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

R.J. Adney
Site Vice President
Sequoyah Nuclear Plant

January 8, 1996

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) 50-327/95017

The enclosed LER provides details concerning a manual reactor trip that was initiated as a result of a low steam generator level. The loss of an air line on the Loop 4 feedwater regulator valve caused a reduction in feedwater flow, resulting in decreasing level in the No. 4 steam generator. Control of the feedwater regulator valve could not be maintained; therefore, a manual reactor trip was initiated. This event is being reported in accordance with 10 CFR50.73(a)(2)(iv) as an event that resulted in the actuation of engineered safety features, including the reactor protection system.

Sincerely,

R. J. Adney

Enclosure
cc: See page 2

160103

IE22
1/1

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

NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

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 (MNBB 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.

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 5

TITLE (4) Manual Reactor Trip Initiated as a Result of Failed Air Line to Feedwater Regulator Valve Causing Low Steam Generator Level

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
12	08	95	95	017	00	01	08	96	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	100		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER
			20.405(a)(1)(iii)	X	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)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B		
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
J. W. Proffitt, Compliance 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

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

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

On December 8, 1995, at 2156 Eastern standard time (EST), a manual reactor trip was initiated on Unit 1 as a result of a low level in the No. 4 steam generator. At 2122 EST, a low steam generator level alarm was recieved in the main control room. An assistant unit operator was dispatched to the feedwater regulator valves to investigate. It was determined that an air line on the Loop 4 feedwater regulator valve was leaking and causing the feedwater regulator valve to drift closed. The root cause of this event was a lack of controls for maintenance activities that affect vibration through system configuration changes. A 1/8-inch brass close nipple that connected the air line to the valve positioner had failed. The configuration of the four Unit 1 feedwater regulating valves was changed by installing new tubing and fittings. The appropriate procedures and/or program will be revised to address maintenance activities that affect vibration through system configuration changes. The appropriate Maintenance personnel will be trained on the revised procedures/program.

I. PLANT CONDITIONS

Unit 1 was in power operation, Mode 1, at approximately 100 percent power.

II. DESCRIPTION OF EVENT

A. Event

On December 8, 1995, at 2156 Eastern standard time (EST), a manual reactor trip was initiated on Unit 1 as a result of a low level in the No. 4 steam generator (EIIS CODE AB). At 2122 EST, a low steam generator level alarm was received in the main control room. An assistant unit operator (AUO) was dispatched to the feedwater regulator valves (EIIS CODE SJ) to investigate. It was determined that an air line on the Loop 4 feedwater regulator valve was leaking and causing the feedwater regulator valve to drift closed. This resulted in a reduction of feedwater to the No. 4 steam generator and subsequent decrease in level. The AUO held the line together, restoring the control of the valve. Efforts were being made to determine how to restore the configuration of the line. The line subsequently severed, and control of feedwater flow to the No. 4 steam generator was lost. The operator initiated a manual reactor trip.

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

None.

C. Dates and Approximate Times of Major Occurrences

December 8, 1995 at 2122 EST	A low steam generator level alarm on Loop 4 was annunciated in the control room. The unit operator observed that the feedwater flow was below main steam flow. An AUO was dispatched to the feedwater regulator valves to investigate.

December 8, 1995 at 2124 EST	The AUO identified that a fitting on the valve was leaking. The AUO held the line together, restoring control to the valve. Efforts were being made to determine how to restore the configuration of the line.
December 8, 1995 at 2150 EST	The line subsequently severed, and control of feedwater flow to the No. 4 steam generator was lost.
December 8, 1995 at 2156 EST	Operations personnel manually tripped the reactor and stabilized the plant in Mode 3.

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

A low steam generator level alarm on Loop 4 was annunciated in the control room.

F. Operator Actions

The control room operators responded to the alarm and diagnosed the plant condition. After determining that feedwater control would not respond properly, the operator initiated a manual reactor trip. Subsequent to the trip, the operators stabilized the unit in hot standby, Mode 3.

G. Safety System Responses

The plant responded to the manual reactor trip as designed.

III. CAUSE OF EVENT

A. Immediate Cause

The immediate cause of the event was the failure of an air line on the Loop 4 feedwater regulator valve.

B. Root Cause

During the Unit 1 Cycle 7 refueling outage, quick disconnect fittings were added to the feedwater regulator valve air lines. The addition of the quick disconnects was performed in accordance with plant maintenance procedures. However, vibration effects were not considered during the planning or implementation of the activity.

The root cause of this event was a lack of controls for maintenance activities that affect vibration through system configuration changes. Procedurally, vibration is not considered in work planning unless specifically addressed by a work request.

IV. ANALYSIS OF EVENT

Plant responses during and after the unit trip were consistent with the responses described in the final safety analysis report, and accordingly, the event did not adversely affect the health and safety of plant personnel or the general public.

V. CORRECTIVE ACTIONS

A. Immediate Corrective Action

The four Unit 1 feedwater regulating valves contained 1/8-inch brass close nipples in the positioner output line configurations. Subsequent to the event, the configuration was changed on these four valves by installing new tubing and fittings. In addition to these valves, other valves that had the quick disconnect couplings added in either Unit 1 Cycle 7 or

Unit 2 Cycle 6 were walked down. The purpose of the walkdown was to identify similar tubing configurations that could possibly be affected by the addition of the quick connect couplings. The results of the walkdowns concluded that the configurations were satisfactory.

B. Corrective Action to Prevent Recurrence

The appropriate procedures and/or program will be revised to address maintenance activities that affect vibration through system configuration changes. The appropriate Maintenance personnel will be trained on the revised procedures/program.

VI. ADDITIONAL INFORMATION

A. Failed Components

A 1/8-inch brass national pipe thread close nipple in the positioner air output line failed as a result of high cycle fatigue caused by vibration.

B. Previous Similar Events

A review of previous reportable events identified no previous events resulting from a vibration-induced failure of a component.

VII. COMMITMENTS

1. The appropriate procedures and/or program will be revised to address maintenance activities that affect vibration through system configuration changes. This action will be completed by March 1, 1996.

2. The appropriate Maintenance personnel will be trained on the revised procedures/program. This action will be completed by April 12, 1996.