

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 UNIT 2

DOCKET NUMBER (2)

05000311

PAGE (3)

1 OF 4

TITLE (4)

Inadequate Technical Specification Testing - Main Steam Isolation Valve Hydraulic Unit Override Contacts

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
11	25	97	97	018	00	12	25	97	Salem Unit 1	05000272

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
1	100	20.2201(b)		20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)(B)		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	TELEPHONE NUMBER (Include Area Code)
Brooke Knieriem, Licensing Engineer	(609) 339-1782

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).	<input checked="" type="checkbox"/>	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

In December 1995, a Technical Specification Surveillance Improvement Project (TSSIP) was initiated for Salem Units 1 and 2. The scope and content of the TSSIP program was described previously in LER 311/95-008-00. This Technical Specification (TS) non-compliance was identified by the TSSIP project review team.

This LER documents a TS requirement non-compliance involving the failure to properly implement TS 4.7.1.5, demonstration of the operability of the Main Steam Isolation Valves (MSIV). Specifically, the TS surveillance procedure to verify the operability of the MSIV did not adequately test the MSIV hydraulic override feature. This feature interrupts hydraulic operation of the MSIV to allow valve closure in the event of an Engineered Safety Features Actuation System (ESFAS) Main Steam Isolation signal. Additionally, during the time that the MSIV hydraulic override feature was not being adequately tested, two or more MSIVs were (have been) operated simultaneously, placing the plant in Limiting Condition for Operation 3.0.3 without the knowledge of the operators.

The cause of this occurrence has been attributed to a lack of adequate controls and understanding of the development and maintenance of Technical Specification surveillance procedures. This weakness was previously identified in LER 311/95-008 and LER 272/96-005 and its supplements. These events are reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), any condition prohibited by the plant's Technical Specifications.

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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 Features Actuation System {JE/IEL}
Main Steam Isolation Valve {SB/ ISV}

CONDITIONS PRIOR TO OCCURRENCE

Mode 1 Reactor Power 100% Unit Load 1150 MWe

There were no structures, systems or components that were inoperable at the start of this event that contributed to this event.

DESCRIPTION OF OCCURRENCE

During review of TS Surveillance procedures, the TSSIP determined that the surveillance procedure used to test the operability of the MSIVs {SB/ISV} did not verify that the MSIV hydraulic unit override contacts would function in response to an ESFAS {JE/IEL} Main Steam Isolation signal. These contacts operate to terminate normal hydraulic unit MSIV opening or closing operation by stopping the hydraulic unit pump, de-energizing the hydraulic unit solenoids, and opening the throttling bypass valve. Should the hydraulic override fail to function during valve operation with the hydraulic control unit, the MSIV would not close in response to a Main Steam Isolation Signal. Failure to test this feature would render the MSIV inoperable during MSIV stroking using the hydraulic control unit.

Salem procedure S1(2).OP-ST.MS-0003(Q), Steam Line Isolation and Response Time Testing is used to verify the TS operability of the MSIV. This procedure performs a timed closure test of the MSIV from the fully open position. Under this condition the MSIV hydraulic control unit is not operating so operation of the hydraulic override contacts is not verified. Therefore, operability during valve travel while in hydraulic operation had not been demonstrated per TS 4.7.1.5. Based upon a review of station procedures it was determined that the original Main Steam Line Isolation and Response Time Testing procedure contained a test to emergency close the MSIV from the 90% open position during an opening stroke (hydraulic unit energized) which would test the hydraulic override contacts. However, that portion of the procedure was subsequently removed because it was incorrectly believed that it was an In-service Test requirement and the MSIVs were not on the list of equipment requiring In-service Testing.

CAUSE OF OCCURRENCE

The cause of this occurrence has been attributed to a lack of adequate controls and understanding of the development and maintenance of Technical Specification surveillance procedures. This weakness was previously identified in LER 311/95-008 and LER 272/96-005 and its supplements.

