PSE&G

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

Salem Generating Station

March 25, 1993

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

SUPPLEMENTAL LICENSEE EVENT REPORT 92-026-02

This Licensee Event Report supplement is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR 50.73. It addresses three additional events (since issuance of the first supplement) which have the same root cause as the first event. The events are reportable per Code of Federal Regulations 10CFR 50.73(a)(2)(iv). This report is required to be issued within thirty (30) days of event discovery.

Sincerely yours,

C. A Vondra
General Manager -
Salem Operations

MJP:pc

Distribution

300014

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Salem Generating Station - Unit 1	0 5 0 0 0 2 7 2	1 OF 0 6

TITLE (4)

Engineered Safety Feature Actuations Initiated from the Radiation Monitoring System.

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
1 2	1 3	9 2	9 2	0 2 6	0 2	0 3	2 6	9 3		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)							
POWER LEVEL (10)	0 9 9		20.402(b)		20.405(c)	X	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 (Specify in Abstract below and in Text, NRC Form 366A)
			20.405(a)(1)(iii)		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
	AREA CODE
M. J. Pastva, Jr. - LER Coordinator	6 0 9 3 3 9 - 2 1 5 7

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	
X	A B	I N V C	6 3 5	Y							
X	A B	P S P U	0 8 0	Y							

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 fifteen single-space typewritten lines) (16)

This reports Containment Purge/Pressure-Vacuum Relief (CP/P-VR) System isolations initiated by the 1R11A Radiation Monitoring System channel, which monitors the containment atmosphere for particulate activity. These Engineered Safety Feature actuations occcured on 12/13/92, at 0535 and 0658 hours, 12/30/92, at 1452 hours, 1/25/93 at 1300 hours, 2/24/93, at 0505 hours, 2/28/93, at 1116 hours, and 3/1/93, at 0517 hours, when containment activity increased to the 1R11A alarm setpoint (60,000 cpm). In each case, the CP/P-VR valves remained closed. A valve bonnet leak on pressurizer spray air-operated valve, 1PS1, appeared to contribute to the first 3 events. The leak was stopped by closing maintenance valves upstream/downstream of 1PS1 and inserting temporary sealant. 1PS1 will be repaired at the next outage of sufficient duration. Pipe flange leakage immediately upstream of Reactor head vent manual isolation valve, 1RC900, appeared to contribute to the 4th event. This leak was stopped by installing a leak repair clamp. Leakage from the valve packing of pressurizer steam sample valve, 1PS23, and pressurizer spray valve outlet isolation valve, 1PS35, appeared to contribute to the 5th, 6th, and 7th, events. This leakage was stopped by backseating the valves. Investigation to identify additional source(s) of containment gaseous activity is continuing.

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

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

IDENTIFICATION OF OCCURRENCE:

Engineered Safety Feature actuations initiated from the Radiation Monitoring System

Event Dates: 12/13/92, 12/30/92, 1/25/93, 2/24/93, 2/28/93, and 3/1/93

Report Date: 3/26/93

This supplemental LER was initiated to report events identified by Incident Reports (IRs) 93-161, 93-172, and 93-174, which identify fifth, sixth, and seventh Engineered Safety Feature signal actuations due to a similar cause. The original LER addressed events discussed in IRs 92-819, 92-865, and 93-067.

CONDITIONS PRIOR TO OCCURRENCE:

12/13/92 Mode 1 Reactor Power 100% - Unit Load 1151 MWe

On 12/12/92, at 0914 hours, power was reduced to 90% due to Circulating Water System high delta T. At 1812 hours (that day), a power increase to full power commenced and was reached on 12/13/92 at 0650 hours.

12/30/92 Mode 1 Reactor Power 90% - Unit Load 1010 MWe

On 12/30/92, prior to the ESF event, power was being increased from 90% to full power. The Unit had previously been removed from service due to Circulating Water System problems.

1/25/93 Mode 1 Reactor Power 99% - Unit Load 1100 MWe

On 1/25/93, prior to the event, power was being increased from 88% to full power. The Unit had been removed from service for planned maintenance and experienced a manual reactor trip (LER 272/93-002-00) during shutdown on 1/16/93. Power ascension had begun on 1/23/93.

2/24/93 Mode 1 Reactor Power 65% - Unit Load 750 MWe

On 2/23/93, at 0005 hours, ascension from 5% to full power

CONDITIONS PRIOR TO OCCURRENCE: (cont'd)

commenced. On 2/24/93, at 0455 hours, Reactor power was reduced from 89%, following a manual turbine runback.

2/28/93 Mode 1 Reactor Power 100% - Unit Load 1145 MWe

On 2/27/93, at 1515 hours, increase to full power commenced and was reached at 1745 hours (same day). On 2/28/93, at 1114 hours, 12 Containment Fan Coil Unit (CFCU) was placed in low speed due to increasing containment airborne activity.

3/1/93 Mode 1 Reactor Power 100% - Unit Load 1143 MWe

Since 2/27/93, power was maintained steady state at 100%.

DESCRIPTION OF OCCURRENCE:

This LER addresses seven (7) Engineered Safety Feature (ESF) actuations initiated through the Radiation Monitoring System (RMS) {IL}. The signals were for Containment Purge/Pressure-Vacuum Relief (CP/P-VR) System {BF} isolation. The associated isolation valves were closed prior to each event, and therefore, did not change position. Per Code of Federal Regulations 10CFR 50.72(b)(2)(ii), the Nuclear Regulatory Commission (NRC) was notified of the seven (7) events.

