PSEG

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Nuclear Business Unit

JUL 2 1999

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

LER 272/99-005-00
SALEM GENERATING STATION - UNIT 1
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-272

Gentlemen:

This Licensee Event Report entitled "11 Containment Fan Coil Unit (CFCU) out of service more than Tech Spec Allowed Time" is being submitted pursuant to the requirements of the Code of Federal Regulations 10 CFR 50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications.

Sincerely,

D. F. Garchow
General Manager
Salem Operations

Attachment

PJD/

C Distribution
LER File 3.7

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the 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. If an 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.

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TITLE (4)
11 Containment Fan Coil Unit(CFCU) Out of Service More than Tech Spec Allowed Time

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
06	05	99	99	-005	- 00	07	02	99	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1
POWER LEVEL (10)	078

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

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	TELEPHONE NUMBER (Include Area Code)
Philip J. Duca Jr. , Salem Licensing Engineer	(609) 339-2381

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	BI	CLR	M570	N	X	BI	FCV	F130	Y
X	BI	ISV	M120	Y	X	BI	PT	M430	N

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

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

At 0124 on 5/29/99 after the performance of a valve stroke timing surveillance for the 11 Containment Fan Coil Unit (CFCU), a leak developed in Containment. The CFCU was isolated and Tech Spec(TS) 3.6.2.3 was entered. Containment entry revealed leakage at 3 of the top 4 11 CFCU cooler cover plate gaskets. The CFCU was declared inoperable and the TS action statement was entered. The action statement which expired on 6/5/99 at 0124 required that the unit be in hot standby by 0724 on 6/5/99.

On June 4, 1999, following initial repairs and pressurization of the CFCU with service water, additional cooler leaks developed on the top two coolers. On 6/4/99 PSEG submitted a request for a Notice of Enforcement Discretion (NOED) to the NRC asking for an extension of the allowable outage time for the inoperable CFCU of 5 days or until the CFCU was returned to an operable status. NRC granted this NOED on 6/4/99 (documented via letter A. Randolph Blough, Director Division of Reactor Projects, NRC Region I, NOED No. 99-1-004 dated 6/9/99). This LER is being submitted since the unit operated past the allowable outage time stated in the tech spec action statement.

Repairs were completed, operability testing was successfully performed and the CFCU was returned to an operable status at 1818 on 6/7/99.

Sufficient safety system components to mitigate relevant events remained operable during the entire duration of 11 CFCU outage, therefore there was no impact to the health and safety of the public.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), any operation or 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

Containment Fan Cooling System/Service Water/Coolers{BK/BI/CLR}*

* 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 Unit 1 was Mode 1 (Power Operation) at approximately 78% Power.

DESCRIPTION OF OCCURRENCE

On 5/18/99 a scheduled surveillance test was performed on 11 CFCU. This surveillance required stroke timing closed of the CFCU inlet and outlet containment isolation valves (11SW58 and 11SW72 respectively). Approximately three minutes after stroking the valves, Operations received Overhead Annunciator (OHA) C-38 (Containment Fan Coil Unit 11 Leak Detector High). It was determined that when the 11SW58 was opened, a pressure transient was experienced. This resulted in cooler cover plate gasket leaks from three of the twelve coolers on the 11CFCU. Each CFCU has 12 coolers. The coolers are arranged in two vertical rows of six. The two coolers in the top row developed gasket leaks along with one in the fourth row down. The apparent cause of the gasket leaks at this time was attributed to the sequence in which the valves were stroked. Procedure steps were not exact and allowed the operator to interpret them to allow using an improper sequence.

The gasket leaks were repaired, operability testing was successfully performed and 11CFCU was returned to service on 5/22/99 within the 7 day LCO allowable outage time (AOT)

S1.OP-ST.SW-0010(Q) ["Inservice Testing Containment Fan Coil Units (CFCU) Service Water and Control Air Valves"] tests various service water valves for all CFCUs. Since the surveillances for the other CFCU valves were becoming due, the 11 CFCU surveillance was again performed to reset the sequence of testing. In order to ensure the valves were stroked in the

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DESCRIPTION OF OCCURRENCE (continued)

proper manner, the procedure was revised providing very specific direction on the sequencing of the valves.

At 0124 on 5/29/99 after the performance of the stroke timing surveillance test procedure, OHA C-38 (Containment Fan Coil Unit 11 Leak Detector High) was once again received in the Control Room. This alarm indicated that there was another leak in Containment emanating from 11 CFCU. The 11 CFCU was isolated and Technical Specification 3.6.2.3 was once again entered. An entry into Unit 1 Containment revealed Service Water leakage at 3 of the top 4 CFCU cooler cover plate gaskets.

The CFCU was declared inoperable and the tech spec action statement entered. Leak repairs were commenced on the leaking cooler cover plates. The 11SW72 valve was opened and inspected resulting in the discovery that the 11SW72 rubber liner was degraded allowing significant leakage through the closed valve. The 11SW223 (a valve downstream of the 11SW72 valve) V-ball was also degraded allowing more than design flow through the seat. The following repair actions were undertaken: 1) the 11SW72 (11 CFCU SW Outlet Air Operated Valve) was replaced with a new valve, and 2) the 11SW223 (11 CFCU SW Outlet Control Air Operated Valve) was replaced with a new ball and seat. On June 4, 1999, following the repairs listed above, service water was returned to 11 CFCU. During subsequent work on a degraded pressure transmitter another pressure transient occurred resulting in additional cooler leaks on the top two coolers.

