Docket

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

December 18, 1980

Docket Nos. 50-280
and 50-281

Mr. J. H. Ferguson
Executive Vice President - Power
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

Dear Mr. Ferguson:

We have reviewed the information you provided to date regarding the Surry Fire Protection Program. This includes your last two submittals dated October 29 and 31, 1980.

Enclosure 1 presents Supplement 1 of our evaluation of several open items indicated in our Fire Protection Safety Evaluation Report issued September 19, 1979. Items 3.1.4 and 3.1.10 were found to be not acceptable as described in Enclosure 1. Items 3.1.9, 3.1.16, 3.1.24, 3.1.26(3), 3.1.29, 3.2.1, 3.2.2 and 3.2.4 are acceptable. The required completion dates for the modifications associated with these latter items that have been accepted by the Supplement are specified by paragraph (d) of 10 CFR 50.48 using the date of this Supplement as "the date of the NRC Staff Fire Protection Evaluation Report accepting or requiring such features."

Enclosure 2 provides the status of the Surry Fire Protection Program.

Sincerely,

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosures:
As Stated

cc: w/enclosures
See next page

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ENCLOSURE 1

SUPPLEMENT 1 TO FIRE PROTECTION
SAFETY EVALUATION REPORT DATED SEPTEMBER 19, 1980
SURRY POWER STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-280 AND 50-281

CABLE TRAY COVERS, SECTION 3.1.4
FIRE BARRIERS, SECTION 3.1.10

In the SER, it was our concern that the separation between redundant safety-related cables may not be adequate to prevent a single fire from affecting both divisions.

By letter dated October 29, 1980, the licensee provided the results of a field survey which identified cable tray sections which required cable tray covers and/or barriers. The minimum separation criteria was based on the distances specified in Reg. Guide 1.75, "Physical Independence of Electric Systems."

The minimum separation distances specified in Reg. Guide 1.75, "Physical Independence of Electric Systems," are not adequate to assure that one train of systems necessary to achieve and maintain safe shutdown conditions will be free from fire damage. Therefore, we conclude that the licensee's proposed modification is not acceptable.

For fire areas that contain redundant divisions necessary to achieve and maintain hot shutdown conditions, the licensee should provide one of the means outlined in Section III, Paragraph G of Appendix R to 10 CFR Part 50.48.

FIRE DETECTION SYSTEMS, SECTION 3.1.9

In the SER the concern was that the lack of early warning fire detection systems would allow fires to become fully developed and cause damage to safety-related systems. We recommended that the licensee provide early warning fire detection systems in the following areas:

(1) Areas of the control room complex adjacent to the main control room.

(2) In the vertical boards located in the main control room and at the ceiling of the main control room near the air flow return.

(3) Ventilation exhaust ducts of each battery room.

(4) The auxiliary building general area exhaust ventilation ducts.

(5) The ceiling of the spent fuel pool pump area.

(6) At the ceiling of the 19 feet 6 inches elevation of the safeguards equipment building.

(7) The emergency switchgear room and the relay rooms of each unit.

(8) The solid waste drumming room.

(9) The ventilation exhaust ducts from the containment spray pump and auxiliary feedwater pump building.

(10) The containment recirculation ventilation system and in the cable penetration areas inside containment.

(11) Ventilation exhaust system of mechanical equipment room #3.

(12) The charging pump exhaust ventilation ducts of the auxiliary building, elevation 13 feet.

(13) Both fire pump rooms.

By letter dated October 29, 1980, the licensee committed to install fire detection systems in all of the recommended areas. All new fire detection systems will be Class A as defined by NFPA 72D.

Based on the licensee's commitment, we conclude that the licensee's proposed modification meets Section E.1(a) of Appendix A to BTP APCSB 9.5-1 and, therefore, is acceptable.

GAS SUPPRESSION SYSTEMS, SECTION 3.1.16(3)

In the SER, it was our concern that the CO_2 fire suppression systems in the outside containment cable penetration vaults and the Service Building cable vaults were not adequate to ensure effective coverage of all cables.

By letter dated October 29, 1980, the licensee proposed to provide an additional branch header in the "High Bay" area of the Service Building cable vaults and an additional branch in the outside containment cable penetration vault in the area extending under the motor control center. Additionally, the discharge nozzles in the existing system will be replaced with 2 and 4 port radial discharge nozzles to direct the CO_2 discharge horizontally rather than downward.

The licensee's proposal to provide additional CO_2 discharge nozzles and to replace the existing nozzles with 2 and 4 port radial discharge nozzles will be adequate to ensure a more effective discharge of the CO_2 dystems in these areas. The CO_2 systems are installed to meet the requirements of NFPA 12.

Based on our review, we conclude that the licensee's CO_2 systems protecting the containment cable penetration vaults and the Service Building cable vaults meet Section E.5 of Appendix A to BTP APCSB 9.5-1 and, therefore, are acceptable.

PENETRATIONS, SECTION 3.1.24

In the SER, it was our concern that the penetration seals may not be adequate to prevent a fire in one area from propagating to adjacent areas. We recommended that the licensee verify that all penetrations (cable, pipe, and ventilation duct) were sealed to have a fire rating at least equivalent to the test criteria

described in the licensee's fire hazards analysis report. Further, all unsealed or inadequately sealed penetrations should be sealed, or the seals upgraded, to provide a fire resistance equal to the fire severity on both sides of the barrier to a maximum of three hours.

By letter dated October 31, 1980, the licensee verified that all penetrations between boundaries of fire areas (cable, pipe, and ventilation duct) are sealed to have a fire rating at least equivalent to the test criteria described by the fire hazards analysis.

