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LRN – 02 – 0261

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

Gentlemen:

LER 272/02-002-00
SALEM GENERATING STATION - UNIT 1
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-272

This Licensee Event Report, "Containment Spray Additive Tank Exceeded Technical Specification Limit Allowable Outage Time", is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR50.73(a)(2)(i)(B).

The attached LER contains no commitments.

Sincerely,

D. F. Garchow
Vice President - Operations

Attachment

/HGB

C Distribution
LER File 3.7

IE22

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	05000272	1 OF 4

4. TITLE

Containment Spray Additive Tank Exceeded Technical Specification Limit Allowable Outage Time

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 05000
06	03	02	02	– 002 –	00	08	02	02	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE	1
10. POWER LEVEL	100%

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)	■	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)
Howard G. Berrick	(856) 339 - 1862

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

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)

On June 3, 2002, it was identified that Salem Unit 1 operated with the Containment Spray (CS) system Spray Additive Tank (SAT) Sodium Hydroxide (NaOH) concentration below the TS 3.6.2.2 lower concentration limit of 30% weight/weight (w/w). During the performance of a scheduled Technical Specification (TS) Surveillance of the SAT on June 3, 2002, it was identified that the NaOH concentration was 29.57 % w/w. The SAT concentration was returned to appropriate TS NaOH concentration on June 4, 2002. A follow-up investigation of this event identified that the tank had been below the lower concentration limit for greater than the TS Allowed Outage Time (AOT) of 72 hours. Based on the SAT isolation valve leakrate, the SAT Sodium Hydroxide concentration could have been out of spec for as much as 95 days. The apparent cause of the concentration dilution was a combination of gradual back-leakage through the isolation valves from the RWST and inadequate SAT level trending. Corrective actions to be completed include repair of leaking isolation valve(s) and review of operational trending practices of the SAT parameters.

There were no actual safety consequences associated with this event. The identified reduced NaOH concentration (29.57 % w/w) would have had no impact on the radiological consequences of an accident. An analysis performed concluded that with a concentration as low as 28% w/w the system was capable of meeting all required design functions in the event of a Large Break Loss of Cooling Accident (LB LOCA).

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse - Pressurized Water Reactor
Containment Spray System / Spray Additive Tank {BE/TK}*

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

IDENTIFICATION OF OCCURRENCE

Event Date: This event was discovered on June 3, 2002

CONDITIONS PRIOR TO OCCURRENCE

Mode 1 – 100%

DESCRIPTION OF OCCURRENCE

On June 3, 2002 at 1045 during the scheduled performance of the Technical Specification (TS) Surveillance 4.6.2.2.b.2, Chemistry personnel noted that the Containment Spray (CS) System Spray Additive Tank (SAT) {BE/TK} Sodium Hydroxide (NaOH) concentration was below the minimum TS required concentration of 30 percent by weight (% w/w). With the NaOH concentration below the required acceptance criteria, TS 3.6.2.2 was entered. TS 3.6.2.2 requires that within 72 hours the concentration be restored to within the acceptable limits or the unit be placed in Hot Standby within 6 hours. Actions to restore the NaOH concentration were completed and the Tech Spec LCO 3.6.2.2 was exited on June 4, 2002. An evaluation to determine the apparent cause for the NaOH concentration being outside Technical Specification limits was initiated. On July 2, 2002 the evaluation determined that there was enough of an increase in SAT level from November 20, 2001 to June 3, 2002 (from 3490 to 3550 gallons) to account for the decrease in SAT NaOH concentration. The source of the in-leakage was through the Refueling Water Storage Tank (RWST) parallel isolation valves 1CS16 and 17. Based on concentration change between two routine samples of the Unit 1 CS SAT collected on November 20, 2001 and June 3, 2002 (30.35 and 29.57 % w/w, respectively), and the leakage rate identified through the RWST parallel isolation valves , the SAT could have been below the lower TS concentration limit for up to a maximum of 95 days prior to the June 3, 2002 discovery.

A review of this event determined that a Safety System Functional Failure (SSFF) as defined in NEI 99-02 did not occur. No structures, systems or components were inoperable at the time of this event that contributed to this event.

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

CAUSE OF OCCURRENCE

The apparent causes of the SAT dilution were:

1. One or both of the parallel CS SAT motor operated isolation valve(s) 1CS 16 and 17 leaking (The gravity head from the RWST can cause gradual leakage into the Containment Spray Additive tank),

2. The failure of plant Chemistry personnel to identify the long term gradual rise in SAT volume in a timely fashion, due in great part to using local level instrumentation for SAT level readings that did not have the level of accuracy necessary to detect slight (1%) changes in tank level.

3. The failure of plant Chemistry personnel to recognize that even a slight increase in tank level (e.g., 1%), trended over 5 months, could have significant impact on reduction of NaOH concentration. The chemistry data management system flags were in place to monitor level first and then act on a 30.5% concentration. Depending on where concentration was following a successful surveillance test, what was missed was a slight change in level impact on concentration could be significant with respect to TS compliance.

PRIOR SIMILAR OCCURRENCES

Prior Salem Units 1 and 2, and Hope Creek LERs, from 1999 through 2002, were reviewed. One event, similar to this one, that resulted directly from inadequate trending of plant operational data was identified. In May/June of 2001, Salem Unit 2 discovered a similar situation. RWST in-leakage at the NaOH tank outlet valves 2CS16 and 2CS17 cause concentration to drop below Technical Specification allowable limit.[LER 311/01-003-00, dated August 13, 2001].

SAFETY CONSEQUENCES AND IMPLICATIONS

There were no actual safety consequences associated with this event. The TS requires that the CS SAT NaOH concentration be maintained between 30 and 32% w/w. Although the concentration was found to be at 29.57% w/w, an analysis concluded that with a concentration as low as 28 % w/w the system was capable of meeting all required design functions in the event of a Large Break Loss of Cooling Accident (LB LOCA). The consequences of a reduced NaOH concentration (29.57% w/w) would have had no impact on the radiological consequences of an accident.

The SAT, as a part of the CS system, remained capable of performing its safety function following a loss of offsite power coincident with a design basis LOCA.

Based on the above, this event did not affect the health and safety of the public.

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

CORRECTIVE ACTIONS

1. The Containment Spray System SAT sodium hydroxide concentration was restored to Technical Specification value within the LCO allowed time (72 hours).

2. Corrective Maintenance Notifications (20103364 and 20104396) were initiated to inspect/repair SAT isolation valves 1CS16 and 1CS17, respectively, to stop in-leakage. Note: SAT level and Sodium Hydroxide concentration were adjusted on June 4, 2002.

3. Chemistry has initiated notification 20103365 for additional trending of the SAT level to predict when SAT NaOH concentration would be outside of Technical Specification limits. This includes using calibrated instrumentation as the primary source of SAT level verification. Additionally, precautions (flags) established in the chemistry data management system will be modified to identify when tank level has made minor level changes. Chemistry procedure(s) will be modified to incorporate the SAT curve with administrative and action bands identified with respect to level and concentration. This will allow actions to be taken prior to the tank concentration going outside the Technical Specification band.

COMMITMENTS

The corrective actions cited in this LER are voluntary enhancements and do not constitute commitments.