Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

Ken Powers
Vice President, Sequoyah Nuclear Plant

April 8, 1994

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) - INSPECTION REPORT NOS. 50-327, 328/94-06 - REPLY TO NOTICE OF VIOLATION (NOV) 50-327, 328/94-06-01

Enclosure 1 is TVA's reply to Caudle A. Julian's letter to Mark O. Medford dated March 9, 1994, which transmitted the subject NOV. The violation is associated with inadequate design control. 10 CFR 50, Appendix B, Criterion III requires that design changes shall be subject to design control measures commensurate with those applied to the original design. Commitments are included in Enclosure 2.

If you have any questions concerning this submittal, please telephone J. W. Proffitt at (615) 843-6651.

Sincerely,

Ken Powers

Ken Powers

Enclosures
cc: See page 2

IE01

cc (Enclosures):
Mr. D. E. LaBarge, Project Manager
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852-2739

NRC Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy-Daisy, Tennessee 37379-3624

Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323-2711

ENCLOSURE 1

RESPONSE TO NRC INSPECTION REPORT
NOS. 50-327, 328/94-06
CAUDLE A. JULIAN'S LETTER TO MARK O. MEDFORD
DATED MARCH 9, 1994

Violation 50-327, 328/94-06-01

"10 CFR, Appendix B, Criterion III, Design Control, requires that design changes shall be subject to design control measures commensurate with those applied to the original design.

"Contrary to the above, on July 15, 1988 Engineering Change Notice (ECN) L07262C was issued in accordance with Sequoyah Engineering Procedure SQEP-13, Revision 10. This ECN removed the automatic control circuitry for the temperature control valves on the Essential Raw Cooling Water supply to the lower compartment coolers and left the valves fully open. This required containment temperatures to be controlled by the cycling of the lower compartment cooler fans. The resulting temperatures in the steam generator (SG) enclosures exceeded the design ratings for cables located in SG enclosures. The ECN that implemented this change did not provide adequate design measures for the determination of the possible effect of the change on the temperatures in the lower containment SG enclosures.

"This is a Severity Level IV violation (Supplement 2)."

Reason for the Violation

The violation states that the design change allowed cables routed in the SG enclosure to exceed their associated environmental rating. It is correct that the cables were exposed to temperatures greater than the design rating of the cables. Safety-related cables were routed in the SG enclosure during initial construction. During the initial environmental qualification (EQ) review for SQN, it was incorrectly determined that there were no safety-related components in the SG enclosures. An incorrect note was added to the EQ drawing, indicating that there were hot spots in the SG enclosures but that they were acceptable since there were no safety-related electrical components in the enclosures. As a result, the safety-related cables in the SG enclosures were not evaluated for environmental conditions. Design changes were implemented to replace some of the cables in the SG enclosures. The design changes did not properly address the cable replacement because of inattention to detail with regard to the information in the EQ drawings. The EQ drawings were not user friendly and could be misinterpreted.

Temperatures in lower containment have been maintained in accordance with the limits specified in the technical specifications. The technical specifications require the average air temperature to be maintained between 100 degrees Fahrenheit (F) and 125 degrees F in lower containment. However, the operating procedures did not contain guidance on maintaining SG enclosure temperatures. This resulted in a failure to properly maintain the temperature in the SG enclosures within a range acceptable for the cables routed in the enclosures.

The modification to the temperature control valves resulted in the need to cycle the lower compartment cooling fans to maintain lower containment within technical specification limits. The changes in flow to the SG enclosures exacerbated the temperature condition. As a result of the modification, temperatures in the enclosures are higher than the bulk average lower containment temperature during certain times of the year and during certain operating conditions.

Corrective Actions That Have Been Taken and the Results Achieved

Walkdowns of the Unit 1 SG enclosures were performed to identify cables in the enclosure. The 10 CFR 50.49 cables in the SG enclosures were rerouted to an acceptable area outside the enclosures. An engineering evaluation was performed, justifying the continued operation of Unit 2 until the next refueling. 10 CFR 50.49 equipment and cables in the lower compartment general areas, the pressurizer enclosures, and the Unit 2 SG enclosures were evaluated to determine the remaining qualified life based on actual operating conditions over the operating history of the plant.

The administrative limits on maximum temperatures in the Unit 1 and Unit 2 pressurizer enclosures, the lower compartment general area, and the Unit 2 SG enclosure have been established. A standing order with these limits, along with required actions to be taken if the limits are exceeded, has been issued and will remain in effect until the operating procedures are revised.

A review of 10 CFR 50.49 equipment and cables in the auxiliary building and the main steam valve vaults was performed to determine if a similar high-temperature condition exists in these areas. No additional deficiencies were identified.

The conduit and grounding drawings have been revised to prevent routing new 10 CFR 50.49 cable in the SG enclosures.

Corrective Steps That Will be Taken to Avoid Future Violations

The appropriate environmental drawings will be revised to correct the human factors deficiencies and to show the SG enclosures and the pressurizer enclosure as separate environmental compartments in lower containment.

This event will be reviewed with the Electrical Design engineers that have responsibility for the location of 10 CFR 50.49 end devices and the routing of 10 CFR 50.49 cables. This review is intended to make these engineers aware of the attention to detail problems that contributed to this event.

The EQ binders will be revised to reflect the correct environmental conditions and to establish new qualified life for the affected components.

The procedure controlling the installation of conduit and junction boxes will be revised to ensure that 10 CFR 50.49 cable is not field-routed in unevaluated compartments listed on the EQ drawings.

Licensed operators will be trained on the importance of monitoring and controlling area temperatures and the impact of these temperatures on the 10 CFR 50.49 program.

The 10 CFR 50.49 cables routed in the Unit 2 SG enclosures will be rerouted outside the enclosures.

Date When Full Compliance Will be Achieved

TVA will be in full compliance by the restart from the Unit 2 Cycle 6 refueling outage.

ENCLOSURE 2

INSPECTION REPORT 94-06

COMMITMENTS

1. The appropriate environmental drawings will be revised to correct the human factors deficiencies and to show the SG enclosures and the pressurizer enclosure as separate environmental compartments in lower containment. This action will be completed by June 30, 1994.

2. This event will be reviewed with the Electrical Design engineers that have responsibility for the location of 10 CFR 50.49 end devices and the routing of 10 CFR 50.49 cables. This review is intended to make these engineers aware of the attention to detail problems that contributed to this event. This action will be completed by May 13, 1994.

3. The EQ binders will be revised to reflect the correct environmental conditions and to establish new qualified life for the affected components. This action will be completed by August 31, 1994.

4. The procedure controlling the installation of conduit and junction boxes will be revised to ensure that 10 CFR 50.49 cable is not field-routed in unevaluated compartments listed on the EQ drawings. This action will be completed by July 22, 1994.

5. Licensed operators will be trained on the importance of monitoring and controlling area temperatures and the impact of these temperatures on the 10 CFR 50.49 program. This action will be completed by August 5, 1994.

6. The 10 CFR 50.49 cables routed in the Unit 2 SG enclosures will be rerouted outside the enclosures. This action will be completed before the end of the Unit 2 Cycle 6 refueling outage.