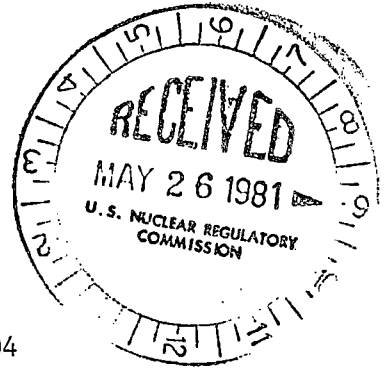


VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

May 19, 1981



Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
Attn: Mr. Steven A. Varga, Chief  
Operating Reactors Branch No. 1  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Serial No. 304  
NO/SWB:jmj  
Docket Nos.: 50-280  
50-281  
License Nos.: DPR-32  
DPR-37

Gentlemen:

FIRE PROTECTION INFORMATION  
SURRY POWER STATION

NRC letter dated February 20, 1981 requested information from all power reactor licensees licensed prior to January 1, 1979 in regard to meeting the requirements of Sections III.G, III.J, and III.O of Appendix R to 10CFR50. NRC letter dated March 18, 1981 requested similar information to support a review of Surry Power Station's alternate shutdown method. The purpose of this letter is to provide the information requested by the February 20, 1981 and the March 18, 1981 letters. In addition a status report of fire protection modifications required by the Safety Evaluation Report is given.

The information required by Section 8 of the NRC letter dated February 20, 1981 were provided by Vepco letters Serial Nos. 869, and 885 dated October 29, 1980 and October 31, 1980. Attachment I provides the information requested by the NRC letter dated March 18, 1981. In regard to your ongoing review of the alternative shutdown capability and the concern for power and control circuits associated with the alternate shutdown method, we wish to emphasize that the alternate system utilizes the opposite unit's equipment. The control cables, power cables and any associated cables necessary for the operation of the alternate system are located within the confines of the unaffected unit and therefore any one fire area can be avoided. This method is described for each fire area in Vepco letter Serial No. 885 dated October 31, 1980.

Attachment II is a status report of modifications that remain to be completed in accordance with the Safety Evaluation Report. In addition, the report contains the implementation date of the upgraded power supplies for the emergency lights required by III.J of Appendix R of 10CFR50.

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In regard to SER item 3.1.25(2) (Charging Pump Service Water Redundant Water Supply), NRC disapproved Vepco's design in a meeting in Bethesda, January 23, 1981. Conceptual design is now being developed on several alternate designs all of which have some drawbacks. Vepco requests an implementation extension of SER item 3.1.25(2). Vepco will give design details of an alternate design by June 30, 1981. At this time an implementation date for the modification can be given. It is necessary to delay committing to a new installation date at this time since lead times of material varies greatly with the concept selected. We will be glad to discuss the alternative concepts in a meeting between now and June 30, 1981 if you so desire.

In summary, Vepco has reassessed Appendix R to 10CFR50 and concludes that Surry Power Station is in compliance with 10CFR50.48 upon completion of the modifications listed in the status report.

If you have any questions or comments, please contact us.

