TENNESSEE VALLEY AUTHORITY
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APR 20 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. 50-327/87-73 AND 50-328/87-73 - RESPONSE TO NOTICE OF VIOLATION

Enclosed is TVA's response to K. P. Barr's letter to S. A. White dated March 9, 1988, that transmitted Notice of Violation 50-327, -328/87-73-05, and request for responses to items identified by cover letter.

Enclosure 1 provides TVA's response to the Notice of Violation. Enclosure 2 provides responses to items identified by the NRC cover letter. Enclosure 3 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, Director
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 2

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U.S. Nuclear Regulatory Commission APR 20 1988

cc (Enclosures):
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ENCLOSURE 1

Violation 50-327, -328/87-73-05

"10 CFR 50.59 states that the holder of a license authorizing operation of a utilization facility may make changes in the facility as described in the safety analysis report, without prior Commission approval, unless this proposed change involves a change in the Technical Specifications incorporated in the license or involves an unreviewed safety question. The licensee should maintain records of changes in the facility which shall include a written safety evaluation which provides the bases for the determination that the change does not involve an unreviewed safety question.

Contrary to the above, as documented on condition adverse to quality report (CAQR SQP871738) Rev. 0, the licensee either failed to perform or failed to adequately perform written safety evaluations for 15 modifications to the facility which involved compensatory actions for defeated safety functions. Examples of this violation include the following:

Example #1: A flexible hose installed between the essential raw cooling water system and the emergency diesel generator coolers has not been qualified to withstand a seismic event. A compensatory measure has been initiated requiring visual inspection of the hose after each diesel generator start. The licensee could not produce an unreviewed safety question determination for this issue.

Example #2: To avoid diesel generator overloading in the event of a loss of offsite power, fire pumps 2A-A and 2B-B are to be placed in 'manual' to prevent their starting from a signal during a loss of coolant accident resulting from high containment temperatures. Diesel generator loading analysis did not include loads associated with these two pumps. The licensee could not produce an unreviewed safety question determination for this issue.

Example #3: The Department of Nuclear Engineering has determined that twenty-four additional plant doors must be opened during a tornado watch or warning due to incorrect models used during the original tornado analysis. A compensatory measure was implemented to require that these doors be opened. The licensee could not produce an unreviewed safety question determination for this issue.

This is a Severity Level IV Violation (Supplement I)."

Admission or Denial of the Alleged Violation

TVA admits the violation.

Reason for the Violation

Compensatory measures (CMs) were incorporated into operations procedures to resolve problems that could not be corrected by physical changes alone or to provide an interim fix until planned modifications could be completed. CMs evolved as a result of activities such as condition adverse to quality/condition adverse to quality report (CAQ/CAQR) corrective actions, design calculations, Employee Concern Reports, Engineering Change Notices (ECNs), and NRC inspections and commitments. Procedural changes involving CMs

were evaluated for acceptability by responsible personnel on a case-by-case basis, but documentation of acceptability was not required by procedures. 10 CFR 50.59, "Changes, Tests and Experiments," was applied consistently during the ECN process; however, no standard practice existed for performing 10 CFR 50.59 Unreviewed Safety Question Determination (USQD) evaluations for CM procedure changes resulting from the other activities mentioned above. Additionally, the USQDs for ECNs often addressed only the physical change itself. The USQD might mention or specify the procedural change, but there was no specific requirement that the ECN USQD addresses the adequacy of the CM as a substitute for a defeated safety function or inadequate design. USQDs were performed by Operations for each revision made to a procedure. These USQDs were often inadequate in that they did not address manpower requirements with respect to minimum staffing requirements of the technical specifications. Therefore, in general, CMs were either never formally evaluated and documented or were inadequately addressed. This deficiency was primarily caused by the following factors:

1. Procedural changes, which replaced physical modifications or were implemented as the result of defeated safety functions or inadequate design, were previously not formally defined as CMs.

2. No tracking method was established for CMs.

3. No instruction had been established to require USQDs to address the acceptability of a CM to replace a safety function or correct an inadequate design or to address manpower and staffing requirements.

Corrective Steps That Have Been Taken

A task force was developed to review potential CMs. The task force identified 148 potential CMs. An initial review determined 39 potential CMs were duplicates. Review of the remaining 109 potential CMs yielded the following results:

- 77 potential CMs did not meet the definition of a CM.

- 24 potential CMs met the specific definition of a CM.

- Seven potential CMs were classified as indeterminate because of insufficient information available during performance of the evaluation.

- The corrective action was completed for one CM and the CM was cancelled during the review.

