



Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038-0236

Nuclear Business Unit

March 22, 1995

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

Attn: Document Control Desk

SALEM GENERATING STATION  
LICENSE NO. DPR-70  
DOCKET NO. 50-272  
UNIT NO. 1

LICENSEE EVENT REPORT NO. 95-003-00

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,

J. C. Summers  
General Manager -  
Salem Operations

SORC Mtg. 95-029  
MJPJ:vs

C Distribution  
LER File

310045

The power is in your hands.

9503310061 950322  
PDR ADOCK 05000272  
S PDR

**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 1	DOCKET NUMBER (2) 05000272	PAGE (3) 1 OF 6
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TITLE (4) Four Planned Technical Specification (TS) 3.0.3 Entries To Support Correction Of Analog Rod Position Indication (ARPI) System Drift Affecting Rods 2SA1, 2SA4, and 2SA2

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
02	28	95	95	003	00	03	22	95	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9) 2	POWER LEVEL (10) 001	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
		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 366A)		
		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 Michael J. Pastva, LER Coordinator	TELEPHONE NUMBER (Include Area Code) 609 339-5165

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)	X	NO					

**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Four planned Technical Specification (TS) 3.0.3 entries occurred during maintenance to correct Analog Rod Position Indication (ARPI) drift affecting the following rods: 2SA1 on 2/28/95 (1126 - 1129 hours, and 1153 - 1154 hours); 2SA4 on 3/8/95 (1954 - 2019 hours); and 2SA2 on 3/12/95 (0129 - 0143 hours). Prior to and following each TS 3.0.3 entry, rod positions were within +/- 12 steps of the rod group demand indicator. These events are attributed to the ARPI System design that necessitates deenergizing the ARPI for all control rods to avoid possible equipment damage while correcting ARPI indication drift. Following internal adjustments to the affected rods' signal conditioning modules and the modules' span, channel checks demonstrated ARPI operability and TS 3.0.3 was exited. Recommendations from PSE&G's participation in the industry Rod Control User's Group, as well as from system vendors, will be used to develop appropriate action. A license change request was submitted on 8/19/94 to provide a 1 hour TS Action Statement to restore Operability when more than 1 ARPI indicator per bank is inoperable. Appropriate procedure changes have been made to minimize intentional TS 3.0.3 entries during maintenance to correct ARPI indication drift.

**REQUIRED NUMBER OF DIGITS/CHARACTERS  
FOR EACH BLOCK**

<b>BLOCK NUMBER</b>	<b>NUMBER OF DIGITS/CHARACTERS</b>	<b>TITLE</b>
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 - FACILITY NAME  8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

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Plant and System Identification:

Westinghouse - Pressurized Water Reactor

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

Identification of Occurrences:

Four Planned Technical Specification (TS) 3.0.3 Entries To Support Correction Of Analog Rod Position Indication (ARPI) System Drift Affecting Rods 2SA1, 2SA4, and 2SA2

Dates of Occurrences: February 28, 1995 (two occurrences)  
  March 8, 1995 (one occurrence)  
  March 12, 1995 (one occurrence)

Report Date: March 22, 1995

This report was initiated by Incident Report Nos. 95-183, 95-217, and 95-232 .

Conditions Prior to Each Occurrence:

(February 28) - Activities were in progress to enter Mode 1.  
Mode 2                      Reactor Power 001%                      Unit Load -0- Mwe

(March 8)  
Mode 1                      Reactor Power 100%                      Unit Load 1150 Mwe

(March 12)  
Mode 1                      Reactor Power 100%                      Unit Load 1153 Mwe

Description of Occurrences:

Planned TS 3.0.3 entries occurred on February 28, 1995 (two occurrences - from 1126 to 1129 hours, and from 1153 to 1154 hours), March 8, 1995 (one occurrence - from 1954 to 2019 hours), and March 12, 1995 (one occurrence - from 0129 to 0143 hours) due to intentionally deenergizing the ARPI System {AA} for all control rods. These events occurred during maintenance to correct ARPI indication drift affecting Rod 2SA1 (February 28), Rod 2SA4 (March 8), and

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Description of Occurrences: (cont'd)

Rod 2SA2 (March 12). Prior to and following each TS 3.0.3 entry, rod position was within +/- twelve (12) steps of the rod group demand indicator, as allowed by TS.

Analysis of Occurrences:

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

ARPIs are determined operable by verifying that the rod position, as provided by the rod position indication system, is within +/- twelve (12) steps of the respective rod group demand counter. 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 applies.

