Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

FEB 07 1991

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - DOCKET NOS. 50-327 AND 50-328 - FACILITY OPERATING LICENSES DPR-77 AND DPR-79 - SPECIAL REPORT 91-01 - 10 CFR 50, APPENDIX R, IN ACCORDANCE WITH LICENSE CONDITION 2.H

The enclosed special report provides details regarding two conditions that were identified as consisting of noncompliance with 10 CFR 50, Appendix R requirements. The first condition involved routing of conduits with 1-hour-rated fire wrap in areas without the appropriate fire detection and automatic suppression system. This condition was initially reported by telephone notification at 1610 Eastern standard time (EST) on January 25, 1991, and confirmed by facsimile on the same day in accordance with License Conditions 2.C.13.c and 2.4 of the Unit 2 Facility Operating License.

The second condition was identified as a result of the investigation of the first condition and involves conduits routed in an area with the appropriate fire detection and automatic suppression system, but without the 1-hour-rated fire wrap. This condition was initially reported by telephone notification at 1440 EST on January 31, 1991, and confirmed by facsimile on the same day in accordance with License Conditions 2.C.13.a and 2.4 of the Unit 2 Facility Operating License. These conditions are applicable to Units 1 and 2 as detailed in the enclosed report. This follow-up report is being submitted in accordance with Unit 2 License Condition 2.H.

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If you have any questions concerning this submittal, please telephone M. A. Cooper at (615) 843-8422.

Very truly yours,

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ENCLOSURE

14-DAY FOLLOW-UP REPORT
SPECIAL REPORT 91-01

DESCRIPTION OF CONDITION

Condition 1

On January 24, 1991, at 1850 Eastern standard time (EST) with Units 1 and 2 operating in Mode 1 at 100 percent power, Operations was notified that during a postmodification walkdown inspection to verify conduit routing dimensions, it was discovered that several Unit 1 and Unit 2 conduits wrapped with 1-hour fire wrap had been routed in areas that lacked fire suppression and detection. This walkdown was being performed in accordance with Sequoyah Engineering Procedure (SQEP) 67, "Interim Procedure to Control Appendix R Drawings Until a New Drawing Series is Issued," following implementation of Cycle 4 refueling outage Appendix R modifications to support accurate plotting of the conduits on the Appendix R sketch (ARSK) drawings. These conduits contained control circuits to the refueling water storage tank (RWST) and volume-control tank (VCT) outlet valves; the outage modifications had been implemented to resolve previously identified Appendix R Interaction 120.

Further investigation identified four additional conduits associated with the Unit 2 centrifugal charging pumps that had a 1-hour fire wrap, but were routed in an area that did not contain fire suppression and detection. These conduits were previously identified as Interaction 86 (in the 1984 timeframe). Rerouting and wrapping of the conduits had been completed in 1986.

Table 1

Conduits wrapped in a 1-hour-rated fire barrier, but routed in areas without adequate fire detection and an automatic fire suppression system:

Unit	Interaction	Conduit	Cable	Cable Used For
1	120	1V4003A	1V4001A	Control for 1-LCV-62-135 RWST outlet valve
2	120	2V4006B	2V2774A	Control for 2-LCV-62-133 VCT outlet valve
2	120	2V4012A	2V2764A	Control for 2-LCV-62-132 VCT outlet valve
2	120	2V4012A	2V2071A	Control for 2-LCV-62-135 RWST outlet valve
2	86	2PL3003A	2PL3003A	Control for centrifugal charging pump (CCP) 2A-A room cooler
2	86	2PL3008A	2PP552A	Control for CCP 2A-A
2	86	2PP550A	2PP550A	Supply for CCP 2A-A
2	86	2PL3001A	2PL3001A	Supply for CCP 2A-A room cooler

Unit 1 and 2 conduit locations are in the auxiliary building, Elevation 690, valve gallery mezzanine. For Unit 1, the column lines are A3 to A4 and T to U. For Unit 2, the column lines are A12 to A13 and T to U.

As a result of the above-identified deficiencies, Condition Adverse to Quality Report (CAQR) SQP910029 was written. Immediate actions taken included ensuring that the areas were being covered by the hourly, roving fire watch patrols and conducting a walkdown, which determined that no significant levels of combustibles existed in the areas that would challenge the 1-hour-rated fire barriers.

In addition, the following controls were placed on any further design packages involving Appendix R conduits:

1. The proposed conduit route shall be walked down before the design issuance to verify there is no potential to route through an area that lacks suppression and detection. If potential exists, appropriate warnings and directions shall be placed on the design change authorization.

2. The postmodification walkdowns will now be done as soon as the conduit is supported and before cable pulling activities.

3. Other engineering disciplines will coordinate with the Sequoyah Mechanical Engineering by use of a quality information release to assure that the conduit will not enter an area that lacks suppression and detection.

Condition 2

On January 30, 1991, at 1540 EST with Unit 1 and 2 at 100 percent power, as part of the incident investigation initiated as a result of Condition 1, evaluation and walkdown of other areas in the auxiliary building determined that several conduits were routed in areas containing adequate fire detection and suppression but were not wrapped in a 1-hour-rated fire barrier. These conduits contain power supply circuits to Units 1 and 2 source range neutron monitor main control room (MCR) panels. These conduits are provided in Table 2.