Review of the 24 potential CMs that met the specific definition of a CM resulted in the following:

- Seven CMs had adequate USQDs existing.

- 13 CMs did not have a USQD written.

- Four CMs had inadequate USQDs written.

The 17 CMs with inadequate USQDs or no written USQDs were documented on CAQR No. SQN 871738. The resolution of the CAQR was to write USQDs for the 13 CMs with no written USQD and revise the four CMs with inadequate USQDs.

Further review of the seven indeterminate CMs resulted in the following:

- Three were determined not to be CMs.
- Four were determined to be CMs and USQDs were written.

In addition, Administrative Instruction 49, "Control and Tracking of Compensatory Measures," was issued. This instruction accomplishes the following actions:

1. Establishes a single point of contact to control implementation of CMs.
2. Establishes uniform definitions to be used in identifying and evaluating CMs.
3. Defines the responsibilities of individuals assigned the task of evaluating potential CMs.
4. Establishes minimum requirements associated with USQDs/screening reviews for CMs.
5. Outlines actions to track activities for eliminating CMs.
6. Specifically requires review for impact of CMs on the Operations (or other affected) crew in regard to minimum plant staffing requirements.

The issuance of this instruction establishes a program for control and tracking of potential compensatory measures.

Corrective Steps That Will Be Taken to Avoid Further Violations

There is no further corrective action required.

Date When Full Compliance Will Be Achieved

TVA is in full compliance.

ENCLOSURE 2

In K. P. Barr's letter to S. A. White dated March 9, 1988, you identified two issues that should be addressed in the response. These issues are as follows:

". . . (1) Schedules to complete actions necessary to correct the defeated safety functions and to eliminate the compensatory measures; and (2) a determination of the need for an additional assistant shift engineer to be added to each shift prior to two unit operation."

Response 1

Source ID	Description	Corrective Action	Status
CAQR SQP 870217	Main Control Room (MCR) standby air-conditioning start	Investigate logic circuitry problems in the system	After unit 2 restart
CAQR SQP 870031	Put assistant unit operator at diesel generator (D/G) building to open essential raw cooling water (ERCW) valves	Valve operators rewired and functionally tested in accordance with ECNs X0117 and X0118; all work and tests completed satisfactorily	CAQR closed 3/18/88; CM cancelled 3/20/88
Memo B45 860226 218	Operators not use containment sump level indications for 6 hours after loss of coolant accident (LOCA)	DNE calculation reanalyzed and revised to bring transmitter accuracy to within limits	CM cancelled 3/13/88
Problem Identification Report SQNEEB 8683	Only essential space heaters energized	Procedure changes needed	Complete by 6/6/88
CAQR SQP 871696	Ultimate heat sink temperature	ECNs L7334 and L7335 to be issued; fieldwork complete by 5/5/88	Complete by 5/5/88
SCR SQNEEB 86136	Manually isolate certain tornado dampers	(1) Revise Abnormal Operating Instruction (AOI) 8 to ensure manual isolation of tornado dampers if required	AOI-8, Rev 12, approved 5/20/87
		(2) Investigate to determine permanent corrective action	After unit 2 restart

Source ID	Description	Corrective Action	Status
CAQR SQF 870022	Block open tornado doors	DNE to reanalyze Auxiliary Building structures for design basis tornado and revise calculation accordingly	Complete by 4/30/88
CAQR SQF 870181	480-V shutdown board ground detector inspection once each shift	(1) Reconfigure existing circuitry to provide high resistance ground and MCR alarm	Complete during next unit 1 refueling outage
		(2) Revise Surveillance Instruction (SI) 2 to provide check once each shift	Approved 1/18/88 (Revision 49)
CAQR SQT 870349	Lower compartment cooler use non-LOCA	Environmentally qualify coolers	Unit 2 nonrestart items 11/30/88; unit 1 items 8/1/88
CAQR SQP 870083	Xenon discrepancy in shutdown calculation	Revise Technical Instruction (TI) 22 to incorporate vendor recommendations	TI-22, Rev 22, revised 5/9/87
CAQR SQT 870649	Manual start unit 2 fire pumps	Initiate ECNs L7155 and L7154 to trip and lock out fire pumps on SI	Complete by: unit 1: 9/1/88 unit 2: 6/1/88
CAQR SQP 871182	Containment integrity - electrical penetrations	DNE to incorporate circuit protection	Complete by: 10/1/88

