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

Masoud Bajestani
Site Vice President
Sequoyah Nuclear Plant

December 1, 1997

U.S. Nuclear Regulatory Commission 10 CFR 50.73
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - DOCKET NOS. 50-327 AND 50-328 - FACILITY OPERATING LICENSES DPR-77 AND DPR-79 - LICENSEE EVENT REPORT (LER) 50-327/97014

The enclosed report provides details concerning a failure to perform a technical specification required surveillance on the power operated relief valves in the required mode. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(i)(B) as an operation prohibited by the plant's technical specifications.

Sincerely,

M. Bajestani

Masoud Bajestani

Enclosure
cc: See page 2

IE22

1/1

Enclosure
cc (Enclosure):
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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(4-95)

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Sequoyah Nuclear Plant (SQN) Unit 1	05000327	1 OF 10

TITLE (4)
Missed Surveillances as a result of Inadequate Procedures and a Failure to Follow a Procedure.

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	23	94	97	-- 014 --	00	12	01	97	Sequoyah, Unit 2	05000328
									FACILITY NAME: NA	DOCKET NUMBER: 05000

OPERATING	1
POWER	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)	OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
J. W. Proffitt, Licensing Engineer	(423) 843-6651

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
N/A						N/A				

SUPPLEMENTAL REPORT EXPECTED (14)

			EXPECTED	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 paces, i.e., approximately 15 single-spaced typewritten lines) (16)

On November 1, 1997, plant personnel discovered that the Unit 2 reactor coolant system power operated relief valves (PORVs) were not cycled in Mode 4 as required by technical specifications. Cycling of the valves occurred under near equivalent Mode 4 conditions, with the unit in Mode 5 following establishment of a bubble in the pressurizer. Plant personnel subsequently determined that the PORVs on both units were previously cycled in the incorrect mode. Additionally, plant personnel determined that testing of six diesel generator (D/G) load sequence timers and D/G lockout features occurred in the incorrect mode. The cause of the failure to perform the PORV surveillance in the correct mode was ineffective change management. A procedure revision allowed two dissimilar surveillance requirements to be performed by one surveillance instruction and was scheduled by one matrix identification number. Unit 2 was cooled down to Mode 4, and the surveillance was successfully performed in Mode 4 as required by technical specifications. The general operating surveillance checklists were reviewed and revised to ensure that the PORVs are tested in Mode 4.

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
SQN Unit 1	05000327	97 --	014 --	00	2 of 10

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

I. PLANT CONDITIONS

Unit 1 was in power operation at approximately 100 percent and Unit 2 was in Mode 3 shutdown in a refueling outage.

II. DESCRIPTION OF EVENT

A. Event

On November 1, 1997, plant personnel discovered that the Unit 2 reactor coolant system (RCS) [EIIS Code AB] power operated relief valves (PORVs) [EIIS Code RV] were not cycled in Mode 4 as required by technical specifications. Cycling of the valves occurred with the unit in Mode 5 following establishment of a bubble in the pressurizer. Plant personnel subsequently determined that the PORVs on both units were previously cycled in the incorrect mode. Cycling of the Unit 1 PORVs occurred on March 2, 1996, with the unit in Mode 4. The Unit 1 surveillance requirement is currently within the technical specification required frequency.

Additionally, plant personnel determined that testing of six diesel generator (D/G) load sequence timers and D/G lockout features occurred in the incorrect mode. These components were tested with the unit in Mode 1 before the unit was shutdown for the refueling outage. The testing should have occurred during plant shutdown.

B. Inoperable Structures, Components, or Systems that Contributed to the Event

None.