The action statement entered on 5/29/99 was a 7 day action statement that expired on 6/5/99 at 0124. The action statement required that the unit be in hot standby by 0724 on 6/5/99. On 6/4/99, PSEG submitted a request for a Notice of Enforcement Discretion (NOED) to the NRC asking for an extension of the allowable outage time for the inoperable CFCU for 5 days or until the CFCU was returned to an operable status. NRC granted this NOED on 6/4/99 allowing the unit to continue to operate. The NOED was documented via a letter from Randolph Blough, Director Division of Reactor Projects, NRC Region I, NOED No. 99-1-004, dated 6/9/99. This LER is being submitted since the unit operated past the allowable outage time stated in the tech spec action statement.

Leak repairs were performed using an improved repair method already being used on Salem Unit 2 CFCUs. Repairs were completed, operability testing was successfully performed and the CFCU was returned to an operable status at

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DESCRIPTION OF OCCURRENCE (continued)
1818 on 6/7/99.

CAUSE OF OCCURRENCE

The apparent cause of the 5/18/99 gasket leaks was attributed to the sequence in which the valves were stroked. The sequence utilized on 5/18/99 allowed the piping between 11SW58 and 11SW72 to become depressurized when the 11SW58 was closed with the 11SW72 opened. It is estimated that draining of approximately 4 gallons would be sufficient to create voids. The pressure transient was believed to have occurred when voids in the fluid formed while the 11SW72 valve was open, collapsed when 11SW58 was reopened. During the evaluation of the 5/18/99 event, the possibility that both the 11SW72 and the 11SW223 valve were leaking through was considered. However, the test had been successfully performed on 2/20/99. Also the probability that both valves were leaking through was deemed to be low. There was no external evidence that the valves were leaking through.

The apparent cause of the second service water leakage event was the 11SW72 and 11SW223 both leaking through, allowing the piping between 11SW58 and 11SW72 to become depressurized when the 11SW58 was closed. Since the proper valve sequencing was utilized during the 5/29/99 test, in hindsight it became apparent that the sequence alone may not have caused the 5/18/99 event. The following repair actions were undertaken: 1) the 11SW72 (11 CFCU SW Outlet Air Operated Valve) was replaced with a new valve, and 2) the 11SW223 (11 CFCU SW Outlet Control Air Operated Valve) was repaired with a new ball and seat.

A pressure transient also caused the leaks that occurred on 6/4/99. This pressure transient resulted during the following sequence of events. Subsequent to repair of the leaks and pressurization of the CFCU with service water, a pressure transmitter associated with the 11SW57 (the 11 CFCU pressure control valve) was removed from service so that it could be repaired. This resulted in both 11SW57 and 11SW223 going to their full open positions. The repositioning of these valves to the full open position was not anticipated. With these valves in their full open position, service water header pressure dropped to the point where the backup service water pump automatically started (90 psig). With the backup pump in service (maximum service water flow of approximately 3500 gpm) a pressure surge (to 135 psig) occurred. It was during this transient that the leaks occurred.

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PRIOR SIMILAR OCCURRENCES

LERs and Special Reports for Salem and Hope Creek for 1996, 1997, 1998 and 1999 to date were reviewed for similar occurrences. None were identified.

SAFETY CONSEQUENCES AND IMPLICATIONS

There was no safety significance to this event. During the entire duration of 11 CFCU being out of service, the four remaining CFCUs and both containment spray pumps were operable. Salem safety analyses show that three CFCUs in conjunction with one containment spray pump, or two containment spray pumps alone will provide sufficient heat removal capability to mitigate the consequences of relevant accidents.

Additionally risk assessment analyses performed in support of the request for the NOED showed very small increases in core damage frequency and large early release frequency as a result of one CFCU being out of service.

CORRECTIVE ACTIONS

1. Procedure S1.OP-ST.SW-0010(Q) was enhanced to provide specific instructions to ensure proper sequencing and timing of valve manipulations

2. The 11SW72 (11CFCU SW outlet air operated valve) was replaced with a new valve.

3. The 11SW223 (11 CFCU SW outlet control air operated valve) was repaired with a new v-ball and seat.

4. For the leaking coolers, the 1/16 inch gasket material, used on the Unit 1 CFCU coolers was replaced with a 1/8 inch gasket as used on Unit 2 CFCU coolers to provide enhanced sealing of the 11 CFCU cover plates.

5. For the leaking coolers, the RTV (the sealant material used on Unit 1) was replaced with Duratough DL (the sealant material used on Unit 2) to enhance the sealing of the 11 CFCU cover plates.

6. The remaining Unit 1 CFCU cooler cover plate sealing will be evaluated under the corrective action program and appropriate changes will be made.

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CORRECTIVE ACTIONS (continued)

7. The personnel involved in the removal from service of the pressure transmitter associated with 11SW57 were held accountable in accordance with PSE&G policies and procedures.