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

SURRY POWER STATION  
FIRE PROTECTION INFORMATION

Item Designation is Similiar to Interim Report Dated March 18, 1981

- A. The alternative shutdown capability meets the requirements of Section III.L of Appendix R to 10CFR Part 50. Design descriptions of the alternate shutdown systems were submitted by Vepco letters Serial Nos. 869 and 885 dated October 29, 1980 and October 31, 1980. However, the tie-in point of the Unit 1 and Unit 2 charging pump cross connect has been modified. The new tie-in point is inside MOV 1286C/MOV 1287C and MOV 2286C/MOV 2287C as shown on the attached sketch.
- B. The process monitoring necessary to perform and control reactivity reactor coolant makeup and reactor heat removal is provided for on the remote panel as described by Vepco letters Serial Nos. 869 and 885. The variable necessary for safe shutdown were also described in the Surry Fire Protection Safe Shutdown Evaluation and shown to be sufficient.
- C. Repair procedures to splice or reterminate power cables, including temporary breakers are now available on site. Per the Surry Fire Protection Safe Shutdown Evaluation RHR pump cable and pressurizer heater cables can be replaced and cold shutdown reached in 72 hours. The above equipment is the only equipment that is needed to reach cold shutdown that does not have alternative capability and may need to be repaired.
- D. An alternate means other than fire protection water to provide a backup for cooling water to the charging pump is now being investigated.
- E. The alternative method for maintaining the seal cooling temperature by operating the charging pumps in the "on-off" mode was mentioned since it is another option. Another means for maintaining seal cooling will be provided (See Surry Fire Protection Status (Attachment II)).
- G. All support equipment necessary for safe shutdown has been identified in the Surry Fire Protection Safe Shutdown Evaluation (10-31-80).
- H. (1) Vepco letter Serial No. 1009 December 23, 1980 listed the systems required for the alternative shutdown method and Vepco letters Serial Nos. 869 and 885 dated October 29, 1980 and October 31, 1980 described the design of the systems. A list of the equipment that comprises the alternate shutdown system is given below:
  - 1. Cross connection of Unit 1 and Unit 2 charging pumps
  - 2. Alternate source of charging pump service water (NRC disapproved the original design 1/23/81). Vepco pursuing new design.

3. Remote panel with alternate capability for monitoring the following parameters:

1. Reactor Coolant Wide Range Pressure
2. Steam Generators Level
3. Pressurizer Level
4. Reactor Coolant Temperature

- (2) As described in the Surry Fire Protection Safe Shutdown Evaluation each fire area is evaluated and areas that require an alternate system to circumvent the fire area are given. In each case a list of equipment and cables that are in the fire area and needed for maintaining hot shutdown are given. A description of how the alternate shutdown system is used to circumvent the loss of the required equipment follows. The only exception to the statement that there is no equipment or cables in any one fire area that cannot be circumvented by the alternate shutdown system or a portion of the alternate shutdown system resulted from a change in the location of the tie-in for the charging pump cross connect as described by the design description (Attachment II) and as follows.

Outside Containment Penetration Vaults Cable Tunnels and Service Building Cable Vaults

The charging pump cross connect tie-in to both units is between "C" charging pumps and the "C" pumps discharge MOVs. The purpose for this new location for the tie-in is:

- a. To facilitate a possible future modification of tying opposite units charging pump suction lines together as a result of degraded core procedures being developed to give operations more flexibility in the event of failed fuel accident along with loss of all three charging pumps.
- b. "C" charging pumps have dual power feeds and "C" pump could be dedicated to the cross connect and the disabled unit by closing the "C" discharge MOVs.

The power cables and breakers for the "C" discharge pump MOVs are located in the Cable Vault.

A fire in this area could cause a short or sever the control cables from the MOV and cause the normally open discharge valves to close or stay closed.

It would be necessary for both discharge MOVs to be driven closed due to a short to cause a potential problem since there are two discharge MOVs for each charging pump and they are in parallel. Both MOVs are powered from the cable vault however they are safety related and the power and control cables are run in separate trays. The breakers for the MOVs are separated by approximately 10 feet. In the remote possibility the fire caused the exact same failure in both valves, the cross connect could be placed in service by manually opening the MOV.

- (3) The only cables that are in a fire area that control equipment that is associated with the alternate shutdown method are the safety related power feeds and control cable to either MOV 1286C and MOV 1287C or MOV 2286C and MOV 2287C depending on which is the fire affected unit.
- (4) A fire in the cable vault and tunnel is the area which presents the remote possibility of causing interference of the alternate shutdown system. The interference will occur only if the fire cause a short in the control circuit or in the abnormal event if the valve is already closed, a loss of the power cables. This event would have to take place in both MOVs. The problem described can be overcome as described in (2) and (3) above by the same personnel that would be required to be in the auxiliary building to open the cross connect in order to circumvent a fire in the cable tunnel. This can be verified to be a simple operation.
- (5) The above described cables are not isolated from the fire area (cable tunnel). However the worst possible malfunction can be easily corrected at the MOV in the auxiliary building by the same operator that opens the cross connect valve.
- I. (a) The residual heat removal system is the only high-low pressure interface that uses redundant motor operated valves to isolate the primary boundary from a low pressure boundary.
- (b) The following is a routing of Unit 1 control and power cables for both RHR inlet MOVs (1700 and 1701). Unit 2 is identical.

