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

Nuclear Business Unit

MAR 20 1998

LR-N980127

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

**LER 311/98-007-00
SALEM GENERATING STATION - UNIT 1
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-272**

This Licensee Event Report entitled "Failure to Establish Containment Closure Prior to Fuel Movement" is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR50.73(a)(2)(i)(B).

Sincerely,

A. C. Bakken III
General Manager -
Salem Operations

Attachment

EHV

C Distribution
LER File 3.7

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The power is in your hands.

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: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 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.

FACILITY NAME (1)
SALEM GENERATING STATION UNIT 1

DOCKET NUMBER (2)
05000272

PAGE (3)
1 OF 6

TITLE (4)
FAILURE TO ESTABLISH CONTAINMENT INTEGRITY (CLOSURE) PRIOR TO FUEL MOVEMENT.

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
02	18	98	98	-- 007	-- 00	03	20	98	Salem Unit 2	05000311
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
4	0	20.2201(b)	20.2203(a)(2)(v)	X	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)		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 386A				
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)					

LICENSEE CONTACT FOR THIS LER (12)

NAME
E. H. Villar Senior Licensing Engineer

TELEPHONE NUMBER (Include Area Code)
609 - 339- 5456

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)

YES (If yes, complete EXPECTED SUBMISSION DATE). **NO**

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On February 18, 1998, Unit 1 entered Hot Shutdown (Mode 4). Following the transition into Mode 4 at approximately 11:55AM, the vent valve off the condensing pot for the 14 Steam Generator Level instrument line for level transmitter 1LT547, "RCP Channel IV 14 SG Level", was identified as being open. With the vent valve open, Primary Containment Integrity was not established and/or maintained. Therefore, the Action Statement for Technical Specification 3.6.1.1 was entered. The open valve was identified by a nuclear equipment operator by observing steam/water vapor being discharged to the containment atmosphere. The Action Statement was exited at 12:47PM, when the steam flow path to the containment atmosphere was isolated by closing the vent valve. Failure to include the condensate pot vent valve in the valve lineup is the root cause of this event. The most probable cause for the vent valve having been mis-positioned is associated with Salem Unit 1 replacement of Steam Generators. Instrument valves in the Unit 1 Containment were verified to be in the correct position. Since the subsequent investigation determined that the vent valve was probably open with the secondary side of the steam generator depressurized during fuel loading in November and December of 1997, the requirements of Technical Specification 3.9.4 (applicable during core alterations) were also not satisfied.

Therefore, this event is reportable per 10CFR50.73 (a) (2) (I) (B).

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SALEM GENERATING STATION UNIT 1	05000272	98	007	00	2 OF 6

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

PLANT IDENTIFICATION:

Salem Generating Station - Unit 1
Public Service Electric and Gas Company
Hancocks Bridge, New Jersey 08038

Westinghouse - Pressurized Water Reactor

* Energy Industry Identification System (EIIIS) codes and component function identifier codes appear in the text as {SS/CCC}.

Steam Generator Water Level Instrumentation (SGWL) {JB}

IDENTIFICATION OF OCCURRENCE:

Date of Occurrence: February 18, 1998

Date of Identification: February 18, 1998

Report Date: March 20, 1998

CONDITIONS PRIOR TO OCCURRENCE:

Salem Unit 1 - Mode 4

DESCRIPTION OF OCCURRENCE:

Technical Specification (TS) 3.6.1.1 "Containment Integrity" is applicable in Modes 1 through 4, and does not have a TS 3.0.3 or 3.0.4 exemption. When the requirements of this specification are not met, the Action Statement requires that primary containment integrity be restored within one hour or the plant must be placed in Hot Standby (Mode 3) within 6 hours and in Cold Shutdown (Mode 5) within the following 30 hours.

Technical Specification 3.9.4 "Containment Building Penetrations" is applicable during Core Alterations or movement of irradiated fuel within the containment. With the requirements of this specification not met, the Action Statement requires that Core Alterations or movement of irradiated fuel within the containment must be immediately suspended.

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

DESCRIPTION OF OCCURRENCE: (cont'd)

On February 18, 1998, Unit 1 entered Hot Shutdown (Mode 4). Following the transition into Mode 4 at approximately 11:55AM, the vent valve off the condensing pot for the 14 Steam Generator Level instrument line for level transmitter 1LT547, "RCP Channel IV 14 SG Level", was identified as being open. With the vent valve open, Primary Containment Integrity was not established and/or maintained. Therefore, the Action Statement for Technical Specification 3.6.1.1 was entered. The open valve was identified by a nuclear equipment operator by observing steam/water vapor being discharged to the containment atmosphere. The primary system was at approximately 250 degrees F with the secondary side of the Steam Generator slightly pressurized and venting steam/water vapor out of the open vent valve off the condensing pot for the instrument line leading to the level transmitter. The Action Statement was exited at 12:47PM, when the steam flow path to the containment atmosphere was isolated by closing the vent valve.

The vent valve provided a potential flow path from the containment into the secondary side of the Steam Generator through a 3/8" tubing to a tee fitting at the condensing pot which connects to the 3/8" tubing leading to the 3/4" root valve (14BF27). The root valve then connects to the Steam Generator level tap at elevation 154'-7". The secondary side of the Steam Generator could be then vented to the atmosphere through either the Main Steam safety valves, power operated relief valves, the Steam Line Drain valves and through the Steam line isolation valves into the turbine. With the vent valve open containment integrity was unknowingly breached and the requirements of Technical Specification 3.6.1.1 were not satisfied when Mode 4 was entered on February 18, 1998.

