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JAN 14 1991

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
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Gentlemen:

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

SEQUOYAH NUCLEAR PLANT (SQN) - NRC INSPECTION REPORT NOS. 50-327,  
328/90-37 - RESPONSE TO NOTICE OF VIOLATIONS 50-327, 328/90-37-01 AND  
50-327, 328/90-37-02

Enclosed is TVA's response to B. A. Wilson's letter to  
O. D. Kingsley, Jr., dated December 14, 1990, which transmitted the  
subject notice of violation. These subject events were previously  
reported in accordance with 10 CFR 50.73 by Licensee Event Reports  
50-328/90016 and 50-328/90017 respectively. No new commitments are made  
by this submittal.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Mark O. Medford

Enclosure

cc: See page 2

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U.S. Nuclear Regulatory Commission

JAN 14 1991

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ENCLOSURE 1

RESPONSE TO NRC INSPECTION REPORT  
NOS. 50-327/90-37 AND 50-328/90-37  
B. A. WILSON'S LETTER TO O. D. KINGSLEY, JR.,  
DATED DECEMBER 14, 1990

Violation 50-327, 328/90-37-01

Technical Specifications [sic] 3.3.1 requires that, as a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be operable. This includes operability of the Intermediate Range Monitors in operational modes 1,2 and in the configuration where the reactor trip system breakers are closed, the control rod drive system is capable of rod withdrawal, and fuel is in the reactor vessel.

Contrary to the above, for the period between October 31, 1990, through November 17, 1990, Sequoyah Unit 2 operators performed several manipulations such as rod movements, rod drops, and initial criticality operations while the Intermediate Range Monitors were not considered operable due to a previous miscalibration.

This is a Severity Level IV violation (Supplement I)

Admission or Denial of the Alleged Violation

TVA admits the violation.

Reason for the Violation

The cause of this event was a lack of operability control for instrument channels affected by cycle-specific parameters. The workplan for Gamma-Metrics was closed without the adjustments being made for start-up on the nuclear instrumentation system (NIS) intermediate range (IR) channels. The workplan used factory settings for voltages during the calibrations of the NIS IR channels as was noted in the workplan. However, it did not identify that additional adjustments were required to declare the NIS IR channels operable. Evaluation of operability controls for other instrumentation channels affected by cycle-specific parameters identified that a similar lack of coordination may exist between several instrument calibration and cycle-specific adjustment procedures. Instrument loops have previously been declared operable after the performance of a channel calibration, but before the cycle-specific adjustments are made.

Other procedural weaknesses also contributed to this event. The Reactor Engineering procedures that derived the Unit 2 calibration data did not include verification that required actions were taken. The only action specified was to request the NIS IR calibration be performed, with no requirement to ensure this actually was performed.

Similarly, Surveillance Instruction 11, "Reactivity Control Systems Moveable Control Assemblies," does not specify that the NIS IR channels are required to be operable before rod motion is initiated (actually before the rods are capable of motion).

Another contributing cause was an inappropriate personnel action made in following Restart Test Instruction (RTI) 1, "Restart Sequence," at Step 1 of Table 3 for acceptance criteria. RTI-1 breaks the testing into five phases, and each phase is required to be complete before starting the next phase. RTI-1 Step 1 for Phase A on Table 3 for acceptance criteria was to be signed as complete before proceeding with Phase B tests. This step required the verification that instrument mechanics had implemented the NIS IR and power range (PR) alignments for start-up. Table 2, "Restart Test Sequence," had all Phase A requirements signed. The dayshift test director acknowledged that Table 2 was signed and that Table 3 had not been signed. He thought that this was a paperwork oversight and signed the Phase A blocks for those items associated with core reload, but did not sign Step 1 (pre-start-up calibration procedure) because he thought the nightshift test director should sign it because he was believed to have done the work.

A contributing cause was a lack of management follow-up to ensure RTI-1 was being completed properly before convening with Phase B of start-up testing. As part of the start-up team, a manager was assigned to each shift (two 12-hour shifts) to provide oversight to start-up testing. For preparation of Phase B testing, management did not perform a follow-up verification that Phase A testing was signed off as complete.

Insufficient planning and communication of expectations also contributed to this event. Numerous meetings, as well as focused training sessions, were conducted involving Instrument Maintenance's, Reactor Engineering's, and Operations' personnel in an attempt to communicate the actions associated with the pre-start-up calibration of the NIS IR channels, as well as the conservative reductions of NIS setpoints. However, a clear assignment of responsibilities was not made for specific actions. This resulted in a lack of understanding by Instrument Maintenance as to what was to be done with the voltage data calculated by Reactor Engineering and the declaration of operability for the NIS IR channels by Operations without the channels being correctly calibrated.

Additional details concerning this event were provided in Licensee Event Report (IER) 50-328/90016.

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

The immediate corrective actions included the proper calibration of the NIS IR channels by Instrument Maintenance, with verification by Reactor Engineering documented by the appropriate signoff in RTI-1. Operations also verified the calibration of the NIS IR channels before the reactor trip breakers were closed on November 20, 1990.

In addition to the above verifications, the calibration of the NIS PR channels was also checked by Instrument Maintenance and verified by Reactor Engineering. These reviews indicated that the NIS PR channels had been calibrated appropriately.