C. Dates and Approximate Times of Major Occurrences

UNIT 2 TIMELINE

March 6, 1993	The surveillance instruction was successfully performed on the Unit 2 PORVs during Mode 4.
September 9, 1993	Plant personnel revised the surveillance instruction and surveillance scheduling matrix to allow performance of the instruction for Modes 4, 5, and 6. This revision allows utilization of the procedure during extended outages.
October 23, 1994 Unit 2 Cycle 6 refueling outage	The surveillance instruction was performed on the Unit 2 PORVs during Mode 5.
May 29, 1996 Unit 2 Cycle 7 refueling outage	The surveillance instruction was performed on the Unit 2 PORVs during Mode 5.
October 28, 1997 Unit 2 Cycle 8 refueling outage	The surveillance instruction was performed on the Unit 2 PORVs during Mode 5.
October 31, 1997	Unit 2 entered Mode 3.
November 1, 1997	Plant personnel detected the error associated with testing the PORVs in Mode 5.
November 1, 1997 at 1452 Eastern Standard time (EST)	Plant personnel notified Operations and plant management of the identified condition.

November 1, 1997 at 1820 EST	Operations confirmed that the surveillance on the PORVs was not performed in the correct mode. Operations entered Limiting Condition for Operation (LCO) 4.0.3.
November 1, 1997 at 2020 EST	Operations initiated a cool down to Mode 4 on Unit 2.
November 1, 1997 at 2326 EST	Unit 2 entered Mode 4.
November 1, 1997 at 2326 EST	Operations exited LCO 4.0.3. The PORVs are not required to be operable in Mode 4 per Technical Specification 3.4.4.3.2.
November 2, 1997 at 0045 EST	The surveillance instruction was successfully performed on the Unit 2 PORVs.

UNIT 1 TIMELINE

March 15, 1993	The surveillance instruction was successfully performed on the Unit 1 PORVs during Mode 4.
October 23, 1995 Unit 1 Cycle 7 refueling outage	The surveillance instruction was performed on the Unit 1 PORVs during Mode 5.
March 2, 1996 Unit 1 forced outage	The surveillance instruction was successfully performed on the Unit 1 PORVs during Mode 4.

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

During a review of the outage surveillances, plant personnel identified that the PORV surveillance was performed in the incorrect mode.

F. Operator Actions

The control room operators declared the Unit 2 PORVs inoperable and entered the appropriate LCOs. Operations initiated a cool down to Mode 4 on Unit 2.

G. Safety System Responses

None

III. CAUSE OF THE EVENT

A. Immediate Cause

The immediate cause of the condition was the failure to perform the surveillance in accordance with technical specifications.

B. Root Cause

The root cause of the failure to perform the PORV surveillance in the correct mode was ineffective change management. A procedure revision allowed two dissimilar surveillance requirements to be performed by one surveillance instruction and was scheduled by one matrix identification number. Surveillance Requirement 4.0.5 requires quarterly testing while Surveillance Requirement 4.4.3.2.1.b requires full stroking during Mode 4.

The root cause for failing to perform the D/G load sequence timers in the correct mode was personnel error, poor self-checking by Maintenance, Operations, and

Outage personnel. The surveillance instruction and the surveillance instruction matrix clearly identified when the surveillance was to be performed.

The cause of the failing to perform the D/G lockout features in the correct mode was an inadequate procedure. The surveillance instruction indicated that the surveillance could be performed in any mode.

C. Contributing Factors

There are two contributing factors to the identified condition.

- The surveillance instruction was inadequately revised to identify the separate surveillance requirements being implemented and the distinct conditions (modes) required for each. This led directly to the Surveillance Requirement 4.4.3.2.1.b repeatedly being performed in the incorrect mode.

- The surveillance instruction matrix was inappropriately changed for Surveillance Requirement 4.4.3.2.1.b when the surveillance instruction was revised for Surveillance Requirement 4.0.5.

IV. ANALYSIS OF THE EVENT

As stated in the technical specification bases, the PORVs and steam bubble function to relieve reactor coolant system pressure during design transients up to and including the design step load decrease with steam dump. Operation of the PORVs minimizes the undesirable opening of the spring-loaded pressurizer code safety valves. Each PORV has a remotely operated block valve to provide positive shutoff capability should a relief valve become inoperable. The PORVs also function to remove noncondensables or steam from the pressurizer.

