

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Sequoyah, Unit 1
DOCKET NUMBER (2): 0 5 0 0 0 3 2 7 1 OF 0 5

Unplanned Reactor Trip Signal Due To Simulated S/G Water Level Low-Low Condition During Performance of Surveillance 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 NAMES																		
0	9	2	5	8	8	8	8	8	0	3	7	0	0	1	0	2	0	8	8	0	5	0	0	0	3	2	8

OPERATING MODE (9): 5
POWER LEVEL (10): 0 0 0

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

<input type="checkbox"/> 20.002(b)	<input checked="" type="checkbox"/> 20.408(a)	<input type="checkbox"/> 20.73(a)(2)(iv)	<input type="checkbox"/> 20.73(b)
<input type="checkbox"/> 20.408(a)(1)(i)	<input type="checkbox"/> 20.38(a)(1)	<input type="checkbox"/> 20.73(a)(2)(v)	<input type="checkbox"/> 20.73(c)
<input type="checkbox"/> 20.408(a)(1)(ii)	<input type="checkbox"/> 20.38(a)(2)	<input type="checkbox"/> 20.73(a)(2)(vi)	<input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 362A)
<input type="checkbox"/> 20.408(a)(1)(iii)	<input type="checkbox"/> 20.73(a)(2)(i)	<input type="checkbox"/> 20.73(a)(2)(vii)(A)	
<input type="checkbox"/> 20.408(a)(1)(iv)	<input type="checkbox"/> 20.73(a)(2)(ii)	<input type="checkbox"/> 20.73(a)(2)(vii)(B)	
<input type="checkbox"/> 20.408(a)(1)(v)	<input type="checkbox"/> 20.73(a)(2)(iii)	<input type="checkbox"/> 20.73(a)(2)(ix)	
<input type="checkbox"/> 20.408(a)(1)(vi)	<input type="checkbox"/> 20.73(a)(2)(iv)	<input type="checkbox"/> 20.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12): J. A. Naik, Plant Reporting Section
TELEPHONE NUMBER: 6 1 5 8 7 0 - 6 8 6 2

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

CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14): YES NO
EXPECTED SUBMISSION DATE (15): MONTH DAY YEAR

On September 25, 1988, at approximately 1502 EDT, with unit 1 in mode 5 (cold shutdown) and unit 2 in mode 1 (at 65 percent power) an inadvertent reactor trip signal was generated on unit 1 during a performance of Surveillance Instruction (SI) 94.4. Before the occurrence of this event, reactor trip breaker (RTB) "A" was in the closed position and RTB "B" was open. When the reactor trip signal was generated the RTB "A" opened as designed. All control rods were fully inserted and rod withdrawal system was incapable of rod withdrawal, therefore, actual reactor trip did not occur. The instrument mechanics (IMs) started performance of the SI on June 17, 1988, and placed all S/G level loops bistables in tripped position as required by the procedure. Subsequently the SI was interrupted to allow performance of other SIs. During the performance of other SIs, two out of three bistables of S/G level loops were reset to normal position (nontrip position). The performance of SI-94.4 was reinitiated on September 25, 1988, without reverification of plant conditions. The IM assumed that S/G level loops bistables were in the tripped position, but in fact only the bistable of loop L-3-55 was in the tripped position. The bistables on the other two loops (L-3-51, and L-3-52) were in the normal position. While the IMs were backfilling transmitter LT-3-52 sense line, low-low S/G water level condition was simulated and the associated bistable was tripped. As a result a reactor trip signal was generated and RTB "A" tripped, as two out of three logic required for low-low S/G water level was satisfied. The cause of the event is attributed to the fact that the test director failed to follow Administrative Instruction (AI)-47 "Conduct of Testing" requirement which requires reverification of plant condition upon reentry into a test after interruption. As a corrective action IM test directors will be retrained on AI-47 requirements emphasizing the need to verify plant conditions pertaining to the instruction before reinitiating performance.

