NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Sequoyah, Unit 2	0 5 0 0 0 3 2 8	1 OF 0 4

TITLE (4)
Phase B Isolation Occurred During Testing But Was Not Preplanned In Procedure

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	DOCKET NUMBER(S)
1 2	0 3	8 6	8 6	—	0 1 0	—	0 0	0 1	0 2	8 7	Sequoyah, Unit 1	0 5 0 0 0 3 2 7
												0 5 0 0 0

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	XX 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 (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		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
	AREA CODE
J. L. Long, Plant Operations Review Staff	6 1 5 — 8 7 0 - 7 2 5 4

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)	XX NO				

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

On December 3, 1986, at 2311 CST with unit 2 in mode 5 (0 percent power, 338 psig, 122 degrees F), an engineered safety feature (ESF) actuation, containment phase B isolation, occurred during the performance of a surveillance procedure. Instrument Maintenance Instruction (IMI)-99, "Reactor Protection System," RT-16.7, "Response Time Test Procedure of Containment Pressure Channel III (P-935)," was being performed by Instrument Maintenance (IM) technicians. The procedure, as written, would cause a phase B actuation; however, the procedure did not indicate that an ESF actuation would occur.

The procedure uses bistables to make up the ESF logic and does not place both trains of the solid state protection system (SSPS) in "TEST" position to prevent the containment phase B isolation signal from causing an actual isolation.

IMI-99, RT-16.7, has been performed at least once for each unit at Sequoyah Nuclear Plant since January 1984. However, no phase B has been reported in conjunction with this procedure before this occurrence.

IMI-99, RT-16.7 will be revised to address ESF actuations during testing.

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

DESCRIPTION OF EVENT

During this occurrence, unit 2 was in mode 5 (0 percent power, 338 psig, 122 degrees F).

At 2311 CST on December 3, 1986, an engineered safety feature (ESF) actuation, containment phase B isolation, occurred during the performance of a surveillance procedure. Instrument Maintenance Instruction (IMI)-99, "Reactor Protection System," RT-16.7, "Response Time Test Procedure of Containment Pressure Channel III (P-935)," was being performed by Instrument Maintenance (IM) technicians. The procedure, as written, causes the phase B actuation; however, it fails to identify that an ESF actuation will occur. Control room Operations personnel were aware of the test being performed and were not alarmed at the occurrence of the phase B isolation.

Subsequent to the phase B actuation (approximately five minutes), Operations personnel discovered that some of the valves associated with a phase A actuation were closed. It was initially thought that a phase A had also occurred. However, it was later determined that the phase B had isolated control air as required, and the phase A air-operated valves had drifted closed after air pressure had bled off of the header. Other systems associated only with a phase A and not a phase B, such as the emergency gas treatment system and the Auxiliary Buidling gas treatment system, were not affected.

RT-16.7 calls for the simulation of a containment high-high pressure signal. A containment high-high pressure signal initiates automatic actions that are part of the ESF of the plant. Those systems are containment spray, main steam isolation, and containment phase B isolation. During this occurrence, the procedure ensured a containment spray system lineup which prevented its actuation. All main steam isolation valves were already closed (mode 5 condition). The phase B isolation was the only ESF function which actuated. The containment isolation systems provide a means of isolating fluid systems that pass through containment penetrations to confine to containment any radioactivity that may be released in containment during a design basis event.

At the request of Operations, the IM technicians completed RT-16.7 and returned the system to normal at 2340 CST.

The immediate cause of the event is a deficient procedure which uses bistables to make up the ESF logic and does not place both trains of the solid state protection system (SSPS) in the "TEST" position to prevent the containment phase B isolation signal from causing an actual isolation.

This procedure is also used in response time testing on unit 1.

CAUSE OF EVENT

This occurrence was caused by a deficient procedure. IMI-99, RT-16.7, tests the ESF logic section response time for containment high and high-high pressure signals by making up the bistable trip logic so that valid phase A and B isolation signals are generated. Only one train was being tested at a time; however, the containment pressure signal feeds the logic for both trains. Procedure RT-16.7 placed the SSPS mode selector switch of the train being tested to the "TEST" position, preventing actuation of that train. However, the mode selector switch for the train not being tested remained in the "OPERATE" position. Therefore, during the testing of train "A" on December 3, 1986, when the test sequence resulted in the containment high-high pressure 2/4 logic, an actual phase B isolation occurred.

Further investigation determined that before revision 3 of IMI-99, RT-16.7, dated February 10, 1982, the procedure placed the mode selector switches for both trains into the "TEST" position, preventing any ESF actuation. The procedure was probably revised to avoid having an undesirable operating condition from having both trains of the SSPS in the "TEST" position at the same time. The procedure also includes a step to verify auto SI block on the train not under test. The auto SI block prevents a safety injection actuation and a phase A but does not prevent a phase B isolation.

The current LER rules became effective on January 1, 1984. Review of surveillance history data revealed that this procedure has been conducted at least once for each Sequoyah unit since that date. Because the procedure results in a phase B isolation, it is probable that the phase B did occur in both instances. As such, the event should have been identified and reported under the LER rule.

The reason these two events were not reported is probably due to the fact the Operations personnel associated the actuation with the preplanned activities of the surveillance. While the test sequence is preplanned and does generate a phase B signal, the procedure does not recognize its actuation.

ANALYSIS OF EVENT

A containment phase B isolation is part of the ESF of the plant. An accidental or emergency actuation of this system is reportable under 10 CFR 50.73, paragraph a.2.iv, as a challenge to the ESF system.

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

Since the phase B isolation was actuated as part of a test and no actual accident condition or containment high pressure existed, this occurrence had no effect on the public health and safety. These tests are done only when the unit is in mode 5 (cold shutdown), and an assessment of this event during power operation was not considered.

CORRECTIVE ACTIONS

Immediate corrective action following the phase B isolation was to return the SSPS train "B" to its normal operational state and realign equipment affected by the phase B.

To prevent future occurrences, the procedures which test the three channels of containment pressure will be revised to address ESF actuations during testing. All other ESF response time test procedures are being reviewed to determine if revisions are required.

ADDITIONAL INFORMATION

Previous Occurrence - None reported.

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

January 2, 1987

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

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 2 - DOCKET NO. 50-328 - FACILITY OPERATING LICENSE DPR-79 - REPORTABLE OCCURRENCE REPORT SQRO-50-328/86010

The enclosed licensee event report provides details concerning a phase B isolation that occurred during testing but was not preplanned in the procedure. This event is reported in accordance with 10 CFR 50.73, paragraph a.2.iv.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

O.R. Wallace

P. R. Wallace
Plant Manager

Enclosure
cc (Enclosure):

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