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 5

TITLE (4)
Failure To Comply With A Technical Specification (TS) Action Statement For A Reactor Protection System Instrumentation Channel Resulted In An Inadvertent Entry Into TS 3.0.3

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)
										0 5 0 0 0
0 8 3 0	8 8	8 8	—	0 3 6	— 0 0	0 9 1 5	8 8			0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
1	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 9 8	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)	XX 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
T. K. Phifer H. R. Rogers, Plant Operations Review Staff	AREA CODE 6 1 5 3 7 0 - 6 1 4 7

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)

At 1630 EDT on August 30, 1988, unit 2 was in mode 1 (power operations) it was determined that the actions of Technical Specification (TS) 3.0.3 should have been entered at 1010 EDT on the same day. The actions of TS 3.0.3 were required because the action statements (6a) and (16) of TS Limiting Conditions for Operation (LCO) 3.3.1 and 3.3.2; respectively, were not being complied with during the performance of surveillance instruction (SI)-90.72, "Reactor Trip Instrumentation Functional Test of ΔT/Tavg Channel IV, Rack 13 (T-63-[illegible]." The actions of TS 3.3.1 and 3.3.2 require the loop bistables to be placed in the tripped condition within six hours and one hour respectively, of when the channel is declared inoperable. Contrary to this requirement, the bistables for the unit 2 Reactor Coolant System (RCS) loop 4 ΔT/Tavg, channel IV were not in the tripped condition for a portion of the time the instrument loop was out of service.

The root cause of this event was the incomplete implementation of AI-47, "Conduct of Testing," section 7.11.[illegible], "Unplanned Test Stoppage, Exiting, Reentering," by the SI-90.72 test director. SI-90.72 was not revised as required by AI-47 when the test was stopped and the bistables were reset. To prevent recurrence of an event of this type, training will be provided to appropriate Maintenance personnel on an unplanned stoppage of a test as outlined in AI-47. Training will also be provided to these individuals on the potential affects of instrument testing on TS requirements. Training will also be provided to licensed Operations personnel on the understanding of the condition of a protection grade instrument loop during testing.

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

DESCRIPTION OF EVENT

At 1630 EDT on August 30, 1988, unit 2 was in mode 1 (98 percent power, 2235 psig, 576 degrees F) when it was determined that the actions of Technical Specification (TS) 3.0.3 should have been entered at 1010 EDT on the same day. The actions of TS 3.0.3 were required because the action statements (6a) and (16) of TS Limiting Conditions for Operation (LCO) 3.3.1 and 3.3.2; respectively, were not being complied with during the performance of surveillance instruction (SI)-90.72, "Reactor Trip Instrumentation Functional Test of ΔT/Tavg Channel IV, Rack 13 (T-63-67)." The actions of TS 3.3.1 and 3.3.2 require the loop bistables to be placed in the tripped condition within six hours and one hour respectively, of when the channel is declared inoperable. Contrary to this requirement, the bistables for the unit 2 Reactor Coolant System (RCS) loop 4 ΔT/Tavg, channel IV were not in the tripped condition for a portion of the time the instrument loop was out of service.

At 0845 EDT on August 30, 1988, Instrument Maintenance (IM) personnel requested approval from the unit 2 lead reactor operator (RO) to perform SI-90.72. The purpose of this test is to determine the operability of the following unit 2 reactor protection system (RPS) functions: 1) Overtemperature ΔT (OTΔT) Reactor Trip , 2) OTΔT Turbine Runback and block of rod withdrawal, 3) Overpower ΔT (OPΔT) Reactor Trip, 4) OPΔT Turbine Runback and block of rod withdrawal, 5) T-Avg Interlock to allow manual block of safety injection and 6) Low T-Avg input to feedwater isolation.

The RO approved the performance of SI-90.72 and at 0929 EDT on the same day, the IM personnel placed the applicable bistables in the tripped condition. At this time unit 2 entered the appropriate action statements for LCOs 3.3.1 and 3.3.2 and complied with the 1 hour time requirement of tripping the bistables for the inoperable channel. After removing the loop from service and supplying a simulated input signal, the IM personnel called the unit 1 main control room (MCR) to request chiller be put in service to reduce the auxiliary instrument room (AIR) temperature to at least 72 degrees F as required by the SI for testing the channel.

The call was answered by a senior reactor operator (SRO) who was acting as a test director for the performance of SI-26.1A, "Loss of Offsite Power With Safety Injection - D/G 1A-A Containment Isolation Test," on unit 1. The SRO completed the phone call, and then realized the potential conflict between the SI-26.1A and the SI-90.72 performance. The conflict being that a voltage perturbation during the transfer of vital power under SI-26.1A could cause a RCS loop 1 ΔT/Tavg channel to trip and complete the 2 out of 4 logic for a reactor trip on unit 2. Unit 2 120 volt AC vital instrument power board 2-I (channel 1) is feed by vital inverter 2-I and its normal power supply is unit 1 480 volt shutdown board 1A1-A. The SI-26.1A test director requested the unit 2 RO to stop the performance of SI-90.72. The RO contacted the IM personnel in the AIR and the SI-90.72 test director proceeded to the MCR to discuss the interaction problem with the unit 2 Assistant Shift Operations Supervisor (ASOS) and the two SI-26.1A test directors.