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TEXT (if more space is required, use additional NRC Form 288A's) (17)

DESCRIPTION OF EVENT

On September 25, 1988, at approximately 1502 EDT, with unit 1 in mode 5, (0 percent Power, 178 degrees F, 300 psig) and unit 2 in mode 1 (65 percent power, 566 degrees F, 2235 psig) an inadvertent reactor trip signal was generated on unit 1 during performance of surveillance instruction (SI)-94.4, "Reactor Trip/Engineered Safety Feature/Accident Monitoring Instrument Steam Generator Level Channel Calibrations (18 months)". As a result, reactor trip breaker (RTB) "A" tripped. At the time of the event, RTB "B" was in the open position and was not affected.

Instrument mechanics (IM) had started the performance of the SI on June 17, 1988 and had placed the steam generator (S/G) level loops bistables (EISS code JB) in the tripped position. The performance of the SI had progressed slowly from the start due to the need for root valve repairs and other minor difficulties associated with level transmitter (LT) sense lines. Subsequently, on August 26, 1988, the performance of SI-94.4 was interrupted again for root valve repairs, modifications to LT sense lines and to allow performance of another Surveillance Instructions SI-26.1A "Loss Of Offsite Power With Safety Injection - D/G 1A-A Containment Isolation Test - Unit 0, 1, and 2", and SI-26.1B "Loss of Offsite Power With Safety Injection - D/G 1B-Test, unit 0 and 1". To perform SI-26.1A and SI-26.1B the RTBs are needed to be closed and to close the RTBs the S/G level transmitter bistables were required to be returned to their normal position (nontrip position). The IM engineer who was assisting performance of SI-26.1A and SI-26.1B, implemented a special maintenance instruction (SMI)-0-95-2, "Reactor Protection System Temporary Alternation To Clear Annunciators," and returned at least two out of three bistables of each S/G level loop to the nontrip position. The test configuration of the S/G level loops for SI-94.4 was altered, but no test log entry was made to SI-94.4 to depict the altered configuration.

On September 25, 1988, the performance of SI-94.4 was restarted at approximately 1400 EDT. The IM foreman in charge of restarting SI-94.4 sent a portion of the IM crew to accumulator room No. 3 to start backfilling of the S/G No.2 level transmitters sense lines. The IM foreman then proceeded to the main control room (MCR) and requested permission from the unit operator (UO) to enter the MCR horseshoe to monitor the S/G level indicators located on Panel 1-M-3 and 1-M-4 to ensure the backfilling of the sense lines was being done properly. Some bistables status light for the S/G level transmitters located on Panel 1-M-6 were "OFF" indicating those S/G level transmitters were in the normal position, contrary to previously established position, (tripped position) however, the IM foreman did not notice this change and continued with the backfill of the sense lines. The UO who permitted the IM foreman in the horseshoe thought that the IM had discussed initiation of the S/G water level transmitter backfill activity with the assistant shift operation supervisor (ASOS), when in fact the IM foreman did not discuss the reinitiation of the SI with the ASOS.

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

As described above the test configuration for SI-94.4 was altered during the performance of SI-26.1A and SI-26.1B. As a result some bistables were in the tripped position, while others were in the normal (nontrip) position, however, the IM foreman was not aware of this condition.

Administrative Instruction (AI)-47, "Conduct of Testing", requires that following an interruption extending into the next working shift of the responsible testing section, the test director shall determine the validity of all plant conditions pertaining to the instruction before reinitiating performance. The test director (IM foreman) did not follow this requirement when the SI was restarted. The S/G low-low level bistables LS-3-51B, LS-3-52B, and LS-3-55B, associated with S/G No.2, were assumed by the IM foreman to be in the as left position (ie tripped position), but in fact, only LS-3-55B was in tripped position. While the IMs were backfilling IT-3-52 sense lines, the impulse effect created by the backfill pump was transmitted by the LT-3-52 to solid state protection system (KIIS code JE) as a low-low S/G water level condition and the associated bistable (LS-3-52B) tripped as designed. This condition generated a reactor trip signal and reactor trip breaker "A" tripped at 1502 EDT, as two out of three logic required for low-low S/G water level was satisfied.

