



FEB 03 2010

10CFR50.73

LR-N10-0019

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington DC 20555-001

LER 272/09-001  
Salem Nuclear Generating Station Unit 1  
Facility Operating License No. DPR-70  
NRC Docket No. 50-272

Subject: Chillers Inoperability Exceeds TS Allowed Outage Time

This Licensee Event Report, "Chillers Inoperability Exceeds TS Allowed 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. Should you have any questions or comments regarding this submittal, please contact Mr. Howard Berrick at 856-339-1862.

Sincerely,



Carl Fricker  
Site Vice President - Salem

Attachments (1)

IE22  
MRA

**FEB 03 2010**

cc        Mr. S. Collins, Administrator - Region I  
          Mr. R. Ennis, Licensing Project Manager - Salem  
          USNRC Senior Resident Inspector - Salem (X24)  
          Mr. P. Mulligan, Manager IV  
          Mr. H. Berrick, Salem Commitment Tracking Coordinator  
          Mr. L. Marabella, Corporate Commitment Tracking Coordinator

NRC FORM 366 (5-2007)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0104		EXPIRES: 08/31/2010	
<b>LICENSEE EVENT REPORT (LER)</b>							
1. FACILITY NAME Salem Generating Station - Unit 1				2. DOCKET NUMBER 05000272		3. PAGE 1 of 4	
4. TITLE Chillers Inoperability Exceeds TS Allowed Outage Time							
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY
12	05	2009	2009	0 0 1	0	02	03
8. OTHER FACILITIES INVOLVED							
FACILITY NAME						DOCKET NUMBER	
						DOCKET NUMBER	
9. OPERATING MODE		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)					
1		<input type="checkbox"/> 20.2201(b)		<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(i)(C)	
		<input type="checkbox"/> 20.2201(d)		<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)	
10. POWER LEVEL  100		<input type="checkbox"/> 20.2203(a)(1)		<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)	
		<input type="checkbox"/> 20.2203(a)(2)(i)		<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(iii)	
		<input type="checkbox"/> 20.2203(a)(2)(ii)		<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(iv)(A)	
		<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(A)	
		<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(B)	
		<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(C)	
		<input type="checkbox"/> 20.2203(a)(2)(vi)		<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(v)(D)	
12. LICENSEE CONTACT FOR THIS LER							
FACILITY NAME Howard Berrick, Senior Engineer, Salem Regulatory Assurance						TELEPHONE NUMBER (Include Area Code) (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
X	KM	TS	P129	N			
14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE			
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)				<input checked="" type="checkbox"/> NO			
				MONTH      DAY      YEAR			
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)							
<p>On 11/30/09 at 1509 hours, the 12 Chiller was removed from service for maintenance and design change installation. With one Chiller inoperable, a 14-day Limiting Condition for Operation (LCO) was entered. On 12/02/09 at 1713 hours the 13 Chiller was found out of service and declared inoperable. With two inoperable Chillers, a 72-hour LCO was entered. On 12/04/09 at 2017 hours, the 12 Chiller was declared operable following completion of maintenance and testing of the design change installation. The 72-hour LCO was exited. However, the original 14-day LCO window remained active because of the inoperability of 13 Chiller.</p> <p>On 12/07/09, during the operability retest of 13 Chiller, the 12 Chiller tripped on low temperature freeze protection and a 72-hour LCO was re-entered. A detailed troubleshooting of the 12 Chiller identified that the low temperature trip switch was set 7 degrees F above its required setpoint. The 12 Chiller low temperature trip switch was promptly reset to the correct setpoint. However, because the low temperature trip switch setting that made the 12 Chiller inoperable existed during the period 12/02/09 through 12/07/09 while 13 Chiller was inoperable, two Chillers were inoperable for longer than the 72 hours allowed by TS 3.7.10 Action b.3.</p> <p>This report is being made in accordance with 10CFR50.73 (a)(2)(i)(B), "any operation ... prohibited by the plant's Technical Specification."</p>							

## LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Salem Generating Station Unit 1	05000272	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 4
		2009	- 0 0 1 -	00	

## NARRATIVE

**PLANT AND SYSTEM IDENTIFICATION**

Westinghouse – Pressurized Water Reactor (PWR/4)

Chilled Water System {KM/TS}

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

**IDENTIFICATION OF OCCURRENCE**

Event Date: December 5, 2009

Discovery Date: December 7, 2009

**CONDITIONS PRIOR TO OCCURRENCE**

Salem Unit 1 was in Operational Mode 1 at 100% reactor power

**DESCRIPTION OF OCCURRENCE**

On 11/30/09 at 1509 hours, 12 Chiller was removed from service (a 14-day Limiting Condition for Operation (LCO) entered) for maintenance and design change installation. All appropriate non-essential heat loads were removed from the chilled water system {KM/-} as required by Technical Specifications (TS) 3.7.10 "Chilled Water System – Auxiliary Building Subsystem." The 12 Chiller had been operating properly prior to its removal from service.