The Unit 2 PORVs were full stroke tested in Mode 5 with a steam bubble in the pressurizer. The Mode 5 pressurizer conditions that existed at the time the valves were stroked were: temperature approximately 420 degrees Fahrenheit and pressure approximately 309 psia. These conditions compare favorably to previous pressurizer Mode 4 conditions noted at the 420 degrees Fahrenheit, 309 psia value in testing, bounding the tested Mode 5 conditions. A full stroke of the PORV in these Mode 5 conditions illustrate the PORVs performance in as close to the normal operating conditions as is practicable and are equivalent to the conditions required by Surveillance Requirement 4.4.3.2.1.b. The PORVs were subsequently successfully stroked in Mode 4 as required by technical specifications.

The testing of the D/G load sequence timers and the D/G lockout features is not impacted by performance at power. The shutdown requirement relates to ensuring the unit is not in an unsafe condition while major testing is in progress on a D/G. Additionally, the D/G load sequence timers were functionally tested in Mode 6 during performance of the D/G load shedding and load sequencing surveillance. This surveillance demonstrated that the D/G load sequence timers were functioning properly.

Therefore, these conditions are not safety-significant and the conditions do not adversely affect the health or safety of plant personnel or the general public.

V. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

- Operations personnel cooled down Unit 2 to Mode 4, and the surveillance was successfully performed as required by technical specifications.

- The general operating surveillance checklists were revised to ensure that the PORVs are tested in Mode 4.
- Previous performances of the Unit 1 surveillances were reviewed to ensure Unit 1 is in compliance with technical specifications. The review revealed that the surveillance was properly completed in Mode 4 on March 2, 1996 and in within the technical specification required frequency.
- The forced outage and refueling outage schedules were revised for proper scheduling of the surveillance.
- A new matrix identification number was created to track the performance of Surveillance Requirement 4.4.3.2.1.b to ensure the PORVs are tested in Mode 4.
- Surveillance requirements that specify shutdown or refueling conditions for performance were reviewed to bound the extent of condition. The findings identified the other conditions previously stated.

B. Corrective Actions to Prevent Recurrence

- A review of the general operating instruction mode change checklists against surveillance requirements has now been scheduled for performance before each refueling outage.
- A lessons learned letter was issued to appropriate plant personnel for weaknesses in the work approval process (signing on work for load sequence timers in an inappropriate mode).
- Guidance was added to the general operating instruction mode change checklists to ensure the responsible organizations signing the checklists are aware of their responsibility to sign for the matrix identification numbers and the surveillance instruction.
- The PORV surveillance instructions will be revised by February 27, 1998, to ensure the surveillances are performed in the correct mode.

- The D/G load sequence timers and the D/G lockout features are scheduled to be tested during the next outage of sufficient duration.
- TVA will perform a baseline review of the general operating instruction mode change checklists against surveillance requirements to ensure that technical specification required equipment is tested in the applicable mode.[1]
- TVA will review the surveillance matrix to ensure that procedures with multiple performance modes have separate matrix identification numbers.[1]
- TVA will develop a procedure for the surveillance program that provides guidance to determine when separate matrix identification numbers are required or when separate procedures should be written to implement surveillance requirements.[1]
- Appropriate positive discipline was provided to the personnel who signed on the work for load sequence timers in wrong mode and the personnel who performed the work on load sequence timers in wrong mode.

VI. ADDITIONAL INFORMATION

A. Failed Components

None.

[1] TVA does not consider this corrective action a regulatory commitment. TVA's corrective action program will track completion of the action.

B. Previous LERs on Similar Events

A review of previously reported occurrences identified several previously reported events associated with missed surveillances. The majority of the missed surveillances were associated with inadequate procedures caused from inadequate procedure revisions. There were no previous LERs where two dissimilar surveillances were included in one surveillance instruction and schedule with one matrix identification number.

C. Additional Information

None.

VII. COMMITMENTS

The PORV surveillance instructions will be revised by February 27, 1998, to ensure the surveillances are performed in the correct mode.