CAUSE OF EVENT

The immediate cause of this event (Reactor trip signal) was that the two out of three logic required for the low-low S/G water level was satisfied during backfill of S/G No. 2 level transmitter sense lines.

The root cause of this event is failure to follow requirement of AI-47 "Conduct of Testing". This procedure requires that following an interruption extending into the next working shift of the responsible testing section, the test director shall determine the validity of all plant conditions pertaining to the instruction before reinitiating performance. The test director did not follow this requirement when SI-94.4 was reinitiated.

Another contributing factor was a lack of communication among IMs and lack of proper documentation during implementation of SMI-0-99-2. The IM engineer who implemented the SMI, needed to alter the as left test configuration of SI-94.4 to allow performances of SI-26.1A and SI-26.1B, however, the IM Engineer did not notify the test director or maintain a proper test log to depict the altered configuration.

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TEXT (if more space is required, use additional NRC Form 365A's) (17)

ANALYSIS OF EVENT

This report is submitted pursuant to the requirements of 10 CFR 50.73 paragraph a.2.iv, as a condition that resulted in the automatic actuation of the reactor protection system.

At the time of this event, unit 1 was in mode 5 with reactor trip breaker "A" closed, reactor trip breaker "B" open, all control rods were fully inserted, and rod control system was incapable of rod withdrawal. Therefore, even though a reactor trip signal was generated, a reactor trip did not occur.

The reactor trip logic did respond correctly by providing a reactor trip signal in this event as the S/G water level low-low condition was simulated by two out of three S/G level transmitter bistables in tripped position. It is therefore, concluded that the occurrence of this event had no significant adverse affect on the health and safety of the public.

CORRECTIVE ACTIONS

- (1) As an immediate corrective action the ASOS verified that only reactor trip breaker "A" tripped, (since it was the only one previously in closed position). Reactor trip breaker "B" was in the open position therefore, it was not affected. The ASOS also suspended the performance of SI-94.4 and level transmitter sense line backfill activity until the cause of the event was identified.
- (2) To establish better communications among the IMs during the current outage the instrument maintenance section supervisor has implemented crew/shift turnover briefing requirement which includes the status of SI initiations and completions. This practice may be discontinued after completion of unit 1 outage protection set SIs.
- (3) As a long-term corrective action IM test directors will be retrained on AI-47 requirements emphasizing the need to determine the validity of plant conditions pertaining to the instruction before reinitiating SI performance.
- (4) SMI-0-99-2 will be revised to provide tighter controls to maintain altered test configuration. This procedure will provide means to document equipment in "as-found," and "as-left," condition as it is being implemented, and will be under the control of the IM general foreman.
- (5) As a lessons learned from this event the plant operators will be advised to be cognizant of bistables status during transmitter sense line backfilling activities.

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ADDITION INFORMATION

There was no previous occurrence of a reactor trip signal generation attributed to a test director failure to follow AI-47 "Conduct of Testing" requirement.

COMMITMENTS

- (1) Instrument maintenance section will complete corrective actions No. 3 and No. 4 specified above by January 15, 1989.
- (2) Plant Operations will complete corrective actions No. 5 by November 15, 1988.

0084Q

TENNESSEE VALLEY AUTHORITY
Sequoyah Nuclear Plant
Post Office Box 2000
Soddy-Daisy, Tennessee 37379

October 20, 1988

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2 - DOCKET
NOS. 50-327 AND 50-328 - FACILITY OPERATING LICENSE DPR-77 AND -79 -
REPORTABLE OCCURRENCE REPORT SQRO-50-327/88037

The enclosed licensee event report provides details concerning the
generation of an unplanned reactor trip signal during the performance of a
surveillance instruction. This event is reported in accordance with 10 CFR
50.73, paragraph a.2.iv.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


S. J. Smith
Plant Manager

Enclosure
cc (Enclosure):

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