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March 9, 1992

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

Gentlemen:

In the Matter of  
Tennessee Valley Authority

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Docket No. 50-327

SEQUOYAH NUCLEAR PLANT (SQN) - NRC INSPECTION REPORT NOS. 50-327,  
328/91-31 - RESPONSE TO NOTICE OF VIOLATION (NOV) 50-327/91-31

Enclosure 1 contains TVA's response to Luis A. Reyes' letter to Dan A. Nauman dated February 6, 1992, which transmitted the subject NOV. This violation deals with the failure to properly establish or implement procedures, resulting in the inoperability of the Unit 1 main steam isolation valves. The corrective actions in this response are also applicable to the additional example identified at the NRC exit meeting for Inspection Report 92-03. The example involved incorrect performance of a fire protection surveillance instruction (SI) step resulting in a fire damper isolation. Verification of the SI steps was inadequate.

The event associated with this violation was previously reported in accordance with 10 CFR 50.73 by Licensee Event Report 50-327/91025. New commitments associated with this response are included in Enclosure 2.

If you have any questions concerning this submittal, please telephone M. A. Cooper at (615) 843-8924.

Sincerely,

J. L. Wilson

Enclosures  
cc: See page 2

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Enclosure 1

RESPONSE TO NRC INSPECTION REPORT  
NOS. 50-327/91-31 AND 50-328/91-31  
LUIS A. REYES' LETTER TO DAN A. NAUMAN  
DATED FEBRUARY 6, 1992

Violation 50-327/91-31

"Technical Specifications (TS) 6.8.1 requires that written procedures be established, implemented and maintained for applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Quality Assurance Program Requirements, Revision 2, February 1978. Appendix A to Regulatory Guide 1.33 requires that administrative procedures be established to ensure that maintenance that can affect the performance of safety-related equipment be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.

"Contrary to the above, on or before December 15, 1991 procedures were not properly established or implemented as indicated by the following examples:

- (1) Administrative Instruction AI-37, Independent Verification, Revision 6, section 2.2.2 states that independent verification is not required if a second-party verification and a functional test are performed in accordance with approved work requests. Section 2.2.2 further notes that care should be taken to ensure that testing does, in fact, verify each component under consideration. The functional test assigned to be performed with second party verification was not adequate to ensure Main Steam Isolation Valve (MSIV) operability. This resulted in a failure to adequately conduct single train testing to verify the proper removal of the jumpers.
- (2) Administrative Instruction AI-37, Independent Verification, Revision 6, section 6.2, details specific qualification requirements for those individuals assigned to perform an independent verification. AI-37 was inadequate in that it did not specify any qualification requirements for those personnel performing second party verifications. Individuals involved in the jumper removal evolution were unsure what actions or requirements were associated with second party verification.
- (3) Site Standard Practice, SSP-6.25, Maintenance Management System Performance of Work Orders, Revision 0, Section 3.2.B, requires that the individuals assigned to perform maintenance maintain work instructions at the work location when maintenance activities are being performed. On November 16, 1991, the individuals who were assigned to remove the jumpers failed to maintain work instructions at the job location as required by SSP-6.25.
- (4) Site Standard Practice, SSP-6.25, Maintenance Management System Performance of Work Orders, Revision 0, section 3.2.C, requires that individuals performing maintenance activities follow work instructions. On November 16, 1991, the individuals who removed the jumpers did not perform the work in accordance with the work order instruction in that they failed to remove the specific jumpers identified on the four configuration control log sheets.

"The preceding violations of Technical Specification 6.8.1 resulted in a violation of Technical Specification 3.3.2.1, Action b for the Main Steam Isolation Valves A train Engineered Safety Features Actuation System from December 11 at 1046 hours until December 15 at 0009 hours.

"This is a Severity Level IV (Supplement 1) Violation applicable to Unit 1 only."

#### Reason For the Violation

The subject event resulted from failure of craft personnel to follow procedures. Additionally, weaknesses in the controls for the use of temporary workers and in-work processes and implementation by permanent personnel also contributed to the event.

The two hourly electricians who were assigned the jumper removal task did not ensure that the work document was in the field as required by procedure, did not follow the work order to remove all eight jumpers, did not carefully read the work document to ensure proper and full performance, and incorrectly signed the work document indicating that all jumpers had been removed.

