

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

6N 38A Lookout Place

October 12, 1989

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

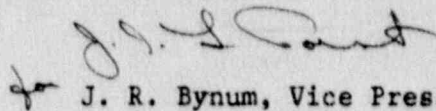
Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 2 - DOCKET NO.
50-328 - FACILITY OPERATING LICENSE DPR-79 - LICENSEE EVENT REPORT (LER)
50-328/89012

The enclosed LER provides details of an event wherein one train of reactor vessel level instrumentation system level indication was inoperable for more than seven days because an isolation valve was inadvertently left mispositioned during preventive maintenance. This event is being reported in accordance with 10 CFR 50.73, paragraph a.2.i.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



J. R. Bynum, Vice President
Nuclear Power Production

Enclosure

cc (Enclosure):

Regional Administration
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30323

INPO Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

NRC Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
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U.S. Nuclear Regulatory Commission

October 12, 1989

JTL:CAV:MAC:GC

cc: RIMS, MR 4N 72A-C (Enclosure)
M. J. Burzynski, O&PS-4, Sequoyah (2) (Enclosure)
D. L. Conner, MBC 07-PTC (Enclosure)
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S. W. Crowe, SB-1, Sequoyah
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F. D. Kelly, PMA-E, Browns Ferry (Enclosure)
J. T. LaPoint, O&PS-4, Sequoyah (Enclosure)
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0579h

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Sequoyah Nuclear Plant, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 2 8	PAGE (3) 1 OF 0 3
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TITLE (4) **One train of the reactor vessel level instrumentation system level indication inoperable because an isolation valve was inadvertently left mispositioned during preventive maintenance.**

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 NAMES			DOCKET NUMBER(S)
0	9	1 2 8 9	8 9	0 1 2	0 0 1	0	1	2 8 9				0 5 0 0 0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)									
POWER LEVEL (10) 1 0 0	20.402(b)	20.406(d)	50.73(e)(2)(iv)	73.71(b)						
	20.406(e)(1)(ii)	50.36(c)(1)	50.73(e)(2)(v)	73.71(e)						
	20.406(e)(1)(iii)	50.36(c)(2)	50.73(e)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	20.406(e)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	50.73(e)(2)(viii)(A)							
	20.406(e)(1)(iv)	50.73(a)(2)(ii)	50.73(e)(2)(viii)(B)							
20.406(e)(1)(v)	50.73(a)(2)(iii)	50.73(e)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
NAME	AREA CODE	
Geoffrey A. Hipp, Compliance Licensing Engineer	6 1 5 8 4 3	- 7 7 6 6

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRD	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRD	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)		<input checked="" type="checkbox"/> NO			

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On September 12, 1989, with Units 1 and 2 at 100 percent, 2,235 pounds per square inch gauge, 578 degrees Fahrenheit, a Unit 2 reactor vessel level instrumentation system level indicator failed a monthly channel check and was declared inoperable. A magnetically operated isolation valve for the level indicator was subsequently found closed and was determined to have been closed since being inadvertently mispositioned while being exercised during preventive maintenance (PM) on August 15, 1989. After the isolation valve was opened and other isolation valves were verified to be fully open, the level indicator returned to a normal indication and was declared operable. The root cause of this event has been attributed to inadequate training for the two craft personnel who performed the PM in August. Additionally, the PM procedure should have included more detailed work instructions. As corrective action, the appropriate craft personnel have been trained, and the PM procedure has been revised to provide more detailed guidance.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah Nuclear Plant, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 2 8 8 9 - 0 1 2 - 0 0 0 2 OF 0 3	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	

TEXT (If more space is required, use additional NRC Form 386A's) (17)

At 0145 on September 12, 1989, with Units 1 and 2 in Mode 1 at 100 percent power, 2,235 pounds per square inch gauge, 578 degrees Fahrenheit, Unit 2 Level Indicator 2-LI-68-370 was found to be in an upscale failure condition during performance of a monthly channel check. The level indicator is the Train B reactor vessel level instrumentation system (RVLIS) wide-range postaccident monitor instrument (EIIS Code IP). The level indicator was declared inoperable, and Limiting Condition for Operation (LCO) 3.3.3.7 was entered as of 0145 on September 12, 1989. Subsequently, while checking the transmitter and associated piping, one of the isolation valves for the Train B level indicators was found in the closed position, and several other Train A and B isolation valves were found in a partially closed position.