POWER CABLES

<u>LOCATION</u>	<u>COMPONENT</u>
Cable Vault	480V Breakers
Electrical Penetration	Power Cable
Containment	MOVS

CONTROL POWER

<u>LOCATION</u>	<u>COMPONENT</u>
Control Room	Control Switch, Control Wire
Emergency Switchgear Room	Control Wire
Relay Room	Comparator, Control Wire
Cable Tunnel	Control Wire
Containment	Control Wire Limit Switch

- (c) Separation of redundant cables in all areas described above is less than 3 hours.
- (d) The existing design is acceptable since the breakers for one of the in series MOVs is required by Technical Specifications to be locked out at all times when the primary plant is above the residual heat removal system operating pressure (465 psig).

SURRY STATUS REPORT ON  
FIRE PROTECTION MODIFICATIONS

All fire protection modifications required by the Safety Evaluation Report are complete with the following exceptions. All modifications will be completed by the commitment dates given in the Safety Evaluation Report. The listing below gives the anticipated completion dates.

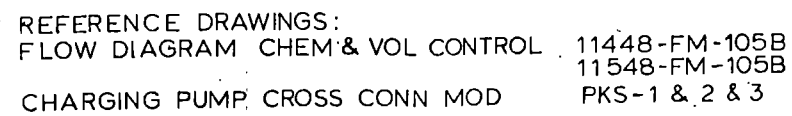
<u>Modification</u>	<u>SER ITEM NO.</u>	<u>ANTICIPATED COMPLETION DATE</u>
Safe Shutdown Circuitry Unit 1	3.1.5	Prior to startup*
Safe Shutdown Circuitry Unit 2	3.1.5	September 1, 1981
Fire Detection Systems Unit 1	3.1.9	Prior to startup*
Fire Detection Systems Unit 2	3.1.9	Containment work complete. Remaining work by July 15, 1981.
Monitoring Panel Unit 1	3.1.23	Prior to startup*
Monitoring Panel Unit 2	3.1.23	July 30, 1981
Charging Pump Cross Connect Unit 1 and 2	3.1.25(1)	Unit 2 work complete. Remaining work to be completed prior to startup*
RCP Oil Collection System Unit 1	3.1.15(4)	Prior to startup*
RCP Oil Collection System Unit 2	3.1.15(4)	Installation 25% complete. Remaining work to be completed next refueling*
Charging Pump Service Water Redundant Water Supply Unit 1 and 2	3.1.25(2)	NRC disapproved Vepco's design 1/23/81. Vepco pursuing new design. Vepco requesting implementation extension see cover letter
Emergency Lighting	-----	Emergency Lighting installed per SER. However III.J of Appendix R to 10CFR50.48 requires 8 hour battery supply. Vepco will replace any existing 2 hour batteries by Nov. 17, 1981. This design modification requires only replacement of battery supplies.

