



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

January 24, 1990

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 90-001-00

This Licensee Event Report is being submitted pursuant to the requirements of the Code of Federal Regulations 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 "L. K. Miller".

L. K. Miller
General Manager -
Salem Operations

MJP:pc

Distribution

9002130099 900124
PDR ADOCK 05000311
S PDC

The Energy People

Handwritten initials "LF22" and the date "1/1" written vertically below them.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Salem Generating Station - Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 3 1 1				PAGE 13 1 OF 0 3		
TITLE (4) ESP; Auto Switch of the Control Room Vent. To its Safeguards Mode Due To Equip. Design																
EVENT DATE (6)			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)			
01	01	90	90	001	0	01	24	90					0 5 0 0 0			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)														
1		20.602(b)				20.605(a)				X		80.73(a)(2)(iv)		73.71(b)		
POWER LEVEL (10)		20.605(a)(1)(i)				80.38(a)(1)						80.73(a)(2)(v)		73.71(a)		
11010		20.605(a)(1)(ii)				80.38(a)(2)						80.73(a)(2)(vi)		OTHER (Specify in Abstract below and in Text, NRC Form 305A)		
		20.605(a)(1)(iii)				80.73(a)(2)(i)						80.73(a)(2)(vii)(A)				
		20.605(a)(1)(iv)				80.73(a)(2)(ii)						80.73(a)(2)(vii)(B)				
		20.605(a)(1)(v)				80.73(a)(2)(iii)						80.73(a)(2)(viii)				
LICENSEE CONTACT FOR THIS LER (12)																
NAME										TELEPHONE NUMBER						
M. J. Pollack - LER Coordinator										AREA CODE						
										6 0 9 3 3 9 -		4 0 2 2				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS						
B	ILDET	V1115		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)

On January 1, 1990, during normal plant operations for both Salem Units, Unit 1 Solid State Protection System (SSPS) [JG] slave relay testing was in progress. As part of the testing, the Control Room ventilation system is automatically switched from normal to the emergency mode of operation (100% recirculation) for both Salem Units. Just after the Unit 2 alarm was reset, the general area Radiation Monitoring System (RMS) [IL] monitor (2R1A) spiked into alarm resulting in a second automatic switching of the Control Room ventilation from normal operation to its accident mode of operation at 2105 hours. The root cause of the second switching to the accident mode of operation has been attributed to design/equipment concerns. An electrical spike on the channel microprocessor's input caused the microprocessor to malfunction. Subsequently, the channel microprocessor locked on a false "high" activity value resulting in the alarm actuation. Upon receipt of the channel spike and subsequent alarm, the channel was reset and was declared operable. As indicated in the LER 311/89-025-00, Engineering has investigated the concerns with the power supply to the Unit 2 RMS channels. It is anticipated that several system design modifications will eliminate the spurious ESF actuation signals. One of these design modifications is the installation of an uninterruptable power supply (UPS). The plans for completion of these modifications are included in the current PSE&G Living Engineering Plan for the RMS system.

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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:

Engineered Safety Feature Actuation - Automatic Switching of the Control Room Ventilation to the Emergency Mode of Operation Due to Equipment Design Concerns

Event Date: 1/1/90

Report Date: 1/24/90

This report was initiated by Incident Report No. 90-020.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 Reactor Power 100% - Unit Load 1160 MWe

DESCRIPTION OF OCCURRENCE:

On January 1, 1990, during normal plant operations for both Salem Units, Unit 1 Solid State Protection System (SSPS) [JG] slave relay testing was in progress (per procedure SP(O)4.3.2.1(E-A), "ESF - SSPS Slave Relay Tests"). As part of the testing, the Control Room ventilation system is automatically switched from the normal to the emergency mode of operation (100% recirculation) for both Salem Units. Just after the Unit 2 alarm was reset, the general area Radiation Monitoring System (RMS) [IL] monitor (2R1A) spiked into alarm resulting in a second automatic switching of the Control Room ventilation from normal operation to its accident mode of operation at 2105 hours.

The switching of the Control Room ventilation system to its emergency mode of operation is an Engineered Safety Feature (ESF). Since the second system switching was not the result of performance to a procedure, on January 1, 1990 at 2154 hours, the Nuclear Regulatory Commission was notified of the automatic switching in accordance with Code of Federal Regulations 10CFR 50.72(b)(2)(ii).

APPARENT CAUSE OF OCCURRENCE:

The root cause of the second switching to the accident mode of operation has been attributed to design/equipment concerns. An electrical spike on the channel microprocessor's input caused the microprocessor to malfunction. Subsequently, the channel microprocessor locked on a false "high" activity value resulting in the alarm actuation.

This event is similar to a prior event as identified in LER 311/89-025-00. This other event was also attributed to the same

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APPARENT CAUSE OF OCCURRENCE: (cont'd)

equipment design concern (i.e., the Unit 2 RMS system channels have been shown to be susceptible to voltage spikes); although, it was not preceded by procedural work.

The 2R1A detector is a Victoreen 857-20, GM tube.

ANALYSIS OF OCCURRENCE:

The 2R1A Control Room general area radiation monitor monitors the ambient gamma radiation levels in the Unit 2 Control Room. Generally, the Control Room dose rate would increase due to ventilation of radioactive materials. Therefore, the Control Room intake duct is isolated and the ventilation air is put in full recirculation through HEPA and Charcoal filters. This design is in accordance with the Updated Final Safety Analysis (UFSAR) which requires protection of Control Room personnel during a loss-of-coolant accident (LOCA), by limiting dose to 5 rem to the whole body, or its equivalent to any part of the body.

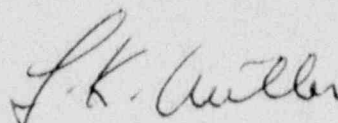
The 2R1B Control Room intake duct radiation monitor is used to corroborate the 2R1A channel readings. It too has the same automatic isolation function. During this event, no increase of activity was noted.

As indicated previously, the automatic switching of the Control Room ventilation to its accident mode of operation was not caused by high radiation levels, but by an equipment design concern. Therefore, the health and safety of the public was not affected by this event. However, since the switching to the accident mode of operation is considered an ESF actuation, this event is reportable in accordance with Code of Federal Regulations 10CFR 50.73(a)(2)(iv).

CORRECTIVE ACTION:

Upon receipt of the channel spike and subsequent alarm, the channel was reset and was declared operable.

As indicated in the LER 311/89-025-00, Engineering has investigated the concerns with the power supply to the Unit 2 RMS channels. It is anticipated that several system design modifications will eliminate the spurious ESF actuation signals. One of these design modifications is the installation of an uninterruptable power supply (UPS). The plans for completion of these modifications are included in the current PSE&G Living Engineering Plan for the RMS system.



General Manager -
Salem Operations