

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Salem Generating Station - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 7 2 1	PAGE (3) OF 0 4
--	--	----------------------

TITLE (4)
Reactor Trip From 77 % While Reducing High Flux Trip Setpoints

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		
1	2	8	8	02	00	0	1	2			
									DOCKET NUMBER(S) 0 5 0 0 0		

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

OPERATING MODE (9) 1	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	80.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 17 17	20.405(a)(1)(i)	80.38(a)(1)	<input type="checkbox"/>	80.73(a)(2)(v)	73.71(a)
	20.405(a)(1)(ii)	80.78(a)(2)	<input type="checkbox"/>	80.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	80.73(a)(2)(i)	<input type="checkbox"/>	80.73(a)(2)(viii)(A)	
	20.405(a)(1)(iv)	80.73(a)(2)(ii)	<input type="checkbox"/>	80.73(a)(2)(viii)(B)	
	20.405(a)(1)(v)	80.73(a)(2)(iii)	<input type="checkbox"/>	80.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME J. L Rupp	TELEPHONE NUMBER
	AREA CODE 6 0 9 3 3 9 - 4 3 0 9

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

At 2158 hours, December 23, 1984, an automatic reactor trip was initiated by an Overtemperature Delta-T signal. This signal resulted from technician error while reducing the power range high flux trip setpoints, and was not the result of actual plant conditions. The Reactor Protection System functioned as designed, and the event involved no undue risk to the health or safety of the public. The high flux trip setpoints were being reduced in accordance with Technical Specification requirements, due to Channel 1N44 being inoperable, and due to a delay encountered in completing a QPTR calculation in the required time. Following the reduction of Channel 1N41 high flux setpoint, the "Nuclear Instrument System Channel Test" alarm would not clear, as specified in the 1N41 procedure. Realizing that the cause was Channel 1N44 operations selector switch being in the test position, the technician deviated from the 1N41 procedure and returned the switch to the normal position. This resulted in an automatic reduction in the Overtemperature Delta-T setpoint and the reactor trip. It has been determined not to be a generic problem involving all technicians, and corrective actions are being restricted to the individual responsible for the occurrence. Due to the automatic actuation of the Reactor Protection System, the event is reportable in accordance with 10CFR 50.73(a)(2)(iv).

8502010669 850122
PDR ADOCK 05000272
S PDR

IE22
1/1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Salem Generating Station	DOCKET NUMBER	LER NUMBER	PAGE
Unit 1	05000272	84-028-00	2 OF 4

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

IDENTIFICATION OF OCCURRENCE:

Reactor Trip From 77% While Reducing High Flux Trip Setpoints

Event Date: 12/23/84

Report Date: 01/22/85

This report was initiated by Incident Report No. 84-219

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 - Rx Power 077 % - Unit Load 874 MWe

DESCRIPTION OF OCCURRENCE:

At 1741 hours, November 22, 1984, with the Unit at approximately twenty-five percent (25%) power, Power Range Channel 1N44 began "spiking" and giving a negative rate trip signal. Technical Specification Limiting Condition For Operation (LCO) 3.3.1.1, Action No. 2, was entered at this time and an investigation of the problem commenced.

Action No. 2 states:

With the number of operable channels one less than the total number of channels, startup and/or power operation may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within one (1) hour.
- b. The minimum channels operable requirement is met; however, one additional channel may be bypassed for up to two (2) hours for surveillance testing per Specification 4.3.1.1.
- c. Either, thermal power is restricted to equal to or less than seventy-five percent (75%) of rated thermal, and the power range neutron flux trip setpoint is reduced to equal to or less than eighty-five percent (85%) of rated thermal power within four (4) hours; or, the Quadrant Power Tilt Ratio (QPTR) is monitored at least once per twelve (12) hours.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Salem Generating Station	DOCKET NUMBER	LER NUMBER	PAGE
Unit 1	05000272	84-028-00	3 OF 4

DESCRIPTION OF OCCURRENCE: (cont'd)

While troubleshooting Channel 1N44, a loose connector pin was discovered on Drawer "B". The connector was reworked; however, the problem still existed. Since the problem was then determined to have been caused by either the detector, the detector cabling or the high voltage power supply, the power supply was replaced. Testing then indicated satisfactory detector operation with no spiking, and Channel 1N44 was declared operable. Technical Specification LCO 3.3.1.1, Action No. 2, was terminated at 0550 hours, November 23, 1984. The channel continued to operate satisfactorily until 0704 hours, when the detector again started "spiking". Channel 1N44 was declared inoperable and Technical Specification LCO 3.3.1.1, Action No. 2, was again entered. In accordance with the action requirements, Channel 1N44 was placed in a tripped condition and a QPTR calculation was scheduled to be performed every twelve hours, utilizing incore detectors, until 1N44 repairs could be affected during the next Unit outage.