Source ID	Description	Corrective Action	Status
CAQR SQP 871263	Manual operations of ERCW screens and strainers	(1) Operations to revise procedures for manual operation	Complete 1/18/88
		(2) Modifications to work ECNs 7291 and 7292, electrical circuit rework	Complete 11/12/87
		(3) DNE to prepare design documents to procure or modify ERCW flow indicator in D/G building	Complete by 1/31/89
		(4) Systems Engineering generate design change request to inject sodium hypochlorite downstream of the strainers	Complete by 7/31/88
		(5) DNE to do mission dose calculation when placing screens and strainers in continuous backwash following LOCA	Complete
		(6) DNE (Mechanical Engineering Branch) to evaluate strainer flow Delta P	Complete 2/15/88
CAQR SQP 871477	Visual inspection of D/G flex hoses	(1) DNE calculation No. CEB-CQS-340, revision 0, "Flexible Metal Hose Evaluation" with metal flex hose	Complete 3/1/88
		(2) Letter from Impell to TVA dated 10/14/87, "TVA Contract TV-73037A IDI Consulting Task Preliminary Flex Hose Evaluation"	Complete 3/1/88

Source ID	Description	Corrective Action	Status
		(3) Memorandum from J. B. Hosme to L. M. Nobles dated 10/16/87, "Sequoyah Nuclear Plant (SQN) - Flexonics Flex Hoses"	Complete 3/9/88
		(4) Procure qualified flex hose and install	Next refueling outage, unit 1
ECN L6712	Do not use alternate feeder breaker for turbine-driven auxiliary feedwater pump	Partial field-complete workplan 12147 finished	ECN remains open until appropriate drawings are revised

A detailed status of all items identified as "after unit 2 restart" will be submitted by June 6, 1988.

A detailed status including corrective actions necessary to eliminate CMs will be submitted June 6, 1988, on the following CMs: (CMs identified by source document identification number)

SQNMEB8677, SQNNEB8617, S53 851206 915, EC203.01, EC243.00, EC17301, NRC observation No. 6.22, NC085-0086-020, Operations printout No. 27, A27 830919 018, ECNL6073, IDI D-2.09, and IDI D2.2-7.

Response 2

The determination for the need of an additional assistant shift engineer to be added to each shift before two-unit operation is still being evaluated and will be completed before unit 1 mode 4.

ENCLOSURE 3

1. A supplemental response will be submitted by June 6, 1988, to define corrective action and provide final completion dates for CMs identified below.

   a. CAQR SQP 870217, MCR standby air-conditioning start--investigate logic circuitry problems in the system.

   b. SCR SQNEEB 86136, manually isolate certain tornado dampers--investigate to determine permanent corrective action.

   c. ECN L6712, do not use alternate feeder breaker for turbine-driven AFW pump--ECN remains open until appropriate drawings are revised.

2. The following CMs along with respective corrective actions will be completed on the identified dates.

   a. PIR SQNEEB 3683, procedure changes needed--complete by June 6, 1988.

   b. CAQR SQP 871696, ECNs L7334 and L7335 to be issued and fieldwork to be performed--complete by May 5, 1988.

   c. CAQR SQF 870022, DNE to reanalyze Auxiliary Building structures for design basis tornado and revise calculation accordingly--complete by April 30, 1988.

   d. CAQR SQF 870181, reconfigure existing circuitry to provide high-resistance ground and MCR alarm--complete during next unit 1 refueling outage.

   e. CAQR SQT 870349, environmentally qualify lower compartment coolers--complete unit 2 by November 30, 1988, and unit 1 by August 1, 1988.

   f. CAQR SQT 870649, initiate ECNs L7155 and L7154 to trip and lock out fire pumps on SI--complete unit 1 by September 1, 1988, and unit 2 by June 1, 1988.

   g. CAQR SQP 871182, DNE to incorporate circuit protection--complete by October 1, 1988.

   h. CAQR SQP 871263, DNE to prepare design documents to procure or modify ERCW FI in D/G Building--complete by January 31, 1989; generate DCR to inject sodium hypochlorite downstream of the strainers--complete by July 31, 1988.

   i. CAQR SQP 871477, DNE to procure qualified flex hose and install--next unit 1 refueling outage.

3. A detailed status including corrective actions necessary to eliminate CMs will be submitted June 6, 1988, on the following CMs: (CMs identified by source document identification number)

   SQNMEB8677, SQNNEB8617, S53 851206 915, EC203.01, EC243.00, EC17301, NRC observation No. 6.22, NC085-0086-020, Operations printout No. 27, A27 830919 018, ECNL6073, IDI D-2.09, and IDI D2.2-7.

4. Determination of the need for an additional assistant shift engineer will be completed before unit 1 mode 4 and a supplemental response will be submitted.