



Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038-0236

Nuclear Business Unit

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**LER 311/99-004-00
SALEM GENERATING STATION - UNIT 2
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-311**

Gentlemen:

This Licensee Event Report entitled "Engineered Safety Feature Actuation, Containment Ventilation System Isolation During Reactor Vessel Head Removal" is being submitted pursuant to the requirements of the Code of Federal Regulations
****10CFR50.73(a)(2)(iv)****

Sincerely,

D. F. Garchow
General Manager
Salem Operations

Attachment

/rbk

C Distribution
LER File 3.7

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The power is in your hands.

NRC FORM 366 (6-1998)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)		Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-8 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1) SALEM UNIT 2	DOCKET NUMBER (2) 05000311	PAGE (3) 1 OF 4
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TITLE (4)
Engineered Safety Feature Actuation, Containment Ventilation System Isolation During Reactor Vessel Head Removal

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
04	11	99	99	004	00	05	10	99		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	0	20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)		50.73(a)(2)(vii)
		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 Brooke Knieriem, Salem Licensing	TELEPHONE NUMBER (Include Area Code) (609) 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)		
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 April 11, 1999 during Reactor Vessel Head removal in support of refueling operations, the Salem Unit 2 Containment Noble Gas monitor (2R12A) alarmed in response to a valid high radiation condition, causing a Containment Ventilation system isolation. The high radiation condition was caused by the release of gaseous activity in the upper Reactor Vessel following plant depressurization.

Although the alarm of the 2R12A and the subsequent isolation of the Containment Ventilation system should be anticipated as a part of the pre-planned sequence of Reactor Vessel disassembly, procedural requirements were not in place to secure Containment purge in anticipation of a possible ESF isolation of the Containment Ventilation system.

Corrective Actions for this event included containment atmosphere monitoring and a follow-on Containment Purge to Plant Vent evolution. In addition, the Cold Shutdown to Refueling procedure, S1/S2.OP-IO.ZZ-0007, will be revised to require that Containment purge be secured prior to lifting the Reactor Vessel Head in anticipation of a possible isolation of the Containment Ventilation system as a result of an alarm of the Containment Noble Gas monitor.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

PLANT AND SYSTEM IDENTIFICATION

Westinghouse - Pressurized Water Reactor

Engineered Safety Feature Actuation System {JE/-}*

Radiation Monitoring Instrumentation {IL/-}

Containment Ventilation System {BF/-}

Steam Generators {SB/SG}

Reactor Coolant System {AB/-}, Reactor Vessel {AB/RPV}

* 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 2 was shutdown, in Mode 6 with the Reactor Coolant system depressurized. Containment closure was established to support refueling operations. Containment purge was in progress as permitted by Salem Technical Specifications.

DESCRIPTION OF OCCURRENCE

On April 11, 1999 at 1535, Salem maintenance personnel began removal of the Salem Unit 2 Reactor Vessel Head {AB/RPV} in preparation for refueling operations. At 1554 the Salem Unit 2 Containment Noble Gas monitor (2R12A) {IL/-} alarmed, resulting in the automatic isolation of the Containment Ventilation system {BF/-}. The 2R12A monitor alarmed in response to a release of gaseous activity into the Containment when the Reactor Vessel Head was lifted from the Reactor Vessel. Operations personnel entered procedure S2.OP-AB.RAD-0001(Q), Abnormal Radiation, and all non-essential personnel were evacuated from containment. There was no unmonitored release of radioactive gases. The Containment atmosphere was monitored and a Containment Purge to Plant Vent evolution was performed in accordance with plant procedures.

Before entry into Mode 6, on April 9, 1999 the 2R12A setpoint was reset to $\leq 2x$ background as required by Technical Specification 3/4.3.3.1, Radiation Monitoring Instrumentation, table 3.3-6. In addition, to support the refueling operations, Reactor Coolant system degassification was performed on April 4, 1999 in accordance with plant procedures to reduce the concentration of hydrogen and fission product gases.

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Prior to this event station personnel considered the possibility of an R12A alarm due to a noble gas release into the Containment when opening Reactor Coolant system to atmosphere. In particular, their consideration addressed the removal of the Steam Generator {SB/SG} manway covers and diaphragms, which was scheduled to occur just prior to the removal of the Reactor Vessel Head. Awareness of the possibility of Containment Noble Gas monitor alarms during Steam Generator manway removal was communicated to station personnel during pre-job briefings. No specific mention of potential alarms of the 2R12A as a result of the Reactor Vessel Head lift was made.

CAUSE OF OCCURRENCE

The cause of the isolation of the Containment Ventilation system was the release of radioactive gases from the Reactor Coolant system during removal of the Reactor Vessel Head.

PRIOR SIMILAR OCCURRENCES

A review of LERs for Salem Units 1 and 2 and Hope Creek for the past two years did not identify any reportable occurrences that were caused by the release of radioactive gases from the Reactor Coolant system during removal of the Reactor Vessel Head or other anticipated activities.

SAFETY CONSEQUENCES

There were no safety consequences as a result of the event described in this LER. The function of the 2R12A is to provide containment isolation in the event of a fuel handling accident during refueling operations. During refueling operations, the 2R12A Radiation Monitor monitors the Containment atmosphere to provide indication of unexpected increases in containment airborne fission product radioactivity levels. When airborne radioactivity reaches the 2R12A alarm setpoint, the 2R12A provides an isolation signal to the Containment Ventilation system to prevent radioactive release to the atmosphere.

The isolation of the Containment Ventilation system occurred as designed to isolate the Containment atmosphere to prevent release to the outside environment. The Containment was purged to atmosphere via the Plant Vent and the monitored exhaust activities were below Technical Specification limits.

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CORRECTIVE ACTIONS

1. The Containment atmosphere was monitored and a Containment Purge to Plant Vent evolution performed in accordance with plant procedures. This evolution purged the existing atmosphere through a HEPA filter and the monitored exhaust activity was below Technical Specification limits.
2. Procedures S1/S2.OP-IO.ZZ-0007(Q), Cold Shutdown to Refueling, will be revised by 08/31/99 to incorporate an additional step to secure Containment Purge prior to lifting the Reactor Vessel Head in anticipation of a possible ESF actuation from the R12A Containment Noble Gas monitor. (PIRS 99041101, CRCA 01)