June 18,2002

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)
UNIT 2 - DOCKET NO. 50-328- FACILITY OPERATING LICENSE
DPR 79 - LICENSEE EVENT REPORT (LER) 50-328/2002002

The enclosed report provides details concerning a manual reactor trip as a result of control rods not responding as required. This event is being reported, in accordance with 10 CFR 50.73(a)(2)(iv), as an event that resulted in a manual actuation of engineered safety features including the reactor protection system. This letter is being sent in accordance with NRC RIS 2001-05.

Sincerely,

Original signed by
Dennis L. Koehl for

Richard T. Purcell

Enclosure
cc (Enclosure):
INPO Records Center
Institute of Nuclear Power Operations
700 Galleria Parkway
Atlanta, Georgia 30339-5957

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Sequoyah Nuclear Plant (SQN) UNIT 2	05000328	1 OF 06

4. TITLE
Manual Reactor Trip Resulting from the Failure of Control Rods to Respond

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	19	2002	2002	– 002	– 00	06	19	2002	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	2
10. POWER LEVEL	000

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	X 50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	
20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
James Proffitt	(423) 843-6651

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	AA	RLY	C345	N					

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

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

On May 19, 2002, at 0447 Eastern Daylight Time the Unit 2 reactor was manually tripped as a result of a Rod Control System Urgent Failure Alarm on Shutdown Bank B and Control Bank D. During performance of low power physics testing, Operations personnel attempted to insert shutdown rod bank B, when the rod control urgent alarm actuated. After actuation of the alarm, operators identified that group two of shutdown rod bank B would not move. With shutdown rod bank B not able to be inserted, a slight positive reactivity existed. Operations personnel decided to insert Control Bank D to insert negative reactivity. The Group 2 control bank rods would not move. As previously discussed, the reactor was manually tripped based on not being able to insert group two rods in control bank D and shutdown bank B with a slight increasing reactivity trend. The main control room operators took appropriate actions to stabilize the reactor in hot standby (Mode 3). The most likely cause of the condition appears to be an intermittent failure of the multiplexing relay in the rod control system. The multiplexing relay was replaced.

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION	
Sequoyah Nuclear Plant (SQN) Unit 2	05000328	2002 --	002 --	00	2 OF 6

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

I. PLANT CONDITION(S)

Unit 2 was in Mode 2 with the performance of low power physics testing in progress.

II. DESCRIPTION OF EVENT

A. Event:

On May 19, 2002, at 0447 Eastern Daylight Time (EDT) the Unit 2 reactor was manually tripped as a result of a Rod Control System Urgent Failure Alarm on Shutdown Bank B and Control Bank D during low power physics testing. During performance of low power physics testing with the shutdown and control rods (EIIS Code AA) fully withdrawn, the control room crew attempted to insert shutdown rod bank B, as required by the test instruction, when the rod control urgent alarm actuated. After actuation of the alarm, the control room crew identified that group one of shutdown rod bank B was at 40 steps and group two of shutdown rod bank B as at 45 steps. Group two of shutdown rod bank B did not move when the main control room handswitch was placed in the IN position. With shutdown rod bank B not able to be inserted, a slight positive reactivity existed. The control room crew, including the Unit two shift manager and low power physics testing test director, discussed the condition. The annunciator response procedure for the rod control urgent alarm was reviewed. The control room crew decided to insert Control Bank D to insert negative reactivity and stop the reactivity increase. The control room crew selected D control bank and attempted to insert the control rods but only group one of Control Bank D moved. The group two control rods did not move. The crew was aware of the potential for group two to not respond, based on the problem with shutdown bank B. As previously discussed, the reactor was manually tripped based on not being able to insert group two rods in control bank D and shutdown bank B with a slight increasing reactivity trend.

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

None.

C. Dates and Approximate Times of Major Occurrences:

May 18, 2002 at 1940 EDT	Low power physics testing was initiated
May 18, 2002 at 1945 EDT	Operations declared that Unit 2 was in Mode 2.
May 18, 2002 at 2042 EDT	The Unit 2 reactor was taken critical by Operations personnel.
May 19, 2002 at 0438 EDT	A Rod System Urgent Failure alarm annunicated.
May 19, 2002 at 0447 EDT	Operations personnel manually tripped the Unit 2 reactor.

D. Other Systems or Secondary Functions Affected:

None.

E. Method of Discovery:

The Rod System Urgent Failure alarm annunciated on the main control room panel.

F. Operator Actions:

Control room operators responded to the Rod System Urgent Failure alarm prescribed by plant procedures. Operations observed a slight positive reactivity existed. Operations personnel decided to insert Control Bank D to insert negative reactivity and stop the reactivity increase. They attempted to insert Control Bank D control rods but only group one of Control Bank D moved. The group two control rods did not move. Operations manually tripped the reactor based on not being able to insert group two rods in Control Bank D and Shutdown Bank B with a slight increasing reactivity trend. They took appropriate actions to stabilize and maintain the unit in a safe condition.

G. Safety System Responses:

The reactor protection systems, responded to the trip, as designed.

III. CAUSE OF THE EVENT

A. Immediate Cause:

The immediate cause of the event was a failure of control rods to move as required.

B. Root Cause:

On May 20, 2002, after the Unit had returned to critical, Maintenance personnel observed that both the "B" and "C" group selection lights were lit on the 2BD power cabinet. At no time should two lights be lit simultaneously. Maintenance personnel had Operations select various banks, however, the problem could not be repeated. The Rod Control multiplexing relays are mercury wetted type used in the section selection logic in the power cabinet.

Based on the above information, the most likely scenario is that following selection of Shutdown Bank B, the multiplexing relay contacts for the previous selected control Bank remained bridged with mercury. The power cabinet generated a Rod Control System Urgent alarm because two sections in the power cabinet are trying to move at the same time. The Urgent alarm locks up the power cabinet by placing reduced current through all of the stationary coils, and the selected movable coils. This prevents rod motion. The most likely cause of the condition appears to be an intermittent failure of the multiplexing relay.

IV. ANALYSIS OF THE EVENT

The plant safety systems responses during and after the unit trip were bounded by the responses described in the Final Safety Analysis Report.

V. ASSESSMENT OF SAFETY CONSEQUENCES

Based on the above Analysis of The Event, this event did not adversely affect the health and safety of plant personnel or the general public.

VI. CORRECTIVE ACTIONS

A. Immediate Corrective Actions:

Troubleshooting of the Rod Control system was performed, no problems were initially identified.

B. Corrective Actions to Prevent Recurrence:

While the unit was taken critical and physics testing was being completed, additional troubleshooting was performed. A potential problem with a multiplexing relay was identified. The multiplexing relay was replaced.

VII. ADDITIONAL INFORMATION

A. Failed Components:

The most likely cause of the condition appears to be an intermittent failure of the multiplexing relay (C.P. Clare, and Company, Model No. HG3A 1004).

B. Previous LERs on Similar Events:

A review of previous reportable events for the past three years did not identify any similar events.

C. Additional Information:

None

D. Safety System Functional Failure:

This event did not result in a safety system functional failure in accordance with NEI 99-02.

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Sequoyah Nuclear Plant (SQN) Unit 2	05000328	2002 --	002 --	00	6 OF 6

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VIII. COMMITMENTS

None.