In assessing the inadequate performance of the two temporary electricians, it was determined that the composition of the temporary workforce at SQN had recently undergone a significant change and that insufficient consideration had to be given to the level of controls necessary to effectively manage and utilize this workforce. For example, the electricians were not familiar with the responsibilities associated with second-party verification; and specific qualifications for personnel providing second-party verification were not administratively defined. Further, the craft general foreman did not ensure that the electricians were fully briefed on the scope of their work activities and expectations for work performance in the field, e.g., careful review of work documents and use in the field.

In establishing the postmaintenance testing and verification requirements, the maintenance planners did not adequately assess the technical characteristics of the main steam isolation valve (MSIV) dual train features and, therefore, specified testing that could not establish single train valve performance i.e., could not detect the presence of the jumpers.

Additional areas for improvements were also identified in the level of detail provided by the work documents from a human factors perspective, e.g., multiple configuration changes for a single signoff.

#### Corrective Steps That Have Been Taken and Results Achieved

Immediate correction included removing the jumpers from the A train control circuitry and inspecting the Unit 2 MSIVs for jumpers; no jumpers were identified.

A preliminary investigation was performed to address the following three areas of concern before Unit 1 criticality: (1) the potential generic implications on the postmaintenance test (PMT) program for dual-trained devices, (2) the potential generic implications on safety-related work performed by or supported by Electrical Maintenance, and (3) recurrence control to prevent future incidents of inadequate maintenance configuration control.



Results of this investigation were reviewed by senior TVA management and by the Plant Operations Review Committee on December 16, 1991, before permitting further mode changes (Mode 3 to Mode 2). Briefings on the event were conducted with oncoming maintenance shifts, which provided explicit direction related to making signoffs in work documents after the fact, the importance of second-party and independent verification, and the ramifications for failure to meet these job requirements.

Appropriate disciplinary action was taken for the individuals involved with the event.

Maintenance personnel were further briefed on the requirement and the importance of having work instructions in hand and working them step-by-step in the field. The briefing addressed the importance of prejob briefings by the foreman of any craft performing work, regardless of who has the work order package. The briefing also emphasized the importance of the accuracy of verification and the clarity of the configuration change log (i.e., uniquely identifying each item to change and/or restore).

The administrative instruction governing verification has been enhanced to include qualification requirements for verification performers. Temporary workers in the Maintenance department are prohibited from approving or verifying work performed.

Additional guidance has been provided to the planners to ensure that appropriate detail is included in work documents.

A temporary worker training program for Maintenance and Modifications workers was developed and implemented for new temporary employees. This training program provides a basic understanding of the administrative policies and programs for work at Sequoyah and addresses personnel error events at Sequoyah. Contractor controls and processes for contracts covering personnel performing maintenance and modification work were reviewed and strengthened. Previously, TVA hired temporary workers directly. Now a contractor hires the worker and provides training and certification of the worker to perform work at the plant. Documentation of successful completion of the training is required before employment for temporary employees.

#### Corrective Steps That Will be Taken to Avoid Further Violations

Appropriate plant procedures will be revised to identify dual train actuated components to ensure that the PMT specified in the work documents adequately address these components. Also, a review of procedures will be performed to ensure that the appropriate PMT and verification type are properly specified. The procedures will be subsequently revised as appropriate.

A Maintenance supervisory development program is being developed and will be implemented. Through this program, an assessment of personnel that will be temporarily "set up" to supervisory level is being performed. Assessments of incumbent supervisors will also be performed. Identified weaknesses will be provided as feedback to the participants. Temporary Maintenance supervisors for the Unit 2 Cycle 5 refueling outage have been assessed. Incumbents will be assessed after the outage, and the results will be used in development of the program.

A separate administrative process to control the issuance, placement, and removal of jumpers will be established.

To reinforce staff performance, cascading training on verification requirements and configuration control is being provided.

Date When Full Compliance Will be Achieved

Full compliance will be achieved following completion of the corrective actions currently scheduled for April 7, 1992.

Enclosure 2

NOTICE OF VIOLATION 91-31 COMMITMENTS

1. A review of procedures will be performed to ensure that the appropriate postmaintenance testing and verification type are properly specified. This action will be completed by April 7, 1992. Procedures will be subsequently revised as appropriate.
2. A separate administrative process to control the issuance, placement, and removal of jumpers will be established. Full implementation, including training, will be completed by April 1, 1992.
3. To reinforce staff performance cascading training on verification requirements and configuration control is being provided. This action will be completed by April 7, 1992.
4. A Maintenance supervisory development program is being developed and implementation is scheduled to begin by October 15, 1992.