Planned TS 3.0.3 entries are made as a proactive measure to correct ARPI indication problems prior to exceeding the +/- 12 steps limit. Gain adjustment of the operating amplifier (Op Amp) potentiometers for an ARPI signal conditioning module Amp) requires placing the affected module on an extender card. As such, deenergizing the ARPI 13VDC power supply is done as a conservative measure to prevent possible equipment damage during removal and reinstallation of the involved module. Although deenergizing the power supply results in a TS 3.0.3 entry, the evolution is a controlled process. In addition, the risk associated with not deenergizing the power supplies is loss of all ARPI indication due to loss of power and plant shutdown. The tolerance in the calibration procedure for the Op Amp of the circuit is +/-20 milli-volts (mV), equivalent to 1 step of indication. Presently, if Op Amp voltage is found outside this tolerance it is adjusted to within the tolerance, thereby necessitating a TS 3.0.3 entry.

In response to ARPI indications for three rods, which were approaching the +/- 12 steps limit, four planned TS 3.0.3

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Analysis of Occurrences: (cont'd)

entries were made to permit maintenance activity to correct the indication drift affecting the rods. These events occurred when the 115-volt alternating current (AC) power supply fuses (total of four) to the ARPI System primary and auxiliary 13-volt direct current negative and positive power supply were removed. Removing the fuses resulted in no rod position indication at the Control Room control rod console. Following completion of the maintenance activity, channel checks demonstrated ARPI operability and TS 3.0.3 was exited thereby terminating the events.

Apparent Cause of Occurrences:

These events are attributed to "Design, Manufacturing, Construction/Installation", as classified in NUREG-1022, Appendix B. The ARPI System design necessitated deenergizing the ARPI to avoid possible equipment damage while correcting the ARPI indication drift.

Prior Similar Occurrences:

Prior similar occurrences, attributed to ARPI design, have occurred on both Salem units (see LERs 272/93-007-00, 272/94-001-00, 272/94-004-00, 272/94-006-00, 272/94-010-00, 272/94-012-00, 272/94-014-00, 311/92-016-00, 311/93-010-00, 311/94-001-00, 311/94-003-00, and 311/94-009-00). As a result, System Engineering developed an ARPI trending data base and identified problem electronic modules, which are being replaced as required. In addition, the industry Rod Control User's Group, in which PSE&G participates, has recognized ARPI System drift as an industry-wide problem.

Safety Significance:

These occurrences had minimal safety significance and are reportable pursuant to 10CFR50.73(a)(2)(i)(B).

In response to any known or suspected complete/partial loss of ARPI, the Operations Department will notify Reactor Engineering and the Maintenance Controls Department, per procedure. In addition, to confirm a Reactor trip

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Safety Significance: (cont'd)

coincident with an unavailability of the ARPI System, Reactor Operators utilize alternate monitoring systems; i.e. Nuclear Instrumentation, Reactor Power Range channels, and Intermediate and Source Range channels until the ARPI System is restored. Prior to a planned TS 3.0.3 entry for ARPI maintenance, a pre-job briefing is conducted to ensure personnel awareness of the significance of the TS 3.0.3 entry. Had a Reactor trip occurred while the fuses were removed, technicians correcting the subject indication drift, could have reinstalled the fuses to restore the ARPI System. As such, removing the fuses would not have significantly affected the Control Operators' response to a trip.

Corrective Action:

In each case, following internal adjustments to the affected rod's signal conditioning module and the module's span, channel checks demonstrated ARPI operability and TS 3.0.3 was exited.

Recommendations from PSE&G's participation in the industry Rod Control User's Group, as well as from system vendors, will be used to develop appropriate action.

On August 19, 1994, a license change request was submitted to more closely align the Salem TSs with the recommendations of NUREG-1341, Vol. 1, "Standard Technical Specifications - Westinghouse Plants", issued November 1992. This change will provide a one hour time frame with the TS Action Statement to restore Operability when more than one ARPI indicator per bank is inoperable. An anticipated benefit from this TS change is a reduction in the number of intentional TS 3.0.3 entries during maintenance to correct ARPI indication drift.

Procedure changes have been made which increase the allowed tolerance for the Op Amp output to +/-40mV before corrective action is required. This change also includes increasing the allowable tolerance to +/-60mV before a TS 3.0.3 entry is required to correct an ARPI indication drift. This change follows evaluation that determined that increasing the Op Amp tolerance as described is acceptable in meeting the allowed tolerance of +/- 12 steps. This change helps insure that appropriate corrective action can be taken in a

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Corrective Action: (cont'd)

controlled manner to address ARPI drift in the Op Amp circuit. In addition, the +/- 60mV tolerance ensures sufficient margin for response to excessive deviations in rod position.



J. C. Summers  
General Manager -  
Salem Operations

MJPJ:vs  
REF: SORC Mtg. 95-029