\*SER Commitment Dates

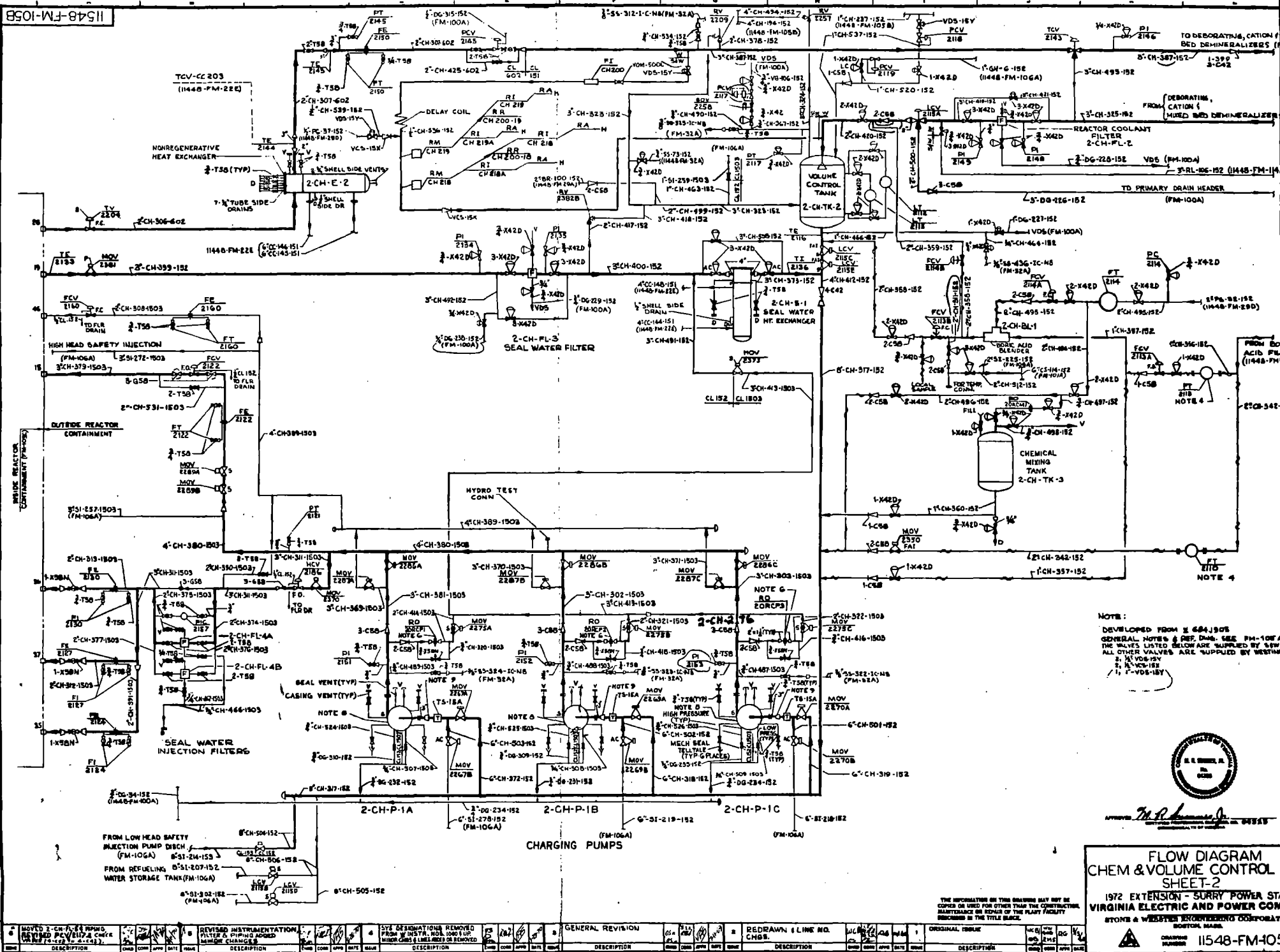
3.1.25 CHARGING PUMP CROSS CONNECT

Vepco letter Serial No. 869 dated October 29, 1980 submitted design description of the charging pump cross connect. Prior to installation of the system a modification was made in regard to the tie-in location of the cross connect piping. The attached sketch shows the new arrangement. The advantages of the new tie-in location is as follows:

- a. "C" charging pumps have dual power feed and "C" pump could be dedicated to the cross connect and the disabled unit by closing the operating "C" charging pump MOVs.
- b. Facilitates a possible future modification of tying Unit 1 and 2 "C" charging pump suction lines together to give operations more flexibility in dealing with events other than fire that could affect high head safety injection.








**FLOW DIAGRAM  
CHEM & VOLUME CONTROL  
SHEET-2**

1972 EXTENSION - SURRY POWER STATION  
**VIRGINIA ELECTRIC AND POWER COMPANY**

**STONE & WILSON ENGINEERING CORPORATION**  
DIGITAL, MASS.

 CHANGING  
NUMBER 11548-FM40