

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Salem Generating Station - Unit 1DOCKET NUMBER (2)
0 5 0 0 0 2 7 2 1 OF 0 5TITLE (4)
Reactor Coolant System Unidentified Leakage Exceeded Allowable Limit

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	9	2	2	8	5	8	5	0	1	1	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	<table border="1"><tr><td>20.402(b)</td><td>20.406(e)</td><td>50.73(a)(2)(iv)</td><td>73.71(b)</td></tr><tr><td>20.406(a)(1)(i)</td><td>50.36(e)(1)</td><td>50.73(a)(2)(v)</td><td>73.71(e)</td></tr><tr><td>20.406(a)(1)(ii)</td><td>50.36(e)(2)</td><td>50.73(a)(2)(vi)</td><td>OTHER (Specify in Abstract below and in Text, NRC Form 365A)</td></tr><tr><td>20.406(a)(1)(iii)</td><td>X 50.73(a)(2)(i)</td><td>50.73(a)(2)(vii)(A)</td><td></td></tr><tr><td>20.406(a)(1)(iv)</td><td>50.73(a)(2)(ii)</td><td>50.73(a)(2)(vii)(B)</td><td></td></tr><tr><td>20.406(a)(1)(v)</td><td>50.73(a)(2)(iii)</td><td>50.73(a)(2)(ix)</td><td></td></tr></table>	20.402(b)	20.406(e)	50.73(a)(2)(iv)	73.71(b)	20.406(a)(1)(i)	50.36(e)(1)	50.73(a)(2)(v)	73.71(e)	20.406(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)	20.406(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)		20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)		20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	
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20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)																							

LICENSEE CONTACT FOR THIS LER (12)
NAME
J. L. Rupp - Operations Licensing EngineerTELEPHONE NUMBER
AREA CODE
6 0 9 3 1 3 1 9 1 4 3 1 0 9

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS
B	A B	F C V	C 6 3 5	Y						
B	A B	I S V	V 0 8 5	Y						

SUPPLEMENTAL REPORT EXPECTED (14)
YES (If yes, complete EXPECTED SUBMISSION DATE) ☐ NO ☒ X
EXPECTED SUBMISSION DATE (15)
MONTH DAY YEAR

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

Review of an operational leakage event, which occurred on September 22, 1985, revealed that Technical Specification Action Statement 3.4.6.2.b was not entered (as required by procedures), and that a visual "estimate" of leakage from the pressurizer spray valves was used to quantify the leakage and make the determination that Reactor Coolant System (RCS) unidentified leakage was less than one (1) GPM. In order to classify leakage as "identified", it must be accurately quantified; visual estimation of leakage is not acceptable. The event was caused, in part, by operator error in the failure to follow procedures, and by the lack of a procedure specifically addressing quantification of steam leaks. This resulted in an invalid RCS water inventory balance calculation, and consequently, violation of the action requirements for operational leakage. The steam leaks were repaired and RCS unidentified leakage was verified to be less than 1.0 GPM, as required by the Technical Specifications. The supervisors involved with this occurrence were counselled, and the policy concerning the handling of operational leakage events was reemphasized to other Operations Department personnel in the daily newsletter. Additionally, instructions and guidance for quantification of steam leaks has been incorporated in existing surveillance procedures for RCS leak detection.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

IDENTIFICATION OF OCCURRENCE:

Reactor Coolant System [AB] Unidentified Leakage Exceeded Technical Specification Limit

Event Date: 09/22/85

Report Date: 11/27/85

This report was initiated by Incident Report No. 85-234

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 - Rx Power 100 % - Unit Load 1120 MWe

DESCRIPTION OF OCCURRENCE:

Technical Specification 3.4.6.2 requires that Reactor Coolant System (RCS) leakage be limited to:

- a. no pressure boundary leakage,
- b. one (1) GPM unidentified leakage,
- c. one (1) GPM total primary-to-secondary leakage through all steam generators and five-hundred (500) gallons per day through any one steam generator,
- d. ten (10) GPM identified leakage from the RCS, and
- e. forty (40) GPM controlled leakage at a RCS pressure of 2230 (+-20) psig.

Technical Specification Action Statement 3.4.6.2.b states:

With any RCS leakage greater than any one of the above limits, excluding pressure boundary leakage, reduce the leakage rate to within limits within four (4) hours or be in at least hot standby within the next six (6) hours and in cold shutdown within the following thirty (30) hours.

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DESCRIPTION OF OCCURRENCE: (cont'd)

At 1728 hours, September 22, 1985, a containment sump pump run indicated an unidentified containment sump in-leakage rate of 1.2 gallons per minute (GPM). At 1746 hours, an RCS water inventory balance calculation was initiated in accordance with Surveillance Procedure SP(O) 4.4.6.2.d, and at 2053 hours, the results revealed a total RCS leak rate of 1.3 GPM. A containment entry was made, and leakage was observed from both pressurizer spray valves (1PS1 and 1PS3) and from 1PS28 (1PS3 inlet isolation valve). Following quantification of the leakage from these sources, RCS unidentified leakage was determined to be 0.84 GPM.

At 0425 hours, September 23, 1985, unidentified containment sump in-leakage rate again exceeded 1.0 GPM (1.25 GPM). An RCS water inventory balance was initiated at 0435 hours, and a containment entry was performed. The water balance was completed at 0757 hours. After subtracting identified leakage and quantification of leakage from the pressurizer valves, RCS unidentified leakrate was determined to be 1.2 GPM. Technical Specification Action Statement 3.4.6.2.b was entered at 0800 hours, and an unusual event was declared at 0830 hours. At 0903 hours, in accordance with the requirements of the Code of Federal Regulations, 10CFR 50.72(a)(1)(i), the Commission was notified of the declaration of the unusual event.