Table 2

Conduits routed in an area with adequate fire detection and automatic suppression system, but not wrapped in 1-hour-rated fire barrier material:

Unit 1	Conduit	Cable	Function
1	MC1289II	IPV131II	Vital alternating-current (ac) supply to MCR Panel 1-M-13 (source range neutron monitor)
1	MC1289II	IPV133II	Vital ac supply to MCR Panel 1-M-13 (source range neutron monitor)
1	MC2546II	IPV131II	Vital ac supply to MCR Panel 1-M-13 (source range neutron monitor)
1	MC2546II	IPV133II	Vital ac supply to MCR Panel 1-M-13 (source range neutron monitor)
2	MC1309II	2PV131II	Vital ac supply to MCR Panel 2-M-13 (source range neutron monitor)
2	MC1309II	2PV133II	Vital ac supply to MCR Panel 2-M-13 (source range neutron monitor)

The Units 1 and 2 conduits are located on Elevation 714 of the auxiliary building defined by Columns A4 to A8 and Q to R. The affected areas are being covered by the hourly, roving fire watch patrols.

CAUSE OF CONDITION

Condition 1

The apparent cause of this condition is a deficiency in the engineering evaluation process of the modifications. The potential for inappropriate routing was not recognized by the design personnel involved in the design changes; and accordingly, inadequate guidance and requirements for routing were provided in the design output documents. Constructibility walkdowns did not identify the potential for routing conduits outside areas with detection and suppression capability. In absence of additional requirements, Modifications personnel field routed the subject conduits through areas not containing adequate detection and suppression. Additionally postmodification walkdowns were performed after the cables were returned to operation.

Initial assessment of the overall Appendix R modification evaluation process and procedures from both specific and overall perspectives indicates that weaknesses in these controls directly contributed to this condition. The final root cause analysis and incident investigation are still ongoing.

Condition 2

The apparent cause of this condition is a personnel error in the writing of the workplan (WP). Contributing factors included lack of detail regarding the wrap material in the initial engineering change notice (ECN) and subsequent oversight and poor communication in the resolution of that problem.

During the writing of the WP to implement the ECN, a number of notes on drawings required conduits to be wrapped with approved material, but did not specify the type of approved material to use. The Modifications engineer requested Nuclear Engineering to specify the approved material. Because of the size of the Modification, work continued on the writing of WPs. The approved material to wrap the conduits was subsequently identified verbally by Nuclear Engineering to the Modifications engineer. The notes requiring 1-hour fire wrap were added to the WP except one, which was missed. Therefore, the application was not implemented. The missed drawing note identifies the conduits listed in Table 2. As a result of the lack of material definition, the requirement to wrap was not incorporated into the associated WP.

ANALYSIS OF EVENT

The conduits listed in Table 1 are wrapped in a 1-hour-rated fire barrier and are located in an area that does not have adequate detection and automatic suppression as required in 10 CFR 50, Appendix R, Section III.G.2.c. The conduits listed in Table 2 are not wrapped in a 1-hour-rated fire barrier and are located in an area that does have adequate detection and automatic suppression as required in 10 CFR 50, Appendix R, Section III.G.2.c. This special report is being submitted as required by Unit 2 License Condition 2.H.

There are no plant systems or components considered inoperable or incapable of performing their design functions as a result of the condition described in this report. The affected areas are being covered by the hourly, roving fire watch patrols. This patrol provides assurance that a fire in this area would be identified so that appropriate response actions could be initiated.

Additionally, the subject areas have very low in situ combustible loading. The areas are also regulated by the Sequoyah transient fire load program, which ensures that the area is not arbitrarily used to store combustible material. Based upon walkdowns of the affected areas, preliminary indications are that an unmitigated fire would not have sufficient duration to compromise the existing fire wrap during a worst-case fire.

CORRECTIVE ACTION

For immediate corrective action, it was verified that the areas where deficiencies were identified were being covered by the hourly, roving fire watch patrols.

An evaluation and walkdown of rooms and locations in the auxiliary building that are not provided with fire detectors and automatic fire suppression systems were performed. No additional problems were identified.

As previously described, additional interim controls have been instituted for future design packages involving Appendix R conduits.

A detailed incident investigation is still ongoing to ensure identification of the contributing causes and necessary corrective actions to both address the specific conditions and prevent recurrence of similar Appendix R conditions. Additionally, these conditions are being reviewed collectively with other past Appendix R deficiencies to determine if commonalities exist.

As a result of Condition 2, a field design change notice was initiated on February 6, 1991, to specify the required wrapping material and contract number. A WP has been written to wrap the conduits and will be performed once it is approved and the materials are obtained.

A supplement to this report will be provided by March 15, 1991, detailing the results of the investigation and schedule for corrective actions.

COMMITMENT

TVA will provide a supplement to Special Report 91-01 by March 15, 1991.