PSEG

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

Salem Generating Station

November 7, 1991

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 91-014-00

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,

C. A. Vondra
General Manager -
Salem Operations

MJP:pc

Distribution

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1/1

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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.

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

TITLE (4)
ESF Signal Actuation: Cont. Ventilation Isolation Due To 2R12B RMS Channel 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 NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
1 0	1 0	9 1	9 1	— 0 1 4	— 0 0	1 1	0 7	9 1		0 5 0 0 0

OPERATING MODE (9)	1
POWER LEVEL (10)	1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check one or more of the following)* (11)

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
M. J. Pollack - LER Coordiantor	AREA CODE 6 0 9 3 3 9 — 2 0 2 2

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	

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 October 10, 1991, at 0138 hours, the 2R12B (Containment Radioactive Iodine Monitor) Radiation Monitoring System (RMS) channel failed low. This resulted in an Engineered Safety Feature (ESF) actuation signal for Containment Purge/Pressure-Vacuum Relief (CP/P-VR) System isolation. The channel was declared inoperable. At the time of the event the CP/P-VR System valves were closed. The root cause of this event is equipment design. The detector system used for the Salem Unit 2 RMS channels is manufactured by Victoreen. Periodic problems with this system have been experienced as indicated in prior LERs (e.g., 311/90-010-00, and 311/91-007-00). The 2R12B detector uses a Victoreen Model 843-34 Scintillator. The Victoreen RMS channels are subject to voltage transients. An engineering assessment was done to identify possible causes of the momentary channel failure. A functional test was conducted which checked these possible causes. The functional test was successfully completed without identifying a component failure. The channel was observed for two (2) weeks, with the output functions blocked, without recurrence of a channel failure. Subsequently, the channel was returned to service. As indicated in LER 311/90-040-00, Engineering has investigated the concerns identified with the Victoreen RMS channels. Several modifications are planned to eliminate spurious RMS originated ESF actuation signals. These modifications include installation of an uninterruptable power supply (UPS) for Unit 2 and RMS channel equipment replacements.

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

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

IDENTIFICATION OF OCCURRENCE:

Actuation of an Engineered Safety Feature, Containment Purge Pressure-Vacuum Relief isolation, due to equipment design

Event Date: 10/10/91

Report Date: 11/07/91

This report was initiated by Incident Report No. 91-706.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 Reactor Power 100% - Unit Load 1160 MWe

DESCRIPTION OF OCCURRENCE:

On October 10, 1991, at 0138 hours, the 2R12B (Containment Radioactive Iodine Monitor) Radiation Monitoring System (RMS) {IL} channel failed low. This resulted in an Engineered Safety Feature (ESF) actuation signal for Containment Purge/Pressure-Vacuum Relief (CP/P-VR) System {BF} isolation. The channel was declared inoperable. At the time of the event the CP/P-VR System valves were closed.

On October 10, 1991, at 0200 hours, the Nuclear Regulatory Commission was notified of the CP/P-VR system actuation signal in accordance with Code of Federal Regulations 10CFR 50.72(b)(2)(ii).

APPARENT CAUSE OF OCCURRENCE:

The root cause of this event is equipment design. The detector system used for the Salem Unit 2 RMS channels is manufactured by Victoreen. Periodic problems with this system have been experienced as indicated in prior LERs (e.g., 311/90-010-00, and 311/91-007-00). The 2R12B detector uses a Victoreen Model 843-34 Scintillator. The Victoreen RMS channels are subject to voltage transients.

A functional check of the 2R12B channel did not reveal any failed components. The channel was observed for two (2) weeks, while its output functions were blocked, with no additional failures. The channel was subsequently returned to service.

ANALYSIS OF OCCURRENCE:

Isolation of the CP/P-VRS is an ESF. It mitigates the release of radioactive material to the environment after a design base accident.

ANALYSIS OF OCCURRENCE: (cont'd)

The 2R12B RMS channel monitor's the radioactive iodine gas content of the Containment atmosphere. By design, either a "high" alarm signal or a low channel failure will cause automatic isolation of the CP/P-VR System. At the time of the event, the CP/P-VR valves were closed.

Air samples are pulled from the Containment atmosphere through filter paper which continuously moves past the 2R11A (Containment Radioactive Particulate Monitor) detector. The air sample then passes through a charcoal cartridge (monitored by the 2R12B monitor) and is then mixed into a fixed shielded volume where it is viewed by the 2R12A (Containment Radioactive Noble Gas Monitor) monitor. The air sample is then returned to the Containment.

The 2R12A Containment Radioactive Noble Gas monitor is the channel taken credit for by the accident analysis for monitoring Containment airborne activity in order to mitigate the consequences of an accident. The 2R12A monitor has the capability of automatic isolation of the CP/P-VR System. It remained operable during the course of this event and did not indicate any abnormal Containment airborne activity.

During this event, RCS leakage within Containment did not increase nor was there any indication of increasing Containment activity as indicated by the 2R12B corroborating RMS channels. Therefore, this event did not affect the health or safety of the public. However, due to the automatic actuation of an ESF system, this event is reportable in accordance with Code of Federal Regulations 10CFR 50.73(a)(2)(iv).

CORRECTIVE ACTION:

An engineering assessment was done to identify possible causes of the momentary channel failure. A functional test was conducted which checked these possible causes. The functional test was successfully completed without identifying a component failure. The channel was observed for two (2) weeks, with the output functions blocked, without recurrence of a channel failure. Subsequently, the channel was returned to service.

As indicated in LER 311/90-040-00, Engineering has investigated the concerns with the Victoreen RMS channels. Several modifications are planned to eliminate spurious RMS originated ESF actuation signals. These modifications include installation of an uninterruptable power supply (UPS) for Unit 2 and RMS channel equipment replacements.

General Manager -
Salem Operations

MJP:pc

SORC Mtg. 91-112