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PSEG Nuclear LLC

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

LER 272/04 - 001 - 01
SALEM - UNIT 1
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-272

This Licensee Event Report, "As Found Value for Main Steam Safety Valve Lift Setpoint Exceeds Technical Specification Allowable Limit," is being supplemented to incorporate the results of the valve inspection at the vendor's facility.

The attached LER contains no commitments.

Sincerely,

FOR C. FRICKER
L. WAGNER

Carl Fricker
Salem Plant Manager

Attachment

/EHV

C Distribution
LER File 3.7

95-2168 REV. 7/99

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Salem Unit 1 Generating Station	05000272	1 OF 4

4. TITLE

As Found Value for Main Steam Safety Valve Lift Setpoint Exceeds Technical Specification Allowable Limit

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	09	2004	2004	- 001 -	01	10	12	2004	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	6
10. POWER LEVEL	000

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

	20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
	20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)
	20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73.71(a)(4)
	20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)
	20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)		
	20.2203(a)(2)(v)	X	50.73(a)(2)(i)(B)		50.73(a)(2)(vii)		
	20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)		
	20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)		

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
E. H. Villar, Licensing Engineer	856-339-5456

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
-	-	-	-	No					

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

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

During the Salem Unit 1 sixteenth refueling outage (1R16), ten of the Main Steam Safety Valves were initially lift setpoint tested in accordance with the Inservice Test (IST) Program. On April 9, 2004, PSEG discovered that one of the Main Steam Safety Valves tested failed its as-found lift setpoint test. The as-found actuation pressure for Main Steam Safety Valve 13MS13 was below the lower limit of minus 3% of the nameplate setpoint as stated in the Salem Technical Specification (TS) Table 3.7-1. The TS value is 1110 psig +/- 3%.

The apparent cause of this event has been attributed to the unsatisfactory condition of the spring and mating spring caps. Because the actual lift setpoint of the 13MS13 was not within the required acceptance criterion of +/- 3%, two additional Main Steam Safety Valves were tested. The two additional Main Steam Safety Valves (11MS13 and 11MS14) tested satisfactory and no further testing was required. The failed valve was replaced with a pre-tested and certified spare.

This event is reportable per the requirements of 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications.

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Salem Unit 1 Generating Station	05000272	2004	- 0 0 1 -	01	2 OF 4

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse – Pressurized Water Reactor (PWR/4)
Main Steam / Safety Valves {SB/RV}*

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

IDENTIFICATION OF OCCURRENCE

Event Date: April 9, 2004
Discovery Date: April 9, 2004

CONDITIONS PRIOR TO OCCURRENCE

The plant was in Mode 6 (REFUELING OPERATION) at the time of the event.

DESCRIPTION OF OCCURRENCE

On April 9, 2004, PSEG discovered that one of the ten Main Steam Safety Valves (MSSV) {SB/RV} tested during the sixteenth refueling outage (1R16) failed its as-found lift setpoint test. The as-found actuation pressure for the 13MS13 MSSV was found below the lower limit of minus 3% of the nameplate setpoint. Setpoint for this valve is 1110 psig +/- 3% as stated in the Salem Technical Specification Table 3.7-1.

The actual test result of the failed valve was:

Valve Id	As found (psig)	TS Setpoint (psig)	Acceptable band (psig)	% Difference (psig)
13MS13	1076	1110	1076.7 – 1143.3	-3.1%

Because the actual lift set point of the 13MS13 was not within the required acceptance criterion of +/- 3% of setpoint, two additional MSSVs were tested as required by ASME OM-1987, Part 1 "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices." The two additional MSSVs (11MS13 and 11MS14) tested satisfactory and no further testing was required.

The failure to have a successful as-found lift setpoint for the 13MS13 MSSV is reportable per the requirements of 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications.

CAUSE OF OCCURRENCE

The 13MS13 MSSV was disassembled at the offsite test facility. The internal parts inspection showed no seat or disc steam cuts or damage, the spindle (stem) total indicated run out (TIR) was within specification, and no spindle or spindle guide galling was noted.