At 1900 hours, December 23, 1984, during full power operation, a delay was encountered in completing the periodic QPTR calculation, due to a drifting reading from Incore Detector "A". A full flux map was commenced to determine the QPTR. Not knowing if the QPTR would be determined within the required time, a power reduction was commenced in order to reduce the high flux trip setpoints to eighty-five percent (85%) in accordance with the action requirements. At 2158 hours, while performing the setpoint changes, a reactor trip occurred. The first out annunciator was Overtemperature Delta-T protection. The Unit was stabilized in Mode 3, and at 2234 hours, in accordance with the Code of Federal Regulations, 10CFR 50.72(b)(2)(ii), the Commission was notified of the automatic actuation of the Reactor Protection System [JC].

APPARENT CAUSE OF OCCURRENCE:

The cause of the reactor trip was attributed to technician error (deviation from the procedure) while performing the high flux trip setpoint changes. Channel 1N44 was bypassed in accordance with Procedure LIC-16.4.047 (Bypass Power Range 1N44 Channel). Channel 1N41 high flux setpoint was then reduced in accordance with Bistable Adjust Procedure LPD-16.4.040. Upon completion of the setpoint change, while restoring Channel 1N41 to normal, overhead annunciator alarm B-3 (Nuclear Instrument System Channel on Test) would not clear. The technician determined that B-3 was illuminated because Channel 1N44 operation selector switch, which had been previously positioned in accordance with Bypass Procedure LIC-16.4.047, was in the test position. In an attempt to clear the alarm, the technician returned 1N44 operation selector switch to normal. This caused the Overtemperature Delta-T setpoint to be automatically reduced, resulting in a 2/4 coincidence and a reactor trip.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Salem Generating Station	DOCKET NUMBER	LER NUMBER	PAGE
Unit 1	05000272	84-028-00	4 OF 4

ANALYSIS OF OCCURRENCE:

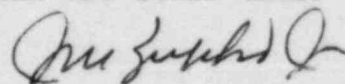
The purpose of this reactor trip (Overtemperature Delta-T) is to protect the core against departure from nucleate boiling (DNB). This trips the reactor on coincidence of 2/4 signals, with one set of temperature measurements per loop. The set-point for this reactor trip is continuously calculated for each loop. One of the inputs for this automatic calculation is a function of the flux difference between the upper and lower power range detectors. In accordance with Procedure LIC-16.4.047, test signals had been injected and the upper and lower detector cables had been disconnected when Channel 1N44 was bypassed. Because of this, when Channel 1N44 operation selector switch was placed in the normal position, the detectors immediately went from a test signal condition to a no signal condition. Since the detector signals did not decay at the same rate, the result was a large differential current signal fed to the Overtemperature Delta-T circuitry, which caused a reduction of the trip setpoint and a reactor trip.

The Overtemperature Delta-T trip initiated as the result of false signals rather than actual plant conditions. The Reactor Protection System [JC] functioned as designed, and the thermal transient resulting from the reactor trip was well within the design limits of the plant. The event involved no undue risk to the health or safety of the public. However, due to the automatic actuation of the Reactor Protection System, the event is reportable in accordance with the Code of Federal Regulations, 10CFR 50.73(a)(2)(iv).

CORRECTIVE ACTION:

During the shutdown following the reactor trip, 1N44 detector was determined to be faulty and was replaced. Technical Specification LCO 3.3.1.1, Action No. 2, was terminated at 2159 hours, December 23, 1984. The Unit was returned to service and synchronized at 0844 hours, December 29, 1984. Channel 1N44 has functioned satisfactorily since that time.

A detailed investigation and review of the event has revealed no problems with the procedures. The procedures utilized were correct, and require no revisions. The event was reviewed and discussed with technicians and supervisors during the weekly shop meeting following the occurrence. The individual responsible for the procedural deviation recognizes his mistake and understands the need for procedural compliance. It has been determined that this is not a generic problem involving all technicians, and further training in this area is not required. However, individual corrective actions involving the responsible technician are still under consideration at this time.



General Manager-
Salem Operations

JLR:tns

SORC Mtg 85-016



Public Service Electric and Gas Company P.O. Box E Hancocks Bridge, New Jersey 08038

Salem Generating Station

January 22, 1985

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

Dear Sir:

SALEM GENERATING STATION
LICENSE NO. DPR-70
DOCKET NO. 50-272
UNIT NO. 1
LICENSEE EVENT REPORT 84-028-00

This Licensee Event Report is being submitted pursuant to the requirements of 10CFR 50.73(a)(2)(iv). This report is required within thirty (30) days of discovery.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. M. Zupko, Jr.", is written above the typed name.

J. M. Zupko, Jr.
General Manager -
Salem Operations

JR:tcs

CC: Distribution