On December 13, 1992, at 0535 hours, following a power increase from 99% to 100%, the 1R11A RMS channel alarmed actuating a CP/P-VR System isolation. It was initially assessed to be the result of a channel instrumentation spike; however, further investigation showed it was due to increased Containment airborne activity. Following the actuation, the alarm was cleared and the channel was left in service. At 0658 hours, that day, the 1R11A RMS channel increased from 35,000 cpm to the alarm setpoint (60,000 cpm) resulting in another CP/P-VR System isolation signal. After this alarm actuation the count level trended back to 35,000 cpm.

The 1R11A RMS channel monitors the Containment atmosphere for particulate activity by filtering a sample of Containment air. Investigation determined that the 1R11A RMS channel was functioning in accordance with its design. Analysis of the sample filter paper showed that the alarm signal was due to Rb-88 activity. Rb-88 has a half life of 17.8 minutes. It is a decay product of Kr-88 which is a fission product. Investigation to identify the source of the activity was initiated.

On December 30, 1992, at 1452 hours, during power ascension from 90% to full power, the 1R11A RMS channel indication increased from 35,000 cpm to the alarm setpoint resulting in a CP/P-VR System isolation signal. Following the alarm the channel count rate trended back to

DESCRIPTION OF OCCURRENCE: (cont'd)

35,000 cpm. The alarm was attributed to Rb-88.

On January 25, 1993, at 1300 hours, during power ascension from 88% to full power, the 1R11A RMS channel indication increased from 35,000 cpm to the alarm setpoint resulting in a CP/P-VR System isolation signal. Following the alarm, the CFCUs were put in low speed reducing containment airborne particulate activity. The channel count rate trended back to 25,000 cpm. The alarm was attributed to Rb-88.

On February 24, 1993, at 0517 hours, following reduction in power from 89%, the 1R11A RMS channel indication increased from approximately 27,000 cpm to the alarm setpoint causing a CP/P-VR System isolation signal. Following the alarm, the channel count rate trended back to approximately 40,000 cpm. The alarm was attributed to Rb-88.

On February 28, 1993, at 1116 hours, following an increase to full power, the 1R11A RMS channel indication increased from approximately 40-45,000 cpm to the alarm setpoint resulting in a CP/P-VR System isolation signal. Following the alarm, the channel count rate trended back to approximately 48-50,000 cpm. The alarm was attributed to Rb-88.

On March 1, 1993, at 0517 hours, the 1R11A RMS channel indication increased from 40,000 cpm to the alarm setpoint resulting in a CP/P-VR System isolation signal. Following the alarm, the channel count rate trended back to approximately 40,000 cpm. The alarm was attributed to Rb-88.

APPARENT CAUSE OF OCCURRENCE:

The cause of the 1R11A RMS channel ESF signal actuations is increased Containment activity.

Investigation of the first three (3) ESF actuations indicated that a previously identified bonnet leak on the 1PS1 Pressurizer Spray air operated valve was the probable source of the increased activity. The maintenance valves upstream and downstream of the 1PS1 valve had been closed isolating the 1PS1 valve. Investigation of the fourth event identified pipe flange leakage immediately upstream of the Reactor head vent manual isolation valve 1RC900 {AB}. The flange leak was stopped with a temporary modification (leak repair clamp). Investigation of the fifth, sixth, and seventh events identified leakage from the valve packing of the 1PS23 Pressurizer Steam Sample Valve and the 1PS35 Pressurizer Spray Valve Outlet Isolation Valve.

Investigation to identify additional source(s) of Containment gaseous activity is continuing. To date, specific areas checked include the Pressurizer area and each general elevation area.

ANALYSIS OF OCCURRENCE:

These events did not affect the health and safety of the public. Due to automatic actuation signal of an ESF system, they are reportable in accordance with Code of Federal Regulations 10CFR 50.73(a)(2)(iv).

The 1R11A Containment Particulate Monitor, (a NaI scintillation type detector, model LFE MD5B) monitors air particulate gamma radioactivity in the Containment atmosphere. In Modes 1 through 4, it is used to identify Reactor Coolant System (RCS) {AB} leakage in conjunction with the containment sump level monitoring system, and either the containment fan cooler condensate flow rate or the containment atmosphere gaseous (1R12A) radioactivity monitoring system. In Mode 6, it is used to provide indication of a fuel handling accident and early Containment isolation in the event of an accident.

The 1R11A RMS channel provides an alarm signal which will cause automatic isolation of the CP/P-VR System. Isolation of the CP/P-VR System is an ESF to mitigate the release of radioactive material to the environment after a design basis accident.

Review of 1R11A RMS channel data shows the alarms were not the result of spurious channel spiking. Routine containment airborne radioactivity monitoring, by Radiation Protection, confirms the presence of sufficient Rb-88, which caused the alarms. Unidentified leak rate calculations (conducted by Operations) show a leak rate of 0.2 gpm. The Technical Specification limitation on unidentified leakage is 1 gpm.

The 1R11A RMS channel is functioning per design. It has identified higher than normal airborne particulate activity in Containment. The channel ESF isolation capability is functional.

CORRECTIVE ACTION:

Maintenance testing has shown the 1R11A RMS channel is functioning per design.

The 1PS1 valve leak has been stopped via closure of the maintenance valves upstream and downstream of the 1PS1 valve and insertion of temporary sealant. The 1PS1 valve will be repaired at the next outage of sufficient duration.

The flange leak upstream of the 1RC900 valve was stopped through installation of a leak repair clamp in accordance with temporary modification procedures.

Leakage from 1PS23 and 1PS35 was eliminated by backseating each valve.

CORRECTIVE ACTION: (cont'd)

Investigation, to identify additional source(s) of Containment gaseous activity, is continuing. The effect on Containment particlate atmosphere will continue to be monitored.

General Manager -
Salem Operations

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SORC Mtg. 93-026