The SI-90.72 test director asked if the RCS loop 4 bistables being returned to normal would solve the interaction problem between the SIs and the Operations personnel agreed with the solution for the expected short duration for completing this particular portion of SI-26.1A. The SI-90.72 test director proceeded by returning the bistables to normal in accordance with AI-47, "Conduct of Testing." The UO was notified by IM personnel that the "Process Protection Racks Channel Test Sequence Violated" alarm would be initiated when returning the bistables to normal. At 1010 EDT on the same day, the loop test signal was lowered to a value below the bistables setpoints allowing them to reset and the Operations personnel involved monitored the bistable status lights going out in the MCR. The SI-90.72 test director verified the actions of the IM personnel in the racks by visually observing in the MCR that the ΔT and Tavg channel IV indicators were reading lower than the other channels. The test sequence violation alarm was acknowledged and the Operations personnel agreed no other actions were required.

The performance of SI-26.1A was delayed until the afternoon and at 1530 EDT the IMS were notified to resume SI-90.72 by Operations personnel. The temperature in the AIR was still not within the SI criteria and the SI test director elected to back out of SI-90.72 completely and perform the test at a later time. At 1600 EDT, the IM foreman notified the oncoming unit 2 ASOS of intent to back out of SI-90.72, and after a discussion on the loop condition, the ASOS realized that the loop was inoperable with the bistables returned to normal and realized the noncompliance with TS 3.3.1 and 3.3.2. The shift operations supervisor (SOS) was immediately notified of the condition and that the unit had been in TS 3.0.3 since 1010 EDT. The IMs were immediately directed to return the bistables to the tripped condition in order to comply with LCOs 3.3.1 and 3.3.2. At 1638 EDT, the RCS loop 4 ΔT/Tavg bistables were tripped and at 1655 EDT, the loop was returned to service by completely backing out of SI-90.72. At this time the LCOs 3.3.1 and 3.3.2 were exited.

CAUSE OF EVENT

The root cause of this event was the incomplete implementation of AI 47 section 7.11.2, "Unplanned Test Stoppage, Exiting, Reentering," by the SI-90.72 test director. This section of AI-47 requires either a procedural change when putting the instrument loop back in service or back in the configuration before the start of the test, or to complete the SI as it is written.

This section also addresses the impact of installed test equipment and criteria for removing this equipment. These requirements were not implemented during the performance of backing out of SI-90.72.

A contributing cause to this event was the failure of the involved Operations personnel to understand the condition of the instrumentation loop during channel testing and also the significance of the test sequence violated alarm.

ANALYSIS OF EVENT

This event is reported in accordance with 10 CFR 50.73, paragraph a.2.i, as an operation prohibited by TS.

The condition of channel IV being out-of-service and its bistables tripped puts the system in a conservative condition because any input signal from another channel would complete the necessary 2 out of 4 logic.

The ability of the bistable to perform its intended safety function of closing output contacts is negated when a test signal is injected which renders the loop out-of-service. The condition of channel IV being out-of-service without the bistables tripped reduces the matrix logic to 2 out of 3, and if an accident had occurred, the three remaining channels would have completed the necessary RPS actuations.

CORRECTIVE ACTION

Immediate corrective action taken following the discovery of this event was to place the inoperable Tavg channel IV bistables in the tripped position to retain compliance with LCOs 3.3.1 and 3.3.2. This also resulted in TS 3.0.3 being no longer applicable.

The following actions will be completed to prevent recurrence of this event.

1. Training will be provided to Operations licensed personnel during the requalification program on:

   a. The significance and origin of the "Process Protection Racks Channel Test Sequence Violated" alarm which will provide licensed Operations personnel an understanding of the condition of a protection grade instrument loop during testing.

2. Training will be provided to the appropriate IM personnel by September 30, 1988 on:

   a. AI-47, section 7.11.2.

   b. Potential affects of typical instrument surveillance testing on TS requirements.

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3. A review of this event will be made with appropriate Operations and IM personnel to reemphasize the necessity for proper communications.

4. The ASOS involved in this event has received appropriate administrative action.

ADDITIONAL INFORMATION

There have been two previously reported occurrences of an inadvertent entry into TS 3.0.3 - SQRO-50/328/88019 and 88025.

COMMITMENTS

The commitments made for this LCO are listed as 1 through 3 in the Corrective Action section.

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TENNESSEE VALLEY AUTHORITY

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

September 15, 1988

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-50-328/88036

The enclosed licensee event report provides details concerning a failure to comply with a technical specification (TS) action statement associated with an inoperable Reactor Protection System Instrumentation Channel which resulted in an inadvertent entry into TS 3.0.3. This event is reported in accordance with 10 CFR 50.73, paragraph a.2.i.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

S. J. Smith
Plant Manager

Enclosure
cc (Enclosure):

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