CAUSE OF OCCURRENCE (cont'd)

The inspection indicated that both upper and lower spring caps had less than 10% contact with the spring ends. The offsite test facility spring standard (derived from EPRI maintenance training) specifies full contact from three-quarters to seven-eighths of the contact circumference. Additionally, the lower spring end was not in contact with the first coil; and the spring ends were not 180 degrees apart, they were approximately 90 degrees apart.

Based on the internal inspection at the vendor's facility, the cause of the as-found setpoint drift has been attributed to the unsatisfactory condition of the spring and mating spring caps. Although this condition has been previously noted on one Pressurizer Safety Valve, it has never been noted in a Steam Generator Safety Valve. The vendor's repair procedure has inspection attributes and acceptance criteria for the spring and mating spring caps. This condition has not been seen in previous MSSV valve disassemblies.

The Salem MSSVs are Crosby 6R10, Style HA-65W, shown on Crosby Drawings #DS-C-A55100-2&3. The valves are a spring-over-disc, self-actuating design. The 13MS13 serial number is N55100-03-0052.

PREVIOUS OCCURRENCES

A review of LERs at Salem and Hope Creek Generating Stations for the years 2001 through present identified the following prior occurrences;

Hope Creek

LER 354/ 2001-007 dated December 13, 2001. The apparent cause of this event was due to sticking of the pilot disc.

LER 354/ 2003-003 dated June 25, 2003. The apparent cause of this event was due to pilot disc corrosion/bonding. All valves lifted in excess of their allowable 3%.

The corrective actions associated with these LERs would not have prevented his event. The valves failed on the high side of the setpoint due to sticking of the pilot disc. Additionally, the valves are of a different design and manufacturer.

Salem

272/2001-003 dated June 12, 2001. The apparent cause of this event was excessive seat leakage. However, the failure described in this LER would have been acceptable under the current +/- 3 % tolerance. The valve failed on the high side of setpoint and the +/- 1% tolerance.

272/ 2002-006, dated December 12, 2002. The apparent cause of this event was the valve spindle rubbing the spindle guide during lifting due to misalignment.

The corrective actions associated with these LERs would not have prevented his event. In one occasion the valve would have met the current acceptance criterion, and the other failed high due to misalignment.

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

SAFETY CONSEQUENCES AND IMPLICATIONS

There was no safety significance to this event.

There are twenty MSSVs installed in Salem Unit 1. These valves are equally distributed in four Main Steam Headers each containing five MSSVs with setpoints varying from a low of 1070 psig to a high of 1125 psig and a tolerance of +/- 3%. The MSSVs provide over pressurization protection for the Steam Generators on the secondary side and the Main Steam System.

During 1R16 a total of twelve MSSVs were tested, including two additional MSSVs as a result of the failure of 13MS13. Eleven valves lifted within the setpoint tolerances and one valve lifted earlier by a few tenths of one pound. A MSSV lifting earlier (greater than minus 3%) is an operational transient that would result in depressurizing the main steam lines. However, the potential consequences of the inadvertent depressurization caused by the lifting of a safety valve are bounded by the Main Steam Line Break analyses. In this case, the small difference between the allowable setpoint and the as found lift setpoint, just a few tenths of one pound, would have had minimal to no impact on plant safety. The ability of the MSSV to provide over pressurization protection for the Steam Generators on the secondary side was never compromised.

This event does not constitute a Safety System Functional Failure (SSFF) as defined in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline.

CORRECTIVE ACTIONS:

1. The failed MSSV was replaced with a pre-tested and certified spare.

2. Expanded scope of MSSV testing to include an additional two MSSVs from another header in accordance with the IST Program. The two additional MSSVs tested satisfactorily.

3. The spring will be replaced in-kind from stores. The replacement spring will be inspected using the same inspection criteria as the original spring by the offsite test facility. The spring caps will be lapped to the spring ends to provide the required contact area. The valve will be re-assembled and tested in accordance with the offsite test facility's approved procedures.

COMMITMENTS

The attached LER contains no commitments.