PSEG

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

Salem Generating Station

February 15, 1990

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
LICENSEE EVENT REPORT 90-002-00

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,

L. K. Miller
General Manager -
Salem Operations

MJP:pc

Distribution

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

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 4

TITLE (4)

ESF Actuation - Containment Vent. Isolation Due To An Equipment/Design 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)
									Salem Unit 2	0 5 0 0 0 3 1 1
0 1	1 7	9 0	9 0	0 0 2	0 0	0 2	1 5	9 0		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	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
1 0 0	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. Pollack - LER Coordinator	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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
B	I L	D E T	V 1 1 5	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)

Between January 17, 1990 and February 1, 1990, several Containment Purge/Pressure-Vacuum Relief System (CP/P-VRS) isolation signals were initiated due to failures of the 1R41 Radiation Monitoring System (RMS) channels. These channels monitor the Plant Vent effluent gas releases for radioactive particulates, iodine and noble gas. The CP/P-VRS is considered an Engineered Safety Feature (ESF). The root cause of the isolation signals can be attributed to a design/equipment problem, associated with Victoreen RMS equipment, as discussed in several prior LERs, (e.g., 272/89-014-00 and 272/89-034-00). The 1R41A detector is a Victoreen Model 843-22 Beta Scintillators and the 1R41B detector is a Victoreen Model 843-34 NaI Detector. The 1R41A and 1R41B channel control modules and scalar modules were reseated. No obvious problem with the modules or their pins was apparent. A channel functional test, per procedure, was successfully completed for each channel prior to declaring them operable. The 1R41 channels have failed in the past (e.g., LER 272/89-014-00). As indicated by prior Unit 1 LERs and other Salem Unit 2 LERs, the Victoreen detector systems have been prone to failure due to the inherent design of the equipment. The Victoreen equipment will be replaced with more reliable detector systems.

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 (ESF) Actuation Signal, Containment Purge/Pressure-Vacuum Relief isolation, due to a design/equipment problem

Event Date(s): 1/17/90, 1/19/90, 1/31/90 and 2/1/90

Report Date: 2/15/90

This report was initiated by Incident Report No. 90-047, 90-052, 90-093, and 90-094.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 Reactor Power 100%

DESCRIPTION OF OCCURRENCE:

This LER addresses several Radiation Monitoring System (RMS) {IL} channel failures which have resulted in actuating signals for Containment Purge/Pressure-Vacuum Relief {BF}. The root cause of the actuations are attributed to a design/equipment problem associated with the Victoreen RMS equipment. This concern has been identified and discussed in prior LERs, (e.g., 272/89-014-00 and 272/89-034-00).

On January 17, 1990 at 2005 hours, the RMS Plant Vent Radioactive Particulate Monitor, 1R41A, channel spiked high resulting in a Containment Purge/Pressure-Vacuum Relief System (CP/P-VRS) isolation signal. After return to service, channel spikes occurred again on January 19, 1990 and February 1, 1990 resulting in CP/P-VRS isolation signals.

On January 19, 1990 and January 31, 1990, the RMS Plant Vent Iodine Monitor, 1R41B, channel spiked high resulting in CP/P-VRS isolation signals.

The CP/P-VRS is considered an Engineered Safety Feature (ESF). Subsequently, within four (4) hours of each identified CP/P-VRS signal, the Nuclear Regulatory Commission was notified of the automatic actuation of CP/P-VRS as required by Code of Federal Regulations 10CFR 50.72(b)(2)(ii).

APPARENT CAUSE OF OCCURRENCE: (cont'd)

As stated above, the root cause of the CP/P-VRS actuations are attributed to a design/equipment problem associated with the Victoreen RMS equipment.

APPARENT CAUSE OF OCCURRENCE:

Troubleshooting after each CP/P-VRS signal for the 1R41A and 1R41B channels did not reveal any specific equipment failure.

The 1R41A detector is a Victoreen Model 843-22 Beta Scintillators and the 1R41B detector is a Victoreen Model 843-34 NaI Detector.

ANALYSIS OF OCCURRENCE:

Isolation of the CP/P-VRS is part of the design Engineered Safety Features (ESFs). It mitigates the release of excessive quantities of radioactive material to the environment after a design base accident.

The 1R41A channel monitor's the plant vent effluent releases for radioactive particulates via representative sampling. The ESF actuation feature of CP/P-VRS isolation, associated with this channel, is of conservative design. It is not taken credit for in the UFSAR nor is it addressed by the Technical Specifications. The channel which is taken credit for CP/P-VRS isolation is the 1R12A channel which monitor's Containment noble gas activity. During the 1R41A CP/P-VRS isolation signal events, the 1R12A monitor remained operable.

The 1R41B channel monitor's the plant vent effluent releases for radioactive iodines via representative sampling. The ESF actuation feature of CP/P-VRS isolation, associated with this channel, is of conservative design. It is not taken credit for in the UFSAR nor is it addressed by the Technical Specifications. As stated above, the channel which is taken credit for CP/P-VRS isolation is the 1R12A channel which monitor's Containment noble gas activity. During the 1R41B CP/P-VRS isolation signal events, the 1R12A monitor remained operable.

The valves associated with CP/P-VRS functioned as designed upon receipt of the ESF actuation signal(s).

During the January 17, 1990 event (1R41A channel), a Waste Gas Tank release (via the plant vent) was in progress. It has been determined that the activity associated with the release did not affect the 1R41A channel by causing the channel spike. The channel had returned to "normal" after the spike. Also, the 1R41B (Plant Vent iodine monitor) and the 1R41C (Plant Vent noble gas monitor) did not register any abnormal activity levels.

As indicated in the Apparent Cause of Occurrence section, the CP/P-VRS isolation was the result of an RMS channel 1R41A equipment problem causing a high channel spike. It was not the result of high plant vent particulate activity. Therefore, this event did not affect the health or safety of the public. However, this event is reportable in accordance with the Code of Federal Regulations 10CFR 50.73(a)(2)(iv).

CORRECTIVE ACTION:

As part of the investigations with the above events, the 1R41A and 1R41B channel control modules and scalar modules were reseated. No

CORRECTIVE ACTION: (cont'd)

obvious problem with the modules or their pins was apparent. Also, the associated setpoints were verified. A channel functional test, per procedure, was successfully completed prior to declaring either of the channels operable.

The 1R41 channels have failed in the past (e.g., LER 272/89-014-00). As indicated by prior Unit 1 LER(s) and other Salem Unit 2 LERs, the Victoreen detector systems have been prone to failure due to the inherent design of the equipment. As previously stated, the equipment will be replaced with more reliable detector systems as addressed by the PSE&G Living Engineering Plan for the RMS system.

J. K. Miller

General Manager -
Salem Operations

MJP:pc

SORC Mtg. 90-014