PSEG

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Nuclear Business Unit

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U. S. Nuclear Regulatory Commission
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LER 272/99-007-00
SALEM GENERATING STATION – UNIT 1
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-311

Gentlemen:

This Licensee Event Report entitled "Engineered Safety Feature Actuation, 1R12A Containment Noble Gas Monitor Alarm and Containment Ventilation System Isolation" is being submitted pursuant to the requirements of the Code of Federal Regulations ****10CFR50.73(a)(2)(iv)****

Sincerely,

Mark B. Bezilla
Vice President – Operations

/rbk
Attachment

C Distribution
LER File 3.7

IE22

NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SALEM UNIT 1	05000272	1 OF 4

TITLE (4)

Engineered Safety Feature Actuation, 1R12A Containment Noble Gas Monitor Alarm and Containment Ventilation System Isolation

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 NAME	DOCKET NUMBER
09	24	99	99	-- 007 --	00	10	25	99		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	6
POWER LEVEL (10)	0

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

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)	X	50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Brooke Knieriem, Licensing Engineer	(856) 339-1782

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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 15 single-spaced typewritten lines) (16)

This LER reports the automatic actuation of an Engineered Safety Feature (ESF) due to a valid signal, as required by 10CFR50.73(a)(2)(iv). On September 24, 1999 the Salem Unit 1 Containment Noble Gas monitor (1R12A) alarmed in response to a valid radiation condition that was above its alarm setpoint, generating a signal to isolate the Containment Ventilation system. At the time of the alarm, the 1R12A was in service but inoperable and the Containment Isolation Valves were closed because of modification activities that were in progress. The high radiation condition was caused by the release of activity from noble gases from the Reactor Coolant system during normal refueling outage maintenance activities.

The cause of this occurrence was a trip of the 1R12A as a result of an conservative alarm/trip setpoint that does not account for expected spikes in containment noble gas activity during normal refueling outage maintenance activities.

Corrective Actions for this event included containment atmosphere monitoring to verify that an abnormal radiological condition did not exist. In addition, PSE&G will evaluate alternative methods to determine Containment atmosphere background activity level to provide a method that will maintain the ability of the 1R12A to carry out its design function while eliminating unnecessary alarms and Containment Ventilation System isolations.

PLANT AND SYSTEM IDENTIFICATION

Westinghouse - Pressurized Water Reactor

Engineered Safety Feature Actuation System {JE/-}*
Radiation Monitoring Instrumentation {IL/-}
Containment Ventilation System {BF/-}
Reactor Coolant System {AB/-}
Solid State Protection System {JG/-}

* Energy Industry Identification System (EIIS) codes and component function identifier codes appear as {SS/CC}

CONDITIONS PRIOR TO OCCURRENCE

At the time of the occurrence, Salem Unit 1 was shutdown, in Mode 6 with the Reactor Coolant system depressurized. Containment closure was established to support refueling operations. Containment purge was isolated to support modification activities.

DESCRIPTION OF OCCURRENCE

On September 24, 1999, at 0754, the Salem Unit 1 1R12A Containment Radiation Noble Gas Monitor {IL/-} alarmed as the result of a valid radiological condition, producing an Engineered Safety Features (ESF) {JE/-} actuation signal to isolate the Containment Ventilation System {BF/-}. At the time of the alarm, the 1R12A was in service but inoperable because of modification activities in progress on the Solid State Protection System (SSPS){JG/-} which processes the signal from the 1R12A to isolate the Containment Ventilation System. As required by Technical Specification actions, the Containment Ventilation isolation valves were closed while the isolation feature is inoperable. The Containment atmosphere was sampled for noble gas activity. Sample results indicated that noble gas activity levels in Containment were normal for the outage activities that were in progress at that time.

APPARENT CAUSE OF OCCURRENCE

The apparent cause of this occurrence was a trip of the 1R12A as a result of a conservative Containment isolation alarm/trip setpoint, in response to noble gas activity caused by normal maintenance activities. Salem Technical Specifications require that the alarm/trip setpoint for the 1R12A be set at two times background during Mode 6. To preclude exceeding this value, plant procedures require that the alarm/trip setpoint be set

APPARENT CAUSE OF OCCURRENCE (Cont.)

at 180% of background. The background value used for this calculation is the average of a five-minute trend of the Containment background count rate. Containment background noble gas activity during outage periods is subject to spiking as a result of normal outage maintenance activities that involve breaching the Reactor Coolant System {AB/-} barrier. This spiking can be of a magnitude to exceed the alarm/trip setpoint and to actuate the Containment Ventilation isolation.

PRIOR SIMILAR OCCURRENCES

A review of LERs for Salem Units 1 and 2 and Hope Creek for the past two years identified one reportable occurrence that involved the isolation of the Containment Ventilation System due to a valid radiation monitor signal. Salem Unit 2 Licensee Event Report 311/99-004-00 reported a Containment Ventilation System isolation that occurred as a result of an alarm/trip signal from the 2R12A Containment Noble Gas monitor during the removal of the reactor vessel head during refueling. Although a higher noble gas activity level is expected to occur under this condition, the event was reportable because it was not procedurally documented as an expected result of reactor head removal.

SAFETY CONSEQUENCES

There were no safety consequences as a result of the event described in this LER. The function of the 1R12A is to provide containment isolation in the event of a fuel handling accident during refueling operations. During refueling operations, the 1R12A Radiation Monitor monitors the Containment atmosphere to provide indication of unexpected increases in containment airborne fission product radioactivity levels. When airborne radioactivity reaches the 1R12A alarm setpoint, the 1R12A provides an isolation signal to the Containment Ventilation system to prevent radioactive release to the atmosphere.

This event was caused by spiking of the 1R12A caused by noble gas activity released during normal maintenance activities. At the time this event occurred, the Containment Ventilation isolation valves were closed, therefore the safety function of the 1R12A was already fulfilled.

A review of this event determined that a Safety System Functional Failure (SSFF) as defined in NEI 99-02 did not occur. The 1R12A functioned as designed to isolate the Containment Ventilation system and no equipment failures were involved.

CORRECTIVE ACTIONS

1. The Containment atmosphere was monitored to verify that no abnormal radiological conditions existed.

2. PSE&G will evaluate alternative methods to determine Containment atmosphere background activity level to provide a method that will maintain the ability of the 1R12A to carry out its design function while eliminating unnecessary alarms and Containment Ventilation System isolations. (70001403, Act. 0040)