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

R.J. Adney
Site Vice President
Sequoyah Nuclear Plant

May 17, 1996

U.S. Nuclear Regulatory Commission
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) 50-328/96001

The enclosed report provides details concerning an inadvertent loss of power signal and load sequencing during the testing of a blackout load shed annunciator relay on the 2B-B, 6.9-kilovolt shutdown board. This condition is being reported in accordance with 10 CFR 50.73(a)(2)(iv) as an engineered safety feature actuation.

Sincerely,

R. J. Adney

Enclosure
cc: See page 2

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IE22
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Enclosure
cc (Enclosure):

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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 2	05000328	1 of 5

TITLE (4) Inadvertent Engineered Safety Feature (ESF) Actuation, Loss of Power Signal and Load Sequencing, During Performance of Maintenance Instruction

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
04	13	96	96	001	00	05	17	96	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	2
POWER LEVEL (10)	94

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

	20.402(b)		20.405(c)	X	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)		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. Bajraszewski, Compliance Licensing Engineer	(423)843-7749

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 April 18, 1996, at approximately 1704 Eastern daylight time, with Unit 2 in power operation at approximately 94 percent, an inadvertent ESF actuation occurred. During the performance of a maintenance instruction on the 6.9-kilovolt shutdown board 2B-B blackout load shed annunciator relay, a loss of power signal was generated when an assistant unit operator (AUO) was removing control power fuses for relay testing. During fuse removal, a fuse was removed from one end of a fuse clip, breaking electrical continuity but not completely removing the fuse from the holder. In the process of completing fuse removal, electrical continuity was momentarily reestablished and then broken again. The AUO used a small fuse puller (the wrong size fuse puller) and was not able to remove the fuse without making repeated attempts. The electrical sequence resulted in the actuation of the "Y" channel blackout relays and load sequencing. After the ESF signal was initiated fuses were reinstalled, and testing was suspended pending a review of the event. The cause of the event was personnel error in that the AUO made an incorrect decision. The AUO incorrectly believed that the smaller fuse puller was adequate for removing the fuses and did not understand the consequences of the action. The individual involved in the event was counseled, and lessons learned from the event were discussed. Lessons learned were provided to Operations personnel.

I. PLANT CONDITIONS

Unit 2 was in power operation at approximately 94 percent, coasting down for a refueling outage.

II. DESCRIPTION OF EVENT

A. Event

On April 18, 1996, at approximately 1704 Eastern daylight time (EDT), an inadvertent engineered safety feature (ESF) actuation occurred. During the performance of a maintenance instruction on the 6.9-kilovolt (kv) shutdown board 2B-B [EIIS Code EB] blackout load shed annunciator relay [EIIS Code 30], a loss of power signal was generated when an assistant unit operator (AUO) was removing control power fuses for relay testing. During fuse removal, a fuse was removed from one end of a fuse clip, breaking electrical continuity but not completely removing the fuse from the holder. In the process of completing fuse removal, electrical continuity was momentarily reestablished and then broken again. The AUO used a small fuse puller (the wrong size fuse puller) and was not able to remove the fuse without repeated attempts. The electrical sequence resulted in the actuation of the "Y" channel blackout relays [EIIS Code 2] and load sequencing. After the ESF signal was initiated fuses were reinstalled, and testing was suspended pending a review of the condition.

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

None.

C. Dates and Approximate Times of Major Occurrences

April 18, 1996 at 1704 EDT	Fuses were removed for the 6.9kv shutdown board 2B-B blackout load shed annunciator relay. Under-voltage alarms annunciated in the main control room. Fuses were replaced and maintenance activities were suspended.
April 18, 1996 at 1731 EDT	Blackout relays were reset, and equipment that was actuated by the signal was secured.

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

Under-voltage alarms annunciated in the main control room.

F. Operator Actions

The control boards were monitored for component actuation. Operators diagnosed the condition to be an inadvertent ESF. Fuses were reinstalled, actuated equipment was secured, and the blackout relays were reset.

G. Safety System Responses

Safety systems responded as expected to the loss of voltage signal and load sequence. In addition to equipment that was already in operation before initiation of the signal, the 2B-B auxiliary feedwater and component cooling pumps started. Also, the loop Nos. 1 and 3 steam generator blowdown outboard containment isolation valves closed.

III. CAUSE OF EVENT

A. Immediate Cause

The immediate cause of this event was the inadvertent actuation of the blackout relays that occurred during the removal of fuses for testing of the 6.9 kv shutdown board 2B-B load shed annunciator relay. Relay actuation was a result of breaking and reestablishing electrical continuity during fuse removal.

B. Root Cause

The root cause of the condition was personnel error in that the AUO performing the fuse removal made an incorrect decision. The AUO incorrectly believed that a smaller fuse puller was adequate for removing the fuses and did not understand the consequences of the action. When the AUO first attempted to remove the fuse, the fuse puller slipped off of the fuse without removing the fuse or breaking electrical continuity. In the second attempt, one end of the fuse was removed from the fuse clip and electrical continuity was broken. On the third and final attempt, electrical continuity was inadvertently reestablished and then broken

as the fuse was completely removed. The AUO did not understand that the electrical sequence would result in actuation of the blackout relays.

C. Contributing Factors

None.

IV. ANALYSIS OF EVENT

The operability of the alternating and direct current power sources and the associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. In the event described by this LER, a loss of power did not occur. The loss of power signal was generated because of the arming of the one channel of blackout relays when control power was first removed and then actuation of these relays when power was momentarily reapplied. Load sequencing occurred as required by design. Based on these facts, the condition would not have resulted in adverse consequences to plant personnel or to the general public.

V. CORRECTIVE ACTIONS

A. Immediate Corrective Action

The fuses were reinstalled, and maintenance activities were suspended pending a review of the event.

B. Corrective Action to Prevent Recurrence

The individual involved in the event was counseled, and lessons learned were discussed. Operations personnel were provided with lessons learned from the event to stress the use of the right tool for the job, thorough pre-job briefings for sensitive activities, and the need to never be casual when performing work. Training for fuse pulling was reviewed and was determined to be acceptable.

VI. ADDITIONAL INFORMATION

A. Failed Components

None.

B. Previous Similar Events

A review of previous reportable events did not identify any events associated with the use of the wrong tool. Events were identified (LERs 327-85041, 86010, 86025, 93007, and 94011) associated with inadequate procedures and personnel errors in which individuals pulled fuses on the wrong component or unit. Actions taken for these previous events would not have prevented the condition described by the current LER.

C. Additional Information

The maintenance instruction associated with this event was enhanced to add a caution statement to depress and hold the Undervoltage Blackout Reset push-button for the removal of fuses.

VII. COMMITMENTS

None.