

TENNESSEE VALLEY AUTHORITY

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MAY 05 1988

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) - NRC INSPECTION REPORT NOS. 50-327/88-17 AND
50-328/88-17 - RESPONSE TO UNRESOLVED ITEM (URI) 50-327, -328/88-17-02

Enclosed is TVA's response to F. R. McCoy's letter to S. A. White dated
March 24, 1988, that transmitted URI 50-327, -328/88-17-02. The change in due
date to May 5, 1988, was discussed with F. R. McCoy of NRC and G. B. Kirk of
TVA on April 21, 1988.

Enclosure 1 provides TVA's response to the unresolved item. Enclosure 2
contains a list of commitments contained in this submittal.

If you have any questions, please telephone M. R. Harding at (615) 870-6422.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley
R. Gridley, Director
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Enclosures
cc: See page 2

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U.S. Nuclear Regulatory Commission

MAY 05 1988

cc (Enclosures):

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ENCLOSURE 1

Unresolved Item 50-327,-328/88-17-02

"Shift Logs, Records, and Turnover Status Lists

The inspectors reviewed the shift supervisor (SS), shift technical advisor (STA), and reactor operator (RO) logs and determined that the logs were completed in accordance with administrative requirements. The inspectors ensured that entries were legible; errors were corrected, initialed and dated; logbook entries adequately reflected plant status; significant operational events and/or unusual parameters were recorded; and entry into or exit from TS Limiting Conditions for Operation (LCO) were recorded promptly. Turnover status checklists for ROs contained sufficient required information and indicated plant status parameters, system alignments, and abnormalities. The following logs were reviewed:

- Night Order Log
- System Status Log
- Configuration Control Log
- Key Log
- Temporary Alteration (TACF) Log

During this inspection, it was determined that the below listed Limiting Conditions for Operation (LCO) were unknowingly entered, not suitably controlled, and not appropriately logged:

- (1) On February 26, 1988, at 12:38 p.m., the licensee made inoperable one train of the component cooling system (CCS) without recognizing it or entering TS LCO 3.7.3 until approximately eight hours later.
- (2) On February 15, 1988, at 11:40 a.m., the licensee made inoperable both trains of Control Room Emergency Ventilation System (CREVS) without recognizing it or entering TS LCO 3.0.5 until 12:37 a.m. the next day.
- (3) On February 9, 1988, at 12:30 a.m., the licensee failed to meet the time constraints of Surveillance Requirement 4.4.6.2.1.d without recognizing it or entering TS LCO 3.4.6.2.b until 5:05 a.m.

This issue is under review and is identified as Unresolved Item (URI) 50-327,-328/88-17-02."

Root Cause (Example 1)

On February 26, 1988, at 12:28 p.m. eastern standard time (EST), the CCS pump 2A-A was removed from service for a periodic oil change under Preventative Maintenance Instruction (PM) 1755-070. With the 2A-A pump out of service, only the 2B-B and C-S pumps, which are both powered from train "B" power, remained in service. Technical Specification (TS) 3.7.3 requires two independent component cooling water loops to be operable in modes 1 through 4. At the time pump 2A-A was removed from service, the TS action statement was not entered; however, it was determined later that the two remaining operable pumps (2B-B and C-S) did not satisfy the TS requirement.

Before this event, a hold order (2-88-226) was coordinated with and approved by the assistant shift supervisor (unit 2 senior reactor operator [SRO]) to tag the 2A-A CCS pump out of service. The 2A-A pump was then removed from service with no coordination or approval from the shift supervisor. Further, the hold order did not receive a review from the work control group before tagging the pump out of service because the hold order was not part of the PM 1755-070 work package. The unit 2 SRO was consciously aware that two independent CCS loops were required when the 2A-A pump was removed from service. However, the SRO considered having the 2B-B pump mechanically aligned to train "A" equipment, and the C-S pump aligned to train "B" equipment as meeting the TS requirement for two independent loops.

The independence of the electrical power sources feeding the two remaining pumps was not considered when making the determination that two independent loops were still available. Two mechanically aligned independent loops were still available; however, the pumps were not electrically independent.

A shift turnover occurred at approximately 3:52 p.m. EST with a new unit 2 SRO and shift supervisor coming on shift. Shortly after the shift turnover, the oncoming shift supervisor noted that the CCS 2A-A pump was out of service and the remaining two operable pumps (2B-B and C-S) were both powered from train B power. He considered this to be a potential problem with respect to meeting the TS requirement of the two independent loops and consulted with the STAs. After reviewing the condition, the STAs reported to the shift supervisor, who subsequently made the determination, that the TS requirements were not satisfied because the two remaining operable pumps were not electrically independent. At approximately 8 p.m. EST, the TS action statement was entered with the action time clock retroactive to 12:28 p.m. EST, when the 2A-A pump was removed from service. The TS action requires that, with only one CCS loop operable, at least two operable loops be restored within 72 hours or be in at least hot standby within six hours and in cold shutdown (mode 5) within the next 30 hours. Because this action was complied with, no TS was violated. The 2A-A CCS pump was returned to operable status at approximately 10:12 p.m. EST.