The isolation valves are Autoclave magnetically-operated valves that require a special magnetic valve actuator to open or close them. The magnetic valve actuator is a portable device available only to Instrument Maintenance personnel and is not left on the isolation valves in the field. Because of the unique arrangement for changing the isolation valve position, it was suspected that the valves had been left in the incorrect position during the previous performance of the preventive maintenance (PM) task that exercises the valves (PM-1274). This PM is scheduled monthly and had been last performed on August 15, 1989. Interviews were conducted subsequent to this event with the craft personnel who performed the PM in August. These interviews established that the valves had likely been left mispositioned at that time as the result of a misconception about how far the magnetic actuator was supposed to be turned to move the valve and as a result of the craft personnel not being aware that the valve position could be inadvertently changed if the actuator was not removed carefully.

With the isolation valves correctly repositioned, Level Indicator 2-LI-68-370 returned to a normal indication and was subsequently declared operable. The LCO was exited at 1518 on September 12, 1989.

Cause of Event

The root cause of this event has been attributed to inadequate training for the two craft personnel who performed PM-1274 in August 1989. These personnel had a basic knowledge about how to read the position indicator on the magnetic actuator but were otherwise unfamiliar with how it worked. Other craft personnel who have received instruction about how the magnetic actuator works have been performing the PM for several years without incident. Additionally, the detailed work instructions in PM-1274 should have included more detailed guidance about how to install and remove the magnetic actuator and how to open and close the valve. The PM did not contain sufficient precaution statements and did not require training prior to performing the PM. The deficiencies in this PM are believed to be an isolated instance resulting from the unique operating characteristics of the magnetic actuator. The RVLIS isolation valves are the only application of Autoclave magnetically-operated valves at SQN.

Analysis of Event

This event is being reported in accordance with 10 CFR 50.73, paragraph a.2.i, as an operation prohibited by technical specifications in that the number of operable RVLIS channels was less than the required number of channels for a period of time greater than seven days, i.e., from August 15, 1989, until September 12, 1989.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah Nuclear Plant, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 2 8 8 9 — 0 1 2 — 0 0 0 3 OF 0 3	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

Analysis of Event (Continued)

The RVLIS is part of the instrumentation installed at SQN in response to NUREG-0737, "Clarification of TMI Action Plan Requirements," Item II.F.2, "Instrumentation for Detection of Inadequate Core Cooling." The function of the RVLIS is to measure reactor vessel level or relative void content of the circulating primary coolant system fluid following a postulated severe accident, such as a loss of coolant accident, to aid in the detection of an approach to core uncover. The RVLIS utilizes two redundant sets of three differential pressure (D/P) cells. These cells measure the pressure drop from the bottom of the reactor vessel to the top of the vessel and from the hot legs to the top of the vessel. This D/P measuring system utilizes three D/P cells to cover different flow behaviors with and without reactor coolant pump operation. Essential information is displayed in the main control room in a form directly usable by the operators.

The RVLIS is intended to be used in conjunction with the incore thermocouples and other incore and excore instrumentation to detect the approach of an inadequate core cooling (ICC) condition. The potential consequence of not detecting the approach of an ICC condition could be severe core damage, such as the core damage that occurred during the Three Mile Island, Unit 2, accident in 1979. However, the RVLIS is a redundant, two-train system, and only one train was inoperable during this event. In addition, the incore thermocouples and other incore and excore instrumentation to be used to detect the approach of an ICC condition were unaffected by this event. Therefore, because of the redundant RVLIS channel and the other means for detecting the approach of an ICC condition, it is concluded that this event did not result in any increased risk to the health and safety of plant personnel or the general public.

Corrective Actions

As immediate corrective action, the isolation valves on both trains of the RVLIS were checked and repositioned as necessary to the fully open position. As corrective action to prevent recurrence, the appropriate craft personnel have received training on the proper method of exercising the Autoclave valve and precautions about how to ensure the valve is left in the proper position. In addition, the detailed work instructions in PM-1274 have been revised to include adequate instructions and precautions to guide a trained craftsman through the required process of installing the magnetic actuator, exercising the valve, and removing the actuator. Signoffs have been placed in the PM procedure to show that the craftsman has received training on the use of the Autoclave magnetic actuator and has had an opportunity to use the magnetic actuator on a test valve in the shop prior to performing the PM in the field. Independent verification of the as-left valve position has also been incorporated into the revised PM procedure.

Additional Information

No previous events could be identified that reported an inoperable RVLIS channel as the result of mispositioned isolation valves.

Commitments

None.

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