PSE&G's policy concerning operational leakage events is as follows: Whenever the containment sump pump runs indicate an unidentified leak rate into the sump of one (1) GPM or greater, the appropriate Technical Specification Action Statement must be entered. An RCS water inventory balance is then initiated in conjunction with performing a containment entry to identify and quantify the leakage. The Action Statement can be terminated only if it can be "accurately" determined that non-RCS systems are leaking into the sump. This can be done if a water inventory balance is performed and indicates less than one (1) GPM. It can also be done if any non-pressure boundary RCS leakage is found and quantified accurately. Visual estimates of leaks cannot be used. In either case, the Action Statement must be entered as soon as the containment sump indicates one (1) GPM or greater. The assumption is that it is RCS leakage until it can be proven otherwise.

Subsequent review of these two occurrences revealed that actions taken were not in accordance with existing policy and procedures. During the first occurrence, the following discrepancies were noted:

1. Technical Specification Action Statement 3.4.6.2.b was not entered during the entire event as required by existing procedures.

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DESCRIPTION OF OCCURRENCE: (cont'd)

2. A containment entry was not performed until the completion of the water inventory balance.
3. A visual "estimate" of the leakage from the pressurizer valves was used to quantify the leakage and make the determination that RCS unidentified leakage was less than one (1) GPM, resulting in an invalid water inventory balance calculation.

During the second event:

1. Technical Specification Action Statement 3.4.6.2.b was not entered until the water inventory balance revealed that RCS unidentified leakage exceeded one (1) GPM.

APPARENT CAUSE OF OCCURRENCE:

The RCS leakage was caused by body-to-bonnet leaks on 1PS1, 1PS3 and 1PS28; 1PS28 also had a packing gland leak. The event was caused, in part, by operator error in the failure to follow procedures and enter the action statement when unidentified containment sump in-leakage exceeded one (1) GPM. Additionally, the lack of a procedure specifically addressing quantification of steam leaks resulted in an invalid RCS water inventory balance calculation, and consequently, violation of the Technical Specification action requirements.

ANALYSIS OF OCCURRENCE:

A limited amount of leakage is expected from the RCS; however, the limit of 1.0 GPM for unidentified leakage is established in order to ensure early detection of any additional leakage. Leakage may be classified as identified only if its source is known, and only if it can be shown that the leakage will not interfere with the ability of the leakage detection systems to identify additional leakage. In order to classify leakage as "identified", it must be accurately quantified. The only accurate way to accomplish this is to collect and measure the leakage. Visual estimation of leakage is not acceptable, since it is highly subjective. The Technical Specification limits and actions for unidentified leakage should be applied until the leakage can be shown to be identified leakage, or reduced to less than 1.0 GPM.

Although the source of the leakage was located, the leakage was not properly quantified and classified. The requirements of Technical Specification 3.4.6.2 were therefore not met, and the event is reportable in accordance with the Code of Federal Regulations, 10CFR 50.73(a)(2)(i)(B).

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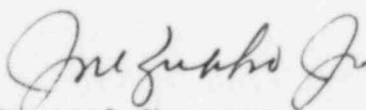
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CORRECTIVE ACTION:

1PS1, 1PS3 and 1PS28 steam leaks were temporarily repaired by the application of a sealing compound. An RCS water inventory balance was initiated at 1323 hours, September 23, 1985. Technical Specification Action Statement 3.4.6.2.b was terminated at 1635 hours, following the satisfactory completion of the water balance calculation which verified that RCS unidentified leakage was less than 1.0 GPM; actual unidentified leakrate was determined to be 0.627 GPM. Subsequent to this event, during a forced outage, all three valves were permanently repaired by replacement of the body-to-bonnet gaskets; 1PS28 was also repacked.

The supervisors involved with this occurrence were counselled concerning their actions during the event, and the policy concerning the handling of operational leakage events was re-emphasized to other Operations Department personnel in the daily newsletter. Consistent with PSE&G's policy concerning personnel error related events, a discussion of this event is being included in the appropriate training programs; specifically, the "Plant and Industry Events" section of the Licensed Operator Regualification Program (Segment 2). This training commenced on November 12, 1985, and will be completed by January 31, 1986.

As stated in the original LER (dated October 22, 1985), a new Surveillance Procedure was developed. It was intended that the new procedure would replace Operating Instruction OI II-1.3.5 (Reactor Coolant Leak Detection) and Surveillance Procedure SP(O) 4.4.6.2 (Unidentified/Now Identified Leak Rate Determination). However, during the review cycle, it was determined that combining this information into one procedure had the potential to cause confusion. Therefore, it was decided to revise the two aforementioned procedures, including Surveillance Procedure SP(O) 4.4.6.2.d (Reactor Coolant System Water Inventory Balance), to include information concerning quantification of steam leaks. All three of these procedures have been revised.


 General Manager-
 Salem Operations

JLR:tns

SORC Mtg 85-151



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

Salem Generating Station

November 27, 1985

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 85-011-01
SUPPLEMENTAL REPORT

This update report is being submitted pursuant to
the requirements of 10CFR 50.73(a)(2)(i)(B).

Sincerely yours,

J. M. Zupko, Jr.
General Manager -
Salem Operations

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