Corrective Action

1. Plant Operations Review Staff (PORS) will issue a formal interpretation to better define what constitutes two independent CCS loops and what restrictions apply.
2. Additional management emphasis stressing the importance of assessing overall plant status and communications before removing equipment from service was discussed with Operations personnel during meetings conducted on March 14-15, 1988.

Root Cause (Example 2)

The event was caused by an inadequate review of the applicable TS before removing a diesel generator (D/G) from service. The shift supervisor stated he was cognizant that removing D/G 1A-1 from service would make train A of CREVS inoperable; however, he did not confirm the TS required action that must be taken when both trains of CREVS are inoperable. The fact that both trains of CREVS had been inoperable almost continually from July 1987 to January 1988, while SQN was in mode 5 (reference LER SQRO-50-327/87039), most likely contributed to the shift supervisor's belief that it was acceptable to have both trains of CREVS out of service.

A contributing cause of this event was inadequate procedures. The procedures that were used to remove D/Gs from service for routine testing (i.e., the System Operating Instruction [SOI] 82 series of instructions) did not contain the necessary warnings and precautions. Specifically, the section of the subject SOIs that is used for manually rolling the D/Gs should have cautioned personnel that performance of those instructions would cause the D/G to become inoperable. Additional precautions should have been provided to warn of the potential for entering LCO 3.0.5 if other trained equipment was out of service.

Corrective Action

As immediate corrective action, SQN Operations personnel placed D/G 1A-A back in service thereby returning train A of CREVS to operable status. As a result, LCO 3.0.5 was exited at 12:37 a.m. EST on February 16, 1988.

TVA has recently established a work control group at SQN. The work control group, which is composed of SROs and reactor operators (ROs), has been tasked with assisting the control room shift crew by determining the impact of work activities on the plant. This is accomplished by reviewing work requests, screening Surveillance Instruction (SI) packages that could affect plant operation, and preparing hold orders. Establishment of this work control group has reduced the amount of activity in the main control room and allowed the shift supervisor to focus more attention on his primary function of safely operating the plant. In addition, the procedures that are used to remove D/Gs from service (i.e., the SOI-82 series of instructions) have been revised to include caution statements warning that performance of certain steps in these instructions will cause a D/G to become inoperable. These caution statements specifically address the potential of causing other equipment or systems to be inoperable when D/Gs are taken out of service.

As a result of this and other events that occurred at SQN during the interval from January 14 to March 9, 1988, TVA has implemented corrective actions (in addition to those described above) that should prevent the recurrence of this event. These additional recurrence controls are as follows:

- Administrative controls have been established to limit the interchanging of plant operators from a cold shutdown unit to an operating unit. As a result, SQN operators who may have become accustomed to plant operation in mode 5 will not arbitrarily be placed in situations that could require significantly different actions from those that would be taken on a cold shutdown unit.
- Administrative Instruction (AI) 30, "Nuclear Plant Conduct of Operation," has been revised to increase that level of communication among operators by specifying interface requirements that must be satisfied when major equipment (e.g., the D/Gs) is taken out of service.
- Signs emphasizing plant operating mode have been placed in the main control room and auxiliary equipment room.
- Training on the above described change to AI-30 has been performed.

- Scenarios emphasizing the use of TSs will be incorporated into the operator simulator training program before restart (mode 2) of unit 1.

Note: The actual time of the event was 11:40 p.m. not 11:40 a.m., as shown in the NRC Inspection Report.

Root Cause (Example 3)

This event was caused by Operations personnel not initiating the performance of SI-137.2, "Reactor Coolant System Water Inventory," until just before the time it should have been completed. Once the SI was initiated, complications with obtaining a steam generator liquid sample extended the completion of the subject SI beyond the time interval allowed by the TS LCO. A contributing cause of this event was the operational activity level in the main control room resulting from a recovery of an engineered safety feature actuation that had previously occurred. The recovery from this event diverted the attention of Operations personnel from the routine performance of SI-137.2.

Corrective Action

As immediate corrective action, Chemistry personnel completed Part C of SI-137.2 and the action statement was exited at 8:59 a.m. EST on February 9, 1988. To prevent recurrence of this event, Operations personnel have been instructed to allow sufficient time to complete SI-137.2 without entering the 25-percent extension allowed by TS 4.0.2. In addition, TVA has revised SI-137.2. SI-137.2 no longer controls the starting time of the steam generator sampling. A new procedure (SI-137.5) has been written to cover leak rate determination. This should allow adequate time and preclude recurrence of this event.

ENCLOSURE 2

List of Commitments

1. PORS will issue a formal interpretation to better define what constitutes two independent CCS loops and what restrictions apply.
2. Scenarios emphasizing the use of TSs will be incorporated into the operator simulator training program before restart (mode 2) of unit 1.