As another immediate corrective action, modification workplans implemented during the Unit 2 Cycle 4 refueling outage, which affected technical specification setpoints or critical plant parameters, were reviewed to ensure that the proper setpoints were utilized during final postmodification testing calibration. Minor discrepancies between design output documentation and plant parameters or procedures were identified and documented in Condition Adverse to Quality Report (CAQR) SQP901534. Evaluation of these discrepancies determined that operability of the associated equipment was not affected.

To ensure closure of interfaces during start-up, a review of start-up and power ascension procedures was performed to identify "open-ended" actions. Ten procedures containing open-ended actions were identified. These procedures have been revised to add signoffs for the verification of completed actions.

Another immediate action was the review of Administrative Instruction 19, "Modifications: Permanent Design Change Control Program," concerning workplan closure and determinations of operability. This review concluded that the process is adequate when implemented correctly. Changes may be made, however, as part of the ongoing Modification Simplification Task Force.

In addition to the above actions, the Instrument Maintenance and Reactor Engineering personnel involved in this event received disciplinary action.

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

SNQ is continuing to evaluate the adequacy of controls for implementing changes resulting from core reloads on certain instrument channels. Methods to better control operability of instrument channels affected by cycle-specific parameters are also being evaluated. These evaluations will be completed by February 1, 1991.

Direction has been provided by the Vice President of Nuclear Operations for the development of action plans for conducting plant activities to ensure accountability, responsibility, and follow-up. Emphasis is placed on plan adequacy, checkpoints, clear assignments and responsibilities, clear communication channels, and verification that actions are completed.

Consistent with the above guidelines, an action plan to specifically address personnel errors at SNQ has been developed. This action plan will include an analysis of the distribution of personnel errors, including an overall evaluation for common causes, organizations, disciplines, etc. The action plan also calls for an improvement in work practices and reinforcement of performance and execution standards.

Reinforcement of performance and execution standards is included in line organization presentations currently being developed. The presentations will also include lessons learned from recent events, guidelines for action plan development and implementation, and discussions of SNQ's implementation of the Human Performance Enhancement System and Problem Evaluation Panel. Emphasis will also be placed on self-checking and procedural compliance.

Also, as described in TVA's response to Notice of Violations 50-327, 328/90-29-01 and 50-327, 328/90-29-02, SQN will continue to supplement Reactor Engineering with additional experienced personnel and increased management oversight.

Date When Full Compliance Will Be Achieved

TVA is in full compliance.

Violation 50-327, 328/90-37-02

Technical Specifications [sic] 6.8.1 requires that procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, be established, implemented and maintained. This includes administrative and surveillance procedures. The requirements of TS 6.8.1 are implemented in part by Administrative Instruction AI-30, Conduct of Operations. AI-30 requires shift crews to follow established practices to effectively diagnose and manage normal, upset and accident conditions.

Contrary to the above, following a reactor coolant pump trip on November 23, 1990, the requirements of AI-30 were not followed in that the Shift Operating Supervisor did not take command of the event, failing to ensure that others properly carried out their duties and properly communicated their actions. A Unit 2 reactor trip occurred due to the errors of the shift crew.

This is a Severity Level IV violation (Supplement I).

Admission or Denial of the Alleged Violation

TVA admits the violation.

Reason for the Violation

The cause of the reactor trip was a misunderstanding of the event by the lead reactor operator (LRO) and failure to maintain reactor coolant system (RCS) average temperature (Tavg) and reference temperature (Tref) during the shutdown. His sense of urgency to quickly reduce power resulted in an RCS cooldown and mismatch of the Tavg and Tref. This was a direct result of a lack of understanding of the consequences of losing one reactor coolant pump (RCP) below 35 percent power. However, the trip could have been avoided if the LRO and assistant shift operations supervisor (ASOS) had been properly communicating and if the shift operations supervisor (SOS) and ASOS had properly assumed their roles of overall assessment and direction. Accordingly, an additional cause of the event was deficient communication among the operating crew and inadequate command and control by the SOS, resulting in an uncoordinated effort by the operating crew. Although this event was the direct result of a single crew's actions, indications of broader weaknesses in command, control, and quality of communications have been identified.

Additional details concerning this event were provided in LER 50-328/90017.

Corrective Steps That Have Been Taken and Results Achieved

The lack of a procedure covering the loss of an RCP was corrected by revising Abnormal Operating Instruction 5, "Response to Loss of RCP(s) Below P-8," to trip the reactor if an RCP trips and power is above 10 percent. This will eliminate any questions or reservations that the operator may have about trying to reduce power and regain the service of the RCP before the reactor trips.

The failure of Operations' personnel to assume their normally assigned tasks was discussed with the crew. Each crew member associated with this event was provided training and additional requalification on command and control function, proper communications, and conduct of operation. This training included specific simulator drills with subsequent critiques of command and control of the crews. This was completed on December 15, 1990. Also, each Operations' crew was briefed on Plant Operations Review Committee findings before assuming their shift. This was completed on November 24, 1990.

Corrective Steps That Will be Taken to Avoid Further Violations

SN's management has initiated the following broader corrective actions to enhance and strengthen the command and control function: (A) analysis of operating personnel for qualification for roles, proper crew mix, understanding of and buy-in to management expectations, ownership of plant, and interface with Work Control and Maintenance; (B) recruitment of experienced Operations' personnel from best operating plants, and (C) review of the conduct of Operations' procedure.

Date When Full Compliance Will be Achieved

The corrective actions are intended to achieve compliance; however, TVA management will continue to monitor main control room activities to assess the effectiveness of the corrective action.

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