PRIOR SIMILAR OCCURRENCES

A review of LERs for Salem Units 1 and 2 issued in the last two years identified twenty-one LERs (272/94-008, 272/95-004, 272/95-019, 272/95-013, 272/95-024, 272/95-028, 272/96-003, 272/96-004, 272/96-006, 272/96-008, 272/96-016, 272/96-023, 272/96-024, 311/94-012, 311/95-006, 311/95-008, 311/96-003, 311/96-005, 311/96-007, 311/96-010, 311/96-011 and 272/96-005 and its supplements) that were a result of missed surveillances due to inadequate implementation of Technical Specification requirements. The identification of these programmatic issues resulted in the initiation of the Technical Specification Surveillance Improvement Program (TSSIP) described in LER 311/95-008. The TSSIP should

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PRIOR SIMILAR OCCURRENCES (cont.)

ensure that Technical Specification surveillance requirements are adequately implemented.

SAFETY CONSEQUENCES AND IMPLICATIONS

The MSIVs provide protection in the event of a major steam line break by isolating the Steam Generators from the Main Steam headers. Plant accident analysis for this event assumes that with the most reactive Reactor Control Cluster Assembly (RCCA) stuck in its fully withdrawn position, and with a single failure in the engineered safeguards, there would be no consequential damage to the primary system and the core would remain intact. Additionally, the energy release to containment from this event would not cause a failure of the containment structure. This event is assumed to occur during hot shutdown which represents the most pessimistic initial condition. Should multiple failures of engineered safeguards occur, including the MSIVs, the integrity of the core, the primary system, and the containment is not assured.

Plant TS allow operation in Mode 1 with one MSIV inoperable provided that operability is restored or the valve is closed within four hours. If this cannot be accomplished the plant must be placed in Mode 2 within six hours. Operation in Modes 2 and 3 with one or more MSIVs inoperable may proceed provided the inoperable valve(s) is/are maintained closed and that the position of the closed valves is verified once per seven days. Otherwise the plant must proceed to Mode 3 within six hours and to Mode 4 within the following six hours. The TS requirements assume that a single failure exists and require the above actions to address additional failures.

The failure to test the hydraulic override relays for the MSIVs would not affect the ability of the MSIVs to carry out their design function during plant operation with the MSIVs fully open. The operability of MSIV fast closure from the fully open position is demonstrated through performance of Salem procedure S1(2).OP-ST.MS-0003(Q), Steam Line Isolation and Response Time Testing. However, the removal of the requirement to perform an emergency closure test from the 90% open position eliminated the means to verify the operability of the hydraulic override feature, and therefore the means to verify the ability of the MSIVs to respond to a Main Steam Isolation Signal when the valves are being stroked. As long as only one MSIV is stroked (hydraulically) at a time, a sufficient number of MSIVs would remain operable. If two or more MSIVs are stroked simultaneously using the hydraulic unit, the accident analysis would not be satisfied because more than one MSIV would be considered inoperable. However, the safety significance of this condition would be small since the opening or re-opening of the MSIVs is rare and of limited duration, thus the probability of the accident when the valves are being hydraulically stroked is low.

Salem procedure S1(2).OP-ST.MS-0003(Q) will be revised to include testing of the MSIV hydraulic override relay contacts. The revised procedure will be performed on Salem 1 during recovery from its current extended outage. On Salem 2, the MSIVs will be tested under the revised procedure at the earliest opportunity. Continued operation under this condition is justified because the MSIVs will remain operable when not being hydraulically stroked. Should MSIV hydraulic operation be required at power, TS requirements contain the specific characteristics and conditions of operation necessary to preclude the possibility of an abnormal situation or event that would result in an immediate threat to public health and safety. To ensure that sufficient MSIVs remain operable during plant operation with the MSIV hydraulic override contacts untested, a Standing Order has been issued to alert shift personnel concerning the restriction for not operating more than one MSIV hydraulically until the feature is verified to be operable.

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CORRECTIVE ACTIONS

1. Salem surveillance procedures S1(2).OP-ST.MS-0003(Q), Steam Line Isolation and Response Time Testing, will be revised to include testing of the MSIV hydraulic unit override feature. (PIRS 00971003209 CRCA 01)
2. Temporary Standing Order 97-10 was issued to alert shift personnel concerning the restriction for not operating more than one MSIV until the hydraulic override relay contacts have been tested. (PIRS 00971003209, CRCA 02)
3. The operability of the MSIV hydraulic unit override feature on Salem Unit 1 will be verified by performance of S1.OP-ST.MS-0003(Q) upon entry into Mode 3. (WO 950531033)
4. The operability of the MSIV hydraulic unit override feature on Salem Unit 2 MSIV will be verified by performance of S2.OP-ST.MS-0003(Q) at the next available opportunity. (WO 971022040)