On 12/02/09 at 1713 hours the 13 Chiller was found out of service and declared inoperable. With two (2) Chillers (i.e., 12 and 13) inoperable, a 72-hour LCO was entered in accordance with TS 3.7.10 Action b.3, expiring on 12/05/09 at 1713 hours.

On 12/04/09 the 12 Chiller tripped on freeze protection shortly after being placed in service for testing. The trip was due to the low temperature cutout. The trip was reset, and the 12 Chiller re-started, but tripped again after a short run. The recently performed Chiller work scope was reviewed; the only work items that could have affected Chiller operation were the liquid line solenoid valve (LLSV) addition and the Chiller internal inspection (unloader adjustment). The LLSV was verified to be operating correctly by temperature measurements across the valve. The unloader was adjusted and the 12 Chiller was declared Operable at 2017 hours and the 72-hour LCO exited. However, the original 14-day LCO window remained active because of the inoperability of 13 Chiller.

## LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Salem Generating Station Unit 1	05000272	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 of 4
		2009	- 0 0 1 -	00	

## NARRATIVE

**DESCRIPTION OF OCCURRENCE (cont'd)**

On 12/07/09, during the operability retest of 13 Chiller, 12 Chiller tripped on low temperature freeze protection. The 72-hour LCO was re-entered at 0907 hours, with an expiration date of 12/10/09 at 0907 hours. A detailed troubleshooting of the 12 Chiller was performed which included a calibration check of the low temperature trip switch. This switch was found to be out of calibration, tripping 7 degrees F above its setpoint. The setpoint for the freeze trip from this device is 35 +/- 1.5 degrees F. The 12 Chiller low temperature trip switch was promptly reset to correct the setpoint. However, the 12 Chiller was not declared Operable due to other equipment issues.

On 12/07/09 at 1126 hours, 13 Chiller was declared Operable and the 72-hour LCO exited.

However, because the low temperature trip switch setting that made the 12 Chiller inoperable existed during the period 12/02/09 through 12/07/09 while 13 Chiller was inoperable, two Chillers were inoperable for longer than the 72 hours allowed by TS 3.7.10 Action b.3.

This report is being made in accordance with 10CFR50.73 (a)(2)(i)(B), "any operation ... prohibited by the plant's Technical Specification."

**CAUSE OF OCCURRENCE**

The cause of the 12 Chiller tripping on freeze protection was the low temperature trip switch being set 7 degrees F high. The low temperature trip switch was found out of position from where it was left following calibration in June 2009. The cause for the mispositioned setpoint knob is unknown but most likely occurred during the 11/30/09 maintenance and design change installation window.

**PREVIOUS OCCURRENCES**

A review of LERs for Salem Station back to 2006 identified one previous similar occurrence, LER 311/07-001-00, "Inoperability of the Chilled Water System - 21 and 22 Chillers Inoperable. The cause of this LER was a loose key switch barrel in its mounting hole that allowed the body of the switch to rotate and provide a false indication of Chiller operating status. The corrective actions associated with LER were specific to that event and would not have prevented this LER.

**SAFETY CONSEQUENCES AND IMPLICATIONS**

There was no actual safety consequences associated with this event.

Although the opposite unit Control Room Emergency Air Conditioning System (CREACS) was not placed in single train filtration in accordance with TS for having two inoperable Chillers, the ability of the system to perform its safety function was not compromised. Placing the opposite units' CREACS in single train filtration means that the airflow through the affected unit is being circulated with the opposite units' fans to minimize the heat load in the affected unit.

## LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Salem Generating Station Unit 1	05000272	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 of 4
		2009	- 0 0 1 -	00	

## NARRATIVE

**SAFETY CONSEQUENCES AND IMPLICATIONS (cont'd)**

At the time of the event, appropriate non-essential heat loads had been removed from service because the original inoperability of the 12 Chiller on 11/30/09. Furthermore, the environmental condition (river water temperature was 55 degrees F) at the beginning of December was not near the 90 degrees F assumed in the accident analysis. Therefore, the significance of not having placed the CREACS in single train filtration was minimal.

A review of this event determined that a Safety System Functional Failure (SSFF) as defined in NEI 99-02, Regulatory Assessment Performance Indicator Guidelines, did not occur. There was no condition that alone, could have prevented the fulfillment of a safety function of a system needed to remove residual heat.

**CORRECTIVE ACTIONS**

1. The trip setpoint for the low temperature cutout (freeze) trip on 12 Chiller was re-adjusted to the correct setpoint of 35 +/- 1.5 degrees F.
2. Review of work orders and notifications written between May and December 2009 was completed and did not identify any activities that may have required work in the 12 Chiller control panel.
3. A cause evaluation is in progress, any additional corrective actions associated with this event will be tracked in the PSEG Corrective Action Program.

**COMMITMENTS**

No commitments are made in this LER.