

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 4
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Inadequate Testing of Residual Heat Removal Hot Leg Flow Path

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
10	02	96	96	- 026	- 00	10	30	96	Salem, Unit 2	05000311
									FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		000	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 366A	
			20.2203(a)(2)(iv)	50.36(c)(2)				50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME Brian Thomas, Licensing Engineer	TELEPHONE NUMBER (Include Area Code) 609-339-2022
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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).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On October 2, 1996, during a procedure change to reinstate the full flow testing of the RH27 check valves, a review of the previous testing procedure identified that the method of testing the Residual Heat Removal (RHR) check valves was inadequate. The RH27 valves are in two parallel lines that are fed from a common header and flow is measured in this common header. Position 1 of GL 89-04 states that, "knowledge of only the total flow through multiple parallel lines does not provide verification of flow rates through the individual valves and is not a valid full-stroke exercise." This deficiency does not meet the requirements of Technical Specification 4.0.5 in that the testing was not performed in accordance with the ASME Section XI requirements (as clarified by Generic Letter 89-04) and is reportable in accordance with 10CFR50.73(a)(2)(i)(B).

As stated in LER 272/95-018-01, the causes for the Inservice Testing (IST) program deficiencies were an inadequate IST Program, and a lack of adequate IST program maintenance and implementation processes and associated controls. As stated in LER 272/95-018-00, procedure revisions to ensure adequate IST program maintenance and implementation will be completed prior to restart of each Salem Unit.

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		96	- 026	- 00	

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse - Pressurized Water Reactor

Residual Heat Removal(RHR)/Low Pressure Safety Injection System {BQ/-}

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

CONDITIONS PRIOR TO OCCURRENCE

At the time of identification, Salem Units 1 and 2 were shutdown and defueled.

DESCRIPTION OF OCCURRENCE

On October 2, 1996, a deficiency in the procedure for full flow testing of the 13(23)RH27 and 14(24)RH27 check valves was identified. On November 17, 1995, the forward flow testing requirement for the RH27 valves was removed from the Inservice Testing (IST) program based on a 10CFR50.59 Safety Evaluation approved on July 10, 1994. This Safety Evaluation eliminated the necessity of maintaining the RHR system hot leg recirculation flow path due to the ability of one Safety Injection pump to supply the necessary flow for hot leg recirculation. This testing requirement was removed from the IST program and procedures while both Salem Unit 1 and Unit 2 where shutdown. A subsequent review of the Unit 1 and Unit 2 Technical Specifications (TS) identified that both Limiting Condition of Operations (LCOs) 3.5.2.c.2 and 3.5.3.b.2 require that:

"One OPERABLE residual heat removal pump and associated residual heat removal heat exchanger and flow path capable of taking suction from the refueling water storage tank on a safety injection signal and transferring suction to the containment sump during the recirculation phase of operation and;

2. Discharging into two RCS hot legs."

Although removal of the forward flow test requirement from the IST program for the RH27 valves was confirmed to be acceptable, full flow testing is being re-established via an operations surveillance test procedure (outside of the IST program). While developing the procedure change to reinstate the full flow testing of the RH27 check valves, a review of the previous testing procedure identified that the method of testing the RHR check valves was inadequate.

The RH27 valves are in two parallel lines that are fed from a common header. The testing performed by the surveillance procedure measured the flow from instrumentation located upstream of the RH27 valves in the common header. The surveillance acceptance criteria indicated that the ability to pass ≥ 2000 gpm total flow satisfied the full open exercise requirement for both RHR hot leg injection check valves.

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DESCRIPTION OF OCCURRENCE (cont'd)

On April 3, 1989, the NRC issued Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," to provide the industry with acceptable alternate methods for meeting the ASME Code. Position 1 of GL 89-04 regarding the full flow testing of check valves states that, "knowledge of only the total flow through multiple parallel lines does not provide verification of flow rates through the individual valves and is not a valid full-stroke exercise." The full flow testing of the RH27 check valves, while the test requirement was in the IST program, did not meet the requirements of GL 89-04 and therefore the RH27 valves were not being adequately tested in accordance with ASME Section XI.

This deficiency does not meet the requirements of Technical Specification 4.0.5 in that the testing was not performed in accordance with the ASME Section XI requirements (as clarified by Generic Letter 89-04) and is reportable in accordance with 10CFR50.73(a)(2)(i)(B).

APPARENT CAUSE OF OCCURRENCE

As stated in LER 272/95-018-01, the causes for the IST program deficiencies were an inadequate IST Program, and a lack of adequate IST program maintenance and implementation processes and associated controls.

PRIOR SIMILAR OCCURRENCES

A review of LERs for Salem Units 1 and 2 issued in the last two years identified one LER 272/95-018-00 and a supplement to this LER regarding a programmatic deficiency of the IST program.

LER 272/95-018-00 identified that there was a programmatic breakdown in the administration of the IST program and that an assessment of the entire IST program and implementing procedures was being performed to identify the aspects of the program which were not in compliance with the ASME Section XI requirements.

During the assessment of the IST program, a review of the removal of forward flow testing for the RH27 valves confirmed the acceptability of removing the testing from the IST program. This review also identified that the test method was inadequate, however, since the flow testing was being removed from the IST program, no further action was taken to address the inadequate test method at that time.

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

PRIOR SIMILAR OCCURRENCES (cont'd)

An overview of the assessment of the IST program was provided in supplemental LER 272/95-018-01. The following is a status of the ongoing corrective actions at the time of submission of Supplemental LER 272/95-008-01 which address the deficiencies identified in the IST program:

- The revised IST Manual has been issued for Units 1 and 2
- Programmatic standard, SH.RA-AP.ZZ-0105, describing conduct of the Salem IST program has been issued
- Procedure revisions to ensure adequate IST program maintenance and implementation will be completed prior to restart of each Salem Unit. This includes Operations procedures implementing Technical Specification 4.0.5, procedures NC.NA-AP.ZZ-0001, NC.NA-AP.ZZ-0070, and SC.TE-TI.ZZ-0028.

SAFETY CONSEQUENCES AND IMPLICATIONS

Review of component work order files shows that the RH27 valves are disassembled on a 36-month frequency to satisfy recommendations in INPO SOER 86-03. Although the surveillance procedure contained an inadequate test method, the valves were being disassembled and inspected on a periodic basis which is an acceptable alternate method to full flow testing of check valves as stated in GL 89-04 position 2. However, the two RH27 valves for each Unit were being disassembled every other refueling outage (every 36-months) contrary to position 2 of GL 89-04 which states that a different valve of each group of valves is required to be disassembled at each successive refueling outage. The total flow test performed every 18 months and the disassembly and inspection of the RH27 check valves provides confidence that these valves remained functional.

Forward flow testing of the 23RH27 and 24RH27 check valves was satisfactorily performed on October 24, 1996, in accordance with the guidance provided in GL 89-04 position 1.

Therefore the health and safety of the public were not affected.

CORRECTIVE ACTIONS

1. As stated in LER 272/95-018-00, procedure revisions to ensure adequate IST program maintenance and implementation are in progress and will be completed prior to restart of each Salem Unit. This includes Operations procedures implementing Technical Specification 4.0.5.
2. A review of currently approved procedures issued to implement the Salem Unit 2 IST program has not identified any additional inadequate testing methods that would result in not meeting the requirement of Technical Specification 4.0.5 (ASME Section XI).