

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

R.J. Adney  
Site Vice President  
Sequoyah Nuclear Plant

November 22, 1995

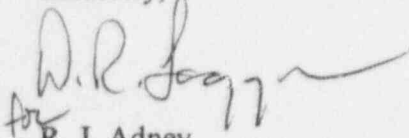
U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT (SQN)  
UNIT 1 - DOCKET NO. 50-327 - FACILITY OPERATING LICENSES DPR-77 -  
LICENSEE EVENT REPORT (LER) 50-327/95015

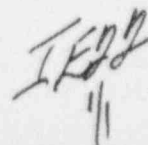
The enclosed report provides details concerning an engineered safety feature actuation. A feedwater isolation signal occurred when a main steam isolation valve was opened with the differential pressure across the valve higher than it should have been. This report is being reported in accordance with 10 CFR 50.73(a)(2)(iv) as a condition that resulted in the automatic actuation of an engineered safety feature.

Sincerely,

  
R. J. Adney

Enclosure  
cc: See page 2

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PDR ADOCK 05000327  
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U.S. Nuclear Regulatory Commission

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Enclosure

cc (Enclosure):

INPO Records Center  
Institute of Nuclear Power Operations  
700 Galleria Parkway  
Atlanta, Georgia 30339-5957

Mr. D. E. LaBarge, Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852-2739

NRC Resident Inspector  
Sequoyah Nuclear Plant  
2600 Igou Ferry Road  
Soddy-Daisy, Tennessee 37379-3624

Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323-2711

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), 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.

FACILITY NAME (1)  
Sequoyah Nuclear Plant (SQN), Unit 1

DOCKET NUMBER (2)  
05000327

PAGE (3)  
1 of 5

TITLE (4) Engineered Safety Feature Actuation

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
11	01	95	95	015	00	11	22	95	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)				
1	13	20.402(b)	20.405(a)(1)(i)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(ii)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(iii)	50.36(c)(2)		50.73(a)(2)(vii)	OTHER
		20.405(a)(1)(iv)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(v)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)	
			50.73(a)(2)(iii)		50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME  
S. D. Gilley, Compliance Licensing Engineer

TELEPHONE NUMBER (Include Area Code)  
(615) 843-7427

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

CAUSE	SYS TEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

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

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

On November 1, 1995, at approximately 0923 Eastern standard time (EST), with Unit 1 in Mode 4 following a refueling outage, the control room operator was preparing to open the main steam isolation valves (MSIVs). Operators misread a note in the procedure which led them to conclude that the differential pressure across the Steam Generator (S/G) No. 1 MSIV was below 15 pounds per square inch differential (psid) as required. The actual differential pressure across the MSIV was approximately 40 psid. When the No. 1 S/G MSIV was opened, the high differential pressure resulted in S/G level indication rising rapidly to near 100 percent then returning to approximately 40 percent. This rise in S/G level satisfied the conditions for a feedwater isolation (FWI) signal. After the S/G level returned to approximately 40 percent, the remaining MSIVs were opened without incident.

Corrective actions taken for this event were counselling the involved operations personnel in the use of the verification and validation process and discussing the application of a procedural note with the involved operations personnel. The note in the procedure was also enhanced to clarify what instrumentation was to be used in determining differential pressure prior to opening of the MSIV. These actions have been completed.

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TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Sequoyah Nuclear Plant (SQN), Unit 1	05000327	95	015	00	2 of 5

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

**I. PLANT CONDITIONS**

Unit 1 was in Mode 4 following a refueling outage.

