PSEG

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

Salem Generating Station

December 12, 1991

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 91-032-00

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 to be issued within thirty (30) days of event discovery.

Sincerely yours,

C. A Vondra
General Manager -
Salem Operations

MJP:pc

Distribution

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1/1

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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 4

TITLE (4)

ESF Activation Signal for Cont. Vent. Isolation Due To Inadequate Design

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 1	1 4	9 1	9 1	— 0 3 2	— 0 0	1 2	1 2	9 1		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)	1 0 0	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
B. W. Leap	6 0 9 3 3 9 2 2 1 1

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	

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 11/14/91, a Maintenance Instrument and Controls (I&C) technician began a preventive maintenance (PM) task to open, clean, inspect and close the sample box for the Radiation Monitoring System (RMS) Containment Particulate Radiation Monitor, 1R11A. At 0842 hours the same day, during the performance of the PM task, a Containment Purge/Pressure-Vacuum Relief System (CP/P-VR) isolation signal actuated as a result of a high channel spike on 1R11A. The associated containment isolation valves were closed at the time and did not change position as a result of the isolation signal. The CP/P-VR System isolation is an Engineered Safety Feature (ESF). The root cause of the channel spike is attributed to a design inadequacy. As indicated by prior LERs, the RMS channels are subject to intermittent spikes due to external influences. Investigation could not identify the specific cause of this channel spike. The 1R11A channel was restored following the investigation. A channel calibration check was completed satisfactorily. Subsequently, the Action Statement was exited November 14, 1991, at 1105 hours. The event was discussed with the appropriate Maintenance I&C RMS qualified technicians. The Maintenance Department Work Standard "Paperchange" has been revised to provide instructions for blocking the channel trip function. The design of the entire RMS system is being reviewed and the appropriate design changes will be implemented to enhance the system.

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

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

IDENTIFICATION OF OCCURRENCE:

Event Date: 11/14/91

Report Date: 12/12/91

This report was initiated by Incident Report No. 91-831.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 Reactor Power 100% - Unit Load 1152 MWe

DESCRIPTION OF OCCURRENCE:

On November 14, 1991, at 0825 hours, a Maintenance Instrument and Controls (I&C) technician began a preventive maintenance (PM) task to open, clean, inspect and close the sample box for the Radiation Monitoring System (RMS) {IL} Containment Particulate Radiation Monitor, 1R11A. At 0842 hours the same day, during the performance of the PM task, a Containment Purge/Pressure-Vacuum Relief System (CP/P-VR) isolation signal actuated as a result of a high channel spike on 1R11A. The associated containment isolation valves were closed at the time and did not change position as a result of the isolation signal. Subsequently, per Technical Specification Table 3.3-6 Action 20, Technical Specification 3.4.6.1 Action Statement (for Reactor Coolant System leakage detection) was entered.

Technical Specification 3.4.6.1 states:

> "The following Reactor Coolant System leakage detection systems shall be OPERABLE:
>
> a. The containment atmosphere particulate radioactivity monitoring system,
>
> b. The containment sump level monitoring system, and
>
> c. Either the containment fan cooler condensate flow rate or the containment atmosphere gaseous radioactivity monitoring system."

Technical Specification 3.4.6.1 Action Statement states:

> "With only two of the above required leakage detection systems OPERABLE, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and

DESCRIPTION OF OCCURRENCE: (cont'd)

analyzed at least once per 24 hours when the required gaseous and/or particulate radioactivity monitoring system is inoperable; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours."

The CP/P-VR system isolation is an Engineered Safety Feature (ESF) {JE}. Therefore, on November 14, 1991, at 1211 hours the Nuclear Regulatory Commission was notified of the automatic actuation signal in accordance with Code of Federal Regulations 10CFR 50.72(b)(2)(ii).

APPARENT CAUSE OF OCCURRENCE:

The root cause of the channel spike is attributed to design inadequacy.

An investigation assessed the activities associated with the PM to determine the cause of the event. It was thought that the spike may have been caused by the 1R11A detector cable being disturbed during repositioning of the lead shielding around the detector housing. Therefore, the channel trip function was blocked and the detector cable manipulated to determine if there was a malfunction in the cable or detector connection. There was no indication that the cable or detector were malfunctioning. The rags used to clean the sample box were frisked to determine if the spike had been caused by loose contamination or a hot particle. The rags were not contaminated.

A review was conducted to determine if other work activities (i.e., welding) being performed in the immediate area contributed to the cause of the event. There were no such activities being performed at the time of the event.

As indicated by prior LERs (reference 272/91-001-00), the RMS channels are subject to intermittent spikes due to external influences. To limit the number of possible spurious channel spikes the Maintenance Department Work Standard ("Paperchange"), for replacement of the 1R11A channel filter paper, has been revised to include blocking the 1R11A channel trip function as part of the PM.

The 1R11A channel was restored following the investigation. A channel calibration check was completed satisfactorily. Subsequently, the Action Statement was exited November 14, 1991, at 1105 hours.

ANALYSIS OF OCCURRENCE:

The 1R11A, Containment Particulate Monitor, (a NaI scintillation type detector, model LFE MD5B) monitors the air particulate gamma

ANALYSIS OF OCCURRENCE: (cont'd)

radioactivity in the Containment atmosphere. It is used to identify RCS leakage in conjunction with the containment sump level monitoring system, the containment fan cooler condensate flow rate monitors, and the containment atmosphere gaseous radioactivity (1R12A) RMS channel. An alarm signal causes the automatic isolation of the CP/P-VRS.

Air samples are pulled directly from the Containment atmosphere through filter paper which continuously moves past the 1R11A scintillation detector. After the air sample passes through the filter paper, it goes through a charcoal cartridge (monitored by the 1R12B monitor) and is then mixed into a fixed shielded volume where it is viewed by the 1R12A noble gas monitor. The air sample is then returned to the Containment.

During the 1R11A channel spike, RCS leakage within the Containment did not increase, and the corroborating RMS channel (1R41A) was operable and would have provided isolation of the CP/P-VR system if there had been any increase in Containment airborne activity. Therefore, this event did not affect the health or safety of the public. However, due to the automatic actuation signal of an ESF system, it is reportable in accordance with Code of Federal Regulations 10CFR 50.73(a)(2)(iv).

CORRECTIVE ACTION:

A channel calibration check was performed satisfactorily and the channel returned to service.

The event was discussed with the appropriate Maintenance I&C RMS qualified technicians.

The Maintenance Department Work Standard "Paperchange" has been revised to provide instructions for blocking the channel trip function.

The design of the entire RMS system is being reviewed and the appropriate design changes will be implemented to enhance the system.

General Manager -
Salem Operations

BWL:pc

SORC Mtg. 91-125