required for safe shutdown.

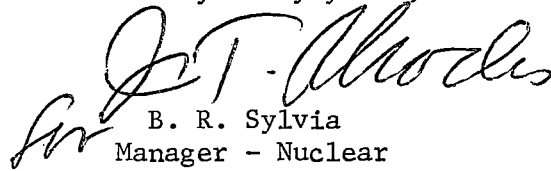
The conceptual design and analysis of the modifications are documented in the North Anna Power Station Safety Evaluation Report dated February 1979. Additional design descriptions are provided by Attachment (1) of this letter.

The NRC letter dated November 24, 1980 also addressed the Surry Power Station fire protection review and indicated that certain provisions of Appendix R are applicable to Surry Power Station due to "Open" items of the NRC staff fire protection review.

We have reviewed the "Open" items as listed by enclosure (2) of your letter and have determined that no "Open" items exist as detailed by Attachment (2) of this letter and therefore conclude Surry Power Station is exempt from Appendix R provisions except for the "backfit" items.

In summary, VEPCO has reviewed 10 CFR50.48 and the new Appendix R to 10CFR50 and has concluded that North Anna and Surry Power Stations are in compliance with 10 CFR 50.48 and specifically Section III.G of Appendix R to 10 CFR 50 with exception of 8 hour emergency lights in egress routes from safe shutdown equipment as required by Section III.J of Appendix R. Therefore upon completion of the modifications required by the Safety Evaluation Reports at Surry and North Anna and the installation of egress emergency lights as required by III.J of Appendix R, the fire protection review of both North Anna and Surry will be closed.

Very truly yours,

  
B. R. Sylvia  
Manager - Nuclear  
Operations and Maintenance

Attachments

cc: Mr. James P. O'Reilly, Director  
Office of Inspection and Enforcement  
Region II

NORTH ANNA ALTERNATE SHUTDOWN SYSTEMS  
DESIGN DESCRIPTIONS

CHARGING PUMP CROSS-CONNECT

If a fire occurs in the cable vault and tunnel, motor control center room area, it is possible that cables providing power and control to the charging pumps for one unit may be affected.

To nullify the effects of cable loss for the charging pumps, the Units 1 and 2 charging pump discharge lines will be cross-connected. The cross-connect would allow the charging pumps from the "unaffected" unit to supply borated water for both units to allow them to reach a cold shutdown condition. Power, instrument, and control associated with the charging pumps would be from the unaffected unit's power sources and routed completely outside the cable vault and tunnel of the affected unit.

As shown on the attached sketch, the cross-connect would be provided with two manual, normally locked closed isolation valves. Between the valves would be normally closed drain valves and a pressure gage to indicate a pressure buildup within this space between the valves. The isolation valves would be opened only in the event of incapacitation of all of one unit's charging pumps due to a postulated fire. All valves and piping will be designed to Category I.

The intended operation of this system would be to use one or more of the pumps from the plant unaffected by a fire to supply borated water as needed to the affected plant to allow a cold shutdown. Manual control of boration and of the pumps would be used. Shutdown of the unaffected plant would also be performed. Component cooling water is available to both units. The reactor coolant pumps for the affected unit would be inoperable due to the fire.

REMOTE PRIMARY INSTRUMENTATION PANEL

The basis for this modification is to provide a means of monitoring primary loop parameters that is not subject to failure due to a fire which could cause a loss of existing primary loop instrumentation.

This modification provides for the addition of instrument cables and indicators. These indicators are physically separated from existing instrument loops to prevent common failure due to a fire. These indicate pressurizer level, pressurizer pressure, and primary loop temperature. New level and pressure transmitters are installed that tap off of existing piping. An existing temperature element is used for temperature indication. The cables associated with these indicators are brought out of containment into the Fuel Building. The Auxiliary Monitoring panel, 2-EI-CB-97A, is located on the north wall of the Fuel Building. It houses the indicators and an uninterruptible power supply consisting of a battery and charger. The charger is fed from a power source capable of being fed from either Unit 1 or 2, therefore supplying continuous power for these indicators.

RESPONSE TO SUMMARY OF STAFF REQUIREMENTS  
SURRY POWER STATION

(Item designation is similiar to that given by Enclosure 2 to NRC letter dated November 24, 1980)

Section 3.1.4 . . . . . Safe Shutdown

The Surry Fire Protection SER committed VEPCO to re-evaluate plant areas to determine the potential effects of fire on safe shutdown capability by October 31, 1980. Attachment I to VEPCO letter Serial No. 885 dated October 31, 1980 answered this concern. In addition, detailed design information on modifications referenced in title have been answered in VEPCO status letters.

Section 3.1.10(1) Fire Barriers

This concern was answered by VEPCO letter Serial No. 869, dated October 29, 1980, Attachment III, Fire Barriers.

Section 3.1.16(2) Gas Suppression Systems

This concern was answered by VEPCO letter Serial No. 869, dated October 29, 1980, Attachment III, 3.1.16 Gas Suppression Systems.

Section 3.1.18(1), (3), (7), and (8), Hose Stations

Attachment I of VEPCO letter Serial No. 885 dated October 31, 1980 addresses the NRC concern regarding hose stations.

Section 3.1.24 Penetrations

Attachment I of VEPCO letter Serial No. 885 dated October 31, 1980 addresses penetration seals.

Section 3.1.25(2) Safe Shutdown

NRC concerns regarding the redundant water supply to the charging pump cooling system were addressed by Attachment III item 3.1.25(2) of VEPCO letter Serial No. 885, dated October 31, 1980 and are further discussed as follows:

- (1) Each charging pump service water pump has a design flow of 45 gpm. One charging pump service water pump is required for each unit. Therefore the maximum flow through the coolers with both charging pumps in operation is 90 gpm. Flow indicators are installed so that this flow would never be exceeded. This flow is negligible in compansion to the 2500 gpm capacity of the fire pump.
- (2) Section C.2.(a) of Appendix A to BTP 9.5-1 allows fire water to be connected to the service water system if the fire system can be isolated.

Since the above discussion satisfactorily resolves the NRC concerns with the alternate water source for the charging pump service water system, VEPCO is proceeding with installation of the system in order to comply with the Safety Evaluation Report commitment dates.