**II. DESCRIPTION OF EVENT**

**A. Event**

On November 1, 1995, at approximately 0923 Eastern standard time (EST), with Unit 1 in Mode 4 following a refueling outage, the control room operator was preparing to open the main steam isolation valves (MSIVs)(EISS Code SB). The control room operator (CRO), the operator at the controls, and the assistant shift operations supervisor misread a note in the procedure which led them to conclude that the differential pressure across the Steam Generator (S/G) No.1 MSIV was below 15 pounds per square inch differential (psid) as required. There are three acceptable methods for determining differential pressure across the MSIVs prior to opening. One of these is to compare two computer points for downstream pressure with the pressure of the S/G. The CRO incorrectly used only the two computer points as the differential pressure across the MSIV. The first time the CRO read the computer points, the difference between them was 20 pounds per square inch (psi), this value subsequently fell to 9 psi and then 4.5 psi on subsequent readings. The falling values contributed to the CRO's belief that differential pressure across the MSIV was being measured. The actual differential pressure across the MSIV was approximately 40 psid. When the No.1 S/G MSIV was opened, the high differential pressure resulted in S/G level swelling to near 100 percent then returning to approximately 40 percent. This rise in S/G level satisfied the conditions for a feedwater (EISS Code SJ) isolation (FWI) signal. After the S/G level returned to approximately 40 percent, the remaining MSIVs were opened without incident. A corrective action document was initiated to evaluate the problem.

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

None.

**C. Dates and Approximate Times of Major Occurrences**

November 1, 1995                      Operations was preparing to open the MSIV's. Bypass valves were open to reduce the differential pressure across the MSIV's prior to opening.

November 1, 1995  
at 0923 EST                      The No. 1 S/G MSIV was opened. The actual differential pressure across the valve was approximately 40 psi. This caused an increase in S/G level and resulted in an FWI signal being generated.

**D. Other Systems or Secondary Functions Affected**

None.

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**E. Method of Discovery**

The rise in level for steam generator #1 satisfied the conditions for a FWI signal and the on-shift crew recognized that an FWI signal had been generated.

**F. Operator Actions**

The control boards were monitored for components that would reposition. Subsequently, the remaining MSIVs were opened.

No operator actions were necessary to return the water level in steam generator # 1 to normal levels.

**G. Safety System Responses**

The equipment receiving the FWI signal responded as designed.

**III. CAUSE OF EVENT**

**A. Immediate Cause**

The immediate cause of this event was opening the S/G No. 1 MSIV with a differential pressure that was higher than the procedure allowed. A note in the procedure indicated that one acceptable method for determining differential pressure was to compare steam generator pressure with two computer points. The operator misunderstood the note and believed that differential pressure could be determined by comparing the two computer points to each other.

**B. Root Cause**

The root cause of the event was determined to be the result of the misinterpretation of the procedural note for determining differential pressure across the MSIV prior to opening the valve.

**C. Contributing Factors**

None.

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**IV. ANALYSIS OF EVENT**

When the unit is in power operation, an FWI signal limits the amount of mass in the steam generator in the event of a main steam-line break. This limits the energy of a blowdown and prevents overcooling of the primary system. A FWI signal closes the main feedwater isolation valves, the feedwater regulating valves, the bypass regulating valves and trips the main feedwater pumps. In the event described by this LER, the main FWI valves were closed and the main feedwater pumps were not operating, before the FWI signal was initiated. All components operated as designed on receipt of the FWI signal.

Therefore, it can be concluded that there were no adverse consequences to plant personnel or to the general public as a result of this event.

**V. CORRECTIVE ACTIONS**

**A. Immediate Corrective Action**

The immediate corrective action was to suspend the opening of the remaining MSIVs and to determine the cause of the increase in S/G level.

**B. Corrective Action to Prevent Recurrence**

The corrective actions taken for this event were to coach and counsel the involved operations personnel in the correct application of the validation and verification process and to explain the intent and application of the note to involved personnel. The note in the procedure has been enhanced to clarify the instrumentation to be used in determining differential pressure.

**VI. ADDITIONAL INFORMATION**

**A. Failed Components**

None.

**B. Previous Similar Events**

A review of previous reportable events identified one LER (327/85026) associated with the initiation of a feedwater isolation as a result of opening an MSIV while the differential pressure was higher than desired. That event was also the result of incorrectly determining the delta P across the valve. However, it was caused by the difficulty in accurately determining the upstream and downstream pressures using a gauge with a range of 0-1200 psi. The low temperatures at which the MSIVs were being opened caused correspondingly low pressure readings which were difficult to determine on the scale provided. The corrective actions taken for this event would not have prevented the event described by this LER.

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**VII. COMMITMENTS**

None.