The licensee's fire test for penetration seals, as described in their fire hazard analysis, utilizes a gas burner as a flame source. The test on each specimen was for 3-hours or until smoke or flame penetrated the top of the sealing material. We have reviewed the licensee's fire test for fire stops and penetration seals and have determined it to be an acceptable test method for penetration seals.

Based on the licensee's verification that all penetration seals have been tested in accordance with an acceptable test method and provide a fire rating equivalent to that of the barrier in which the seal is installed, we conclude that the penetration seals meet Section D.1(j) of Appendix A to BTP APCSB 9.5-1 and, therefore, are acceptable.

CABLE VAULT AND TUNNEL SPRINKLER SYSTEM, SECTION 3.1.26(3)

In the SER, it was our concern that the CO_2 suppression system alone may not be adequate to suppress a fire in the service building cable vault and cable tunnel.

By letter dated October 29, 1980, the licensee proposed to provide a manually activated sprinkler system in the service building cable vault and cable tunnel. The sprinkler system in the vault will be an open head dry pipe system, and the sprinkler system in the cable tunnel will be a closed head system located over the aisleway of the tunnel. A dry standpipe hose station will be installed in each service building cable vault.

We find the manually actuated sprinkler systems and standpipes will provide adequate backup suppression capability for the CO_2 suppression system. Based on our review, we conclude that the licensee's proposed modification meets Section F.3.b.(3) of Appendix A to BTP APCSB 9.5-1 and, therefore, is acceptable.

WATER SPRAY SHIELDS, SECTION 3.1.29

In the SER, it was our concern that the water spray from fire water suppression systems could adversely affect the component cooling water pump motors.

By letter dated October 29, 1980, the licensee proposed to provide deflection shields to prevent direct water spray to the motor air intake and exhaust. The licensee also verified that the component cooling water pump motors are of the drip proof type. The shields will have a minimal effect upon air flow to and from the pump motors. The shields will be designed to withstand an earthquake of the same magnitude as was designed for the component cooling water pump motors.

Based on our review, we conclude that the proposed water spray shields for the component cooling water pumps meet Section A(s) of Appendix A to BTP APCSB 9.5-1 and, therefore, are acceptable.

AUXILIARY BOILER ROOM, SECTION 3.2.1

In the SER, the concern was that fuel oil leakage in the auxiliary boiler room could spread to other plant areas via the floor drain system.

By letter dated October 31, 1980, the licensee verified that the floor drainage system does not communicate with other areas of the plant.

Based on the licensee's verification, we conclude that the floor drainage system in the Auxiliary Boiler Room meets Section D.1(f) of Appendix A to BTP APCSB 9.5-1 and, therefore, is acceptable.

FIRE DAMPERS, SECTION 3.2.2

In the SER, the concern was that a fire in the turbine building could affect safe-shutdown systems located in mechanical equipment room number 3 because of the lack of 3-hour fire ratings for the dampers which seal the duct penetrations of the wall between these areas.

By letter dated October 31, 1980, the licensee informed us that a 3-hour fire damper has been installed in the wall shared with the turbine building and mechanical equipment room No. 3.

Based on the installation of a 3-hour fire damper, we conclude that the modification meets Section D.1(j) of Appendix A to BTP APCSB 9.5-1 and, therefore, is acceptable.

CHARCOAL FILTER HAZARD, SECTION 3.2.4

In the SER, it was our concern that a fire in the control room emergency ventilation system charcoal filters may damage cables that could affect the ability of the plant to achieve safe shutdown.

By letter dated October 31, 1980, the licensee verified that the only safety-related cable that is located near the control room emergency ventilation charcoal filter is the power feed to the respective fan motor, and, therefore, a fire would not affect safe shutdown of the plant.

Based on the licensee's verification, we conclude that a fire involving the control room emergency ventilation system charcoal filters will not affect cables required for safe shutdown. Therefore, we find the present system acceptable.

The required completion dates for the modifications associated with these latter items that have been accepted by this Supplement are specified by paragraph (d) of 10 CFR 50.48 using the date of this Supplement as "the date of the NRC Staff Fire Protection Evaluation Report accepting or requiring such features."

ENCLOSURE 2

FIRE PROTECTION REVIEW STATUS
SURRY POWER STATION, UNITS 1 & 2
DOCKET NOS. 50-280 and 50-281

ITEM	DESCRIPTION	STATUS*
3.1.2	Air Flow Detectors	C
3.1.3(2)	Breathing Apparatus	C
3.1.9	Fire Detection Systems	C
3.1.11(13)	Fire Doors	C
3.1.15(1)(2)(3)	Floor Drains, Dikes and Curbs	C
3.1.15(4)	Oil Collection System	C
3.1.16(3)	Gas Suppression	C
3.1.18(5)	Hose Stations - Service Bldg.	C
3.1.18(6)	Hose Stations - Containment Bldg.	C
3.1.18(16)	Hose Stations - Aux. Bldg.	C
3.1.22	Valve Supervision	C
3.1.24	Penetrations	C
3.1.26(3)	Water Suppression System	C
3.1.29	Water Spray Shields	C
3.2.1	Auxiliary Boiler Room	C
3.2.2	Fire Dampers	C
3.2.4	Charcoal Filter Hazard	C
3.1.4	Cable Tray Covers	R
3.1.10	Fire Barriers	R
3.1.16(2)	Gas Suppression	R
3.1.18(1)(3)(7)(8)	Hose Stations	R
3.1.26(1)(2)	Water Suppression Systems	R
3.1.27	Ventilation System	R
3.1.30	Technical Specification	R
3.2.5	In-Situ Testing	R
3.1.5	Safe Shutdown Circuitry	UR
3.1.23	Monitoring Panels	UR
3.1.25	Safe Shutdown	UR
3.2.3	Safe Shutdown Analysis	UR

* R - Requirement
C - Closed
UR- Under Review