Since the subsequent investigation determined that the vent valve was probably open with the secondary side of the steam generator depressurized during fuel loading in November and December of 1997, the requirements of Technical Specification 3.9.4 applicable during core alterations were also not satisfied.

Therefore, this event is reportable per 10CFR50.73 (a) (2) (I) (B).

CAUSE OF OCCURRENCE:

As a result of the Salem Unit Restart Plan, instrument valve line-ups were developed for the identified 46 critical restart systems. The project required labeling instrument valves and issuing lineup procedures for the instrument valve in these systems. The development of these instrument valve lineups was accomplished by physical system walkdowns. Failure to identify and include the condensate pot vent valve in the appropriate valve lineup is the root cause of this event.

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CAUSE OF OCCURRENCE: (cont'd)

Prior to Heatup of Unit 1 the instrument valves on the Feed and Condensate, which includes the 14 Steam Generator Level instrument 1LT547, were walked down to verify all instrument valves were in the correct position. However, the condensate pot valve had not been identified and included in the lineups.

The most probable cause for this valve being out of position is associated with the Salem Unit 1 Steam Generator replacement. The investigation of this event did not find any maintenance activity, including channel calibration that would have required manipulation of this valve. This valve is not easily accessible. The valve is located approximately 15 to 20 feet above the biological shield, therefore, mispositioning the valve by mistake during some other activity unrelated to the steam generator replacement is highly improbable.

PRIOR SIMILAR OCCURRENCES:

In the past two years there was one similar occurrences. LER 311/96-015-00 issued on January 19, 1997 identified a condition where fuel movement was performed without containment closure. The containment was breached just prior to, or shortly after fuel movement had commenced. The cause for this event was inadequate implementation of scheduling activities, outage risk management, and review of work in progress. LER 311/96-015-00 corrective actions were adequate in addressing the LER apparent cause; however, they would not have been expected to prevent this event since the circumstances of this event are different, as explained above.

SAFETY CONSEQUENCES AND IMPLICATIONS

There were no safety consequences associated with this event, and the safety implications were minimal, as explained below.

Because Unit 1 had been shutdown for over two years, the activity contained within the fuel has been demonstrated by Engineering Evaluation to be much lower than the activity expected when compared with a normal refueling outage. Therefore, it can be concluded that a fuel handling accident (dropped fuel assembly) with the condensing pot vent valve open would have been well within the Fuel Handling Accident analyzed as part of the Salem Licensing Bases, and a very small fraction of the federal limits of 10CFR100. This condition did not exist during power operations, and as demonstrated on February 18, the condition was easily detectable by operations personnel during containment walkdowns during system heat-up.

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SAFETY CONSEQUENCES AND IMPLICATIONS: (cont'd)

However, assuming that an accident would have occurred, while the condensing pot vent valve was open, the potential consequences would have been minimal, or bounded by present licensing basis analyses, as explained below.

Loss of coolant accident (LOCA)

A LOCA with the condensing pot vent valve opened to containment (even if assumed to occur in the affected generator) would not have resulted in any radioactive releases to the environment. Steam generator pressure is maintained greater than and remains greater than containment pressure throughout the event. Therefore, there would not be a ΔP to provide the driving force to allow the activity to escape from the containment atmosphere through the steam generator to the outside environment.

Loss of secondary coolant (steam line break-SLB)

An SLB with the condensing pot vent valve opened to containment (even if assumed to occur in the affected generator) would not have resulted in any releases to the environment. All the activity from nuclear fission is contained within the reactor coolant system (RCS). The structural integrity of the RCS is not affected by a SLB. The only activity that could have been potentially released would have been that amount of activity allowed to exist in the steam generators by the Technical Specifications. Note that the position of the condensing pot vent valve is inconsequential to the consequences of a steam generator tube rupture (SGTR) since the activity is released directly to the secondary side of the steam generator.

CORRECTIVE ACTIONS TAKEN AND PROPOSED:

All of the instrument valves in the Unit 1 Containment were verified to be in the correct position by visual verification (no steam/water vapor discharge), and by appropriate instrument response (consistent with plant conditions).

As result of this investigation, the vent valves on the Unit 1 and 2 Steam Generator Level instrument lines will be added to the instrument schematics, and

- a) Prior to completion of the next refueling outage or outage of sufficient duration walkdowns will be performed of Salem Unit 1 and Unit 2 to identify and label all vent valves on the Condensate Pots for the Steam Generator Level and Steam Flow instrument lines in containment.

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CORRECTIVE ACTIONS TAKEN AND PROPOSED:(cont'd)

- b) Prior to the completion of the next refueling outage all valves identified and labeled in (a) above will be included in the appropriate instrument valve walkdown procedures.

The scope of the original instrument valve labeling project will be reviewed to determine if additional walkdowns for the 46 systems is needed, and/or if additional systems need to be included. This review will be completed by June 1, 1998.

Additional corrective actions may be taken, as appropriate, upon completion of the condition report evaluation.