



PSEG

Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038

Salem Generating Station

February 10, 1994

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

Dear Sir:

SALEM GENERATING STATION
LICENSE NO. DPR-75
DOCKET NO. 50-311
UNIT NO. 2

LICENSEE EVENT REPORT 94-001-00

This Licensee Event Report is being submitted pursuant to the requirements of Code of Federal Regulation 10CFR50.73(a)(2)(i)(B). Issuance of this report is required within thirty (30) days of event discovery.

Sincerely yours,

J. J. Hagan
General Manager -
Salem Operations

MJPJ:pc

Distribution

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940303006B 940210
PDR ADDCK 05000311
S PDR

The power is in your hands

Handwritten initials/signature
11

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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.

FACILITY NAME (1)

Salem Generating Station - Unit 2

DOCKET NUMBER (2)

05000 311

PAGE (3)

1 OF 04

TITLE (4)

TS 3.0.3 Entry: Inoperability of ARPI System to Support Maintenance Troubleshooting.

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	15	94	94	001	00	02	10	94		05000
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)							
POWER LEVEL (10)	100	20.402(b)		20.405(c)		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)	x	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 368A)	
		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	M. J. Pastva, Jr. - LER Coordinator	TELEPHONE NUMBER (Include Area Code)	(609) 339-5165
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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)

YES (If yes, complete EXPECTED SUBMISSION DATE)	x	NO		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Two intentional Technical Specification (TS) 3.0.3 entries occurred on 1/15/94 (from 0045 to 0047 hours, and from 0056 to 0059 hours) due to deenergizing the Analog Rod Position Indication (ARPI) System for all control rods. These events occurred due to removing the 115-volt alternating current (AC) power supply fuses to the ARPI System primary and auxiliary 13-volt direct current negative and positive power supplies. This was done to support correction of ARPI indicator drift for rod 2SB4. Rod positions, as compared to the rod group demand indicator, were correct prior to fuse removal and following fuse reinstallation. The root cause of these events is ARPI System design that resulted in the conservative approach requiring the TS 3.0.3 entries to avoid possible equipment damage during repair of the 2SB4 indication drift. Adjustments were made to the 2SB4 signal conditioning module and the module span, based on redeveloped secondary AC voltage value to the module. A channel check demonstrated ARPI operability, and TS 3.0.3 was exited. PSE&G will continue participation in the industry Rod Control User's Group and will utilize User's Group and vendor recommendations regarding ARPI System drift.

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PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as {xx}

IDENTIFICATION OF OCCURRENCE:

Technical Specification (TS) 3.0.3 entries; Inoperability of Analog Rod Position Indication (ARPI) System to Support Maintenance Troubleshooting

Event Date: 1/15/94

Report Date: 2/10/94

This report was initiated by Incident Report No. 94-017.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 Reactor Power 100% - Unit Load 1180 MWe

DESCRIPTION OF OCCURRENCE:

Two intentional TS 3.0.3 entries occurred on January 15, 1994 (from 0045 to 0047 hours, and from 0056 to 0059 hours) due to deenergizing the ARPI System {AA} for all control rods. These events occurred due to removing the 115-volt alternating current (AC) power supply fuses to the primary and auxiliary 13-volt direct current negative and positive power supplies for the ARPI System. This was done, as a conservative measure, to support correction of ARPI indication drift affecting rod 2SB4. Rod positions, as compared to the rod group demand indicator, were correct prior to fuse removal and following fuse reinstallation.

ANALYSIS OF OCCURRENCE:

ARPI operability is required to determine individual control rod position and ensure compliance with control rod alignment and insertion limits assumed in the accident analyses. ARPI provides actual rod position to the following locations: the Control Board dual channel position indicator modules (supplied by Dixon), the Safety Parameter Display System (SPDS), the main process P250 computer, and locally via the digital multimeter (DMM).

