



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

Nuclear Business Unit

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LR-N990500

Regional Administrator
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Gentlemen:

**LICENSEE EVENT REPORT 99-010-00
SALEM GENERATING STATION - UNIT 1
FACILITY OPERATING LICENSE NO DPR 70
DOCKET NO. 50-272**

This Licensee Event Report entitled "SUBCRITICAL MANUAL REACTOR TRIP DUE TO ROD CONTROL SYSTEM FAILURE.." is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(iv) Licensees shall report "any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)"

Sincerely,

Mark B. Bezilla
Vice President-Operations

Attachment

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

/JCN
Distribution:
LER File 3.7

IE22

The power is in your hands.

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Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)

SALEM GENERATING STATION UNIT 1

DOCKET NUMBER (2)

05000272

PAGE (3)

1 OF 3

TITLE (4)

SUBCRITICAL MANUAL REACTOR TRIP DUE TO ROD CONTROL SYSTEM FAILURE.

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 NAME	DOCKET NUMBER
10	24	99	99	10	00	11	22	99		05000
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 11. (Check one or more) (11)							
2			20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10)			20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)	50.73(a)(2)(x)
0			20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)			20.2203(a)(4)			X 50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

John C. Nagle Senior Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

856-339-3171

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES

(If yes, complete EXPECTED SUBMISSION DATE).

X NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

On October 24, 1999 at approximately 1219, Salem Unit 1 reactor was manually tripped during rod worth testing because Control Bank C Group 1 rods failed to respond to demand. Rod worth measurements were in progress. All testing was being performed under the provisions of Special Test Exception 3.10.1 and 3.10.3 (Shutdown Margin and Physics Tests). Control Bank C was being inserted when the Reactor Operator noted a discrepancy between the Group 1 and Group 2 Step Counters. Rod insertion was terminated, the situation was evaluated and the decision was made to manually trip the reactor and place the control rods in a full in position. After briefings concerning the expected plant response were completed the trip breakers were opened and all rods were inserted. The plant was stable at approximately 100 counts in the Source Range. The cause of the event was traced to a poor connection on one of the rod control system power regulator boards. All of the regulator boards were removed from the power cabinets, the edge connectors were cleaned and aligned and the boards were reseated. A report was made to the NRC as required by the plant's Emergency Classification Guide and 10CFR50.72. This report is being made in accordance with 10CFR50.73(a)(2)(iv) "any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)".

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Salem Generating Station Unit 1	05000272	99	10	00	2 OF 3

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse - Pressurized Water Reactor

{AA/CON}*

* Energy Industry Identification System (EIIS) codes and component function identifier codes appear as {SS/CCC} in the text.

CONDITIONS PRIOR TO OCCURRENCE

The unit was subcritical, operating in Mode 2 at essentially zero power (less than 10E-9 amps on the Intermediate range), during low power physics testing starting up from a refueling outage, at the time of the event.

DESCRIPTION OF OCCURRENCE

At 1219 on October 24, 1999, Unit 1 reactor was manually tripped from subcritical conditions. Rod worth measurements were in progress in accordance with Reactor Engineering Procedure "Initial Criticality and Testing - Advanced Digital Reactivity Computer" [SC.RE-ST.ZZ-0013(Q)]. Testing was being performed under the provisions of Special Test Exception Technical Specifications 3.10.1 and 3.10.3 (Shutdown Margin and Physics Tests). Control Bank C was being inserted at maximum speed (66 steps/min) when the Reactor Operator noted a discrepancy between the Bank C Group 1 and Group 2 step counters. Step counters for Group 2 indicated 8 steps whereas group 1 indicated 12 steps. Testing was halted, procedure S1.OP-AB.ROD-001 (Immovable/Misaligned Control Rod) was entered and the situation was evaluated. Although the plant was stable and sub-critical, the Control Room Supervisor determined that the plant should be placed in a shutdown condition by fully inserting the controls rods prior to trouble shooting the rod drive control system. Because the Bank C Group 1 Control Rods had not responded to demand signal from the rod drive control system the decision was made to trip the reactor. The staff was briefed on the anticipated plant reaction to the reactor trip and which procedures were to be utilized. The reactor trip breakers were opened in accordance with EOP-TRIP-1, the plant transitioned to EOP-TRIP-2, and operating procedure S1.OP-IO.ZZ-0008 (Hot Standby) was entered in order to place the plant in Hot Standby Condition.

**LICENSEE EVENT REPORT (LER)
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		99	10	00	

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CAUSE OF OCCURRENCE

Investigation traced the source of the problem to a poor connection on one of the regulator boards in the rod drive control cabinet. Removal of the board and subsequent inspection identified that an edge connector pin appeared to be misaligned and that the board did not appear to be firmly seated. The failed equipment was last serviced (removed from the cabinet) in 1996. Operation over several years in this configuration may have allowed the buildup of oxidation products on this connector.

PRIOR SIMILAR OCCURRENCES

The Salem and Hope Creek electronic correspondence databases have been reviewed to identify any Licensee Event Reports, Inspection Reports or other relevant correspondence which may have identified similar occurrences in the previous two years. No similar occurrences of board edge connector misalignment have been identified.

SAFETY CONSEQUENCES AND IMPLICATIONS

All systems performed as designed in response to the reactor trip. The failed equipment which was responsible for the event would not have prevented a reactor trip in response to a reactor protection system trip signal.

CORRECTIVE ACTIONS

- 1) The pin on the edge connector was realigned, cleaned and the board was reseated.
- 2) All of the regulator boards were removed from the power cabinets and inspected. The edge connectors were cleaned and realigned as necessary. The boards were reseated and the system returned to service.