TS 3.1.3.2.1 addresses the operability requirement of the "Reactivity Control System's" position indicating systems. The indicators are determined operable by verifying that the rod position indication

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ANALYSIS OF OCCURRENCE: (cont'd)

system agrees within twelve (12) steps of the group demand counters. If more than one ARPI per bank is inoperable, the Limiting Condition For Operation and associated ACTION requirements of TS 3.1.3.2.1 are not met and TS 3.0.3 therefore applies.

Two intentional TS 3.0.3 entries occurred to support correction of instrument drift affecting the ARPI of control rod 2SB4. The 115-volt alternating current power supply fuses (total of four) to the primary and auxiliary 13-volt direct current negative and positive power supply for the ARPI system were removed. This was done, as a conservative measure, to eliminate potential electrical shorting of the 2SB4 ARPI signal conditioning module and damage to the 13-volt dc power supplies. Rod positions, as compared to the rod group demand indicator, were correct prior to fuse removal and following fuse reinstallation. Adjustments were made to the 2SB4 signal conditioning module and the module span, based on redeveloped secondary AC voltage value to the module. A channel check demonstrated ARPI operability, and TS 3.0.3 was exited.

APPARENT CAUSE OF OCCURRENCE:

The cause of these events is "Design, Manufacturing, Construction/Installation", as classified in Appendix B of NUREG-1022. Design of the ARPI System necessitated the TS 3.0.3 entries to avoid possible equipment damage during repair of the 2SB4 indication drift.

PREVIOUS OCCURRENCES:

Prior events, requiring TS 3.0.3 entry due to ARPI design concerns, have occurred on both Salem Units, as reported in LERs 272/93-007-00, 272/94-001-00, 311/92-016-00, and 311/93-010-00. As a result of these events (those occurring prior to 1994), System Engineering has developed an ARPI trending data base to identify problem electronic modules. In addition, the industry Rod Control User's Group has recognized an industry-wide problem with ARPI System drift. Recommendations from this group and from the vendors will be used to develop appropriate action.

SAFETY SIGNIFICANCE:

These events did not affect the health and safety of the public and are reportable to the NRC pursuant to Code of Federal Regulations 10CFR 50.73(a)(2)(i)(B).

Removing the subject fuses deenergized ARPI and resulted in no control rod position indication at the Control Room control rod console.

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SAFETY SIGNIFICANCE: (cont'd)

However, fuse removal did not affect operability of control rod overhead annunciators and RP3 "Rod Bottom" indication.

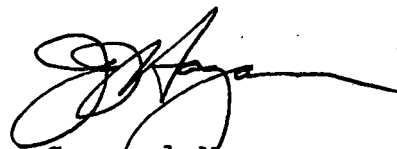
Had a Reactor trip occurred while the fuses were removed, technicians performing the 2SB4 troubleshooting and repair, could have reinstalled the fuses to restore the ARPI System. As such, the removal of the fuses would not have significantly affected the Control Operators' response to a trip.

In response to any known or suspected complete/partial loss of ARPI, the Control Operator will notify Reactor Engineering and the Maintenance Controls Department, in accordance with procedure S1.OP-AB.ROD-0004(Q), "ROD POSITION INDICATION FAILURE", to ensure that shutdown margin is maintained and to investigate and correct the cause of the problem. In addition, Reactor Operators utilize alternate monitoring systems; i.e. Nuclear Instrumentation, Reactor Power Range channels, and Intermediate and Source Range channels to confirm a Reactor trip coincident with unavailability of the ARPI.

CORRECTIVE ACTION:

The 2SB4 module and the span of the module were adjusted, a channel check was performed which demonstrated the ARPI operability, and TS 3.0.3 was exited.

PSE&G will continue participation in the industry Rod Control User's Group and will utilize User's Group and vendor recommendations regarding ARPI System drift.


General Manager -
Salem Operations

MJPJ:pc
SORC Mtg. 94-014