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PSEG Nuclear LLC

LR-N04-0498

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

LER 272/04-006-00
SALEM - UNIT 1
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-272

This Licensee Event Report, "Operation in a Condition Prohibited by Technical Specification – Containment Isolation Valves," 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,

Carl Fricker
Salem Plant Manager

Attachment

/EHV

C Distribution
LER File 3.7

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007

Estimated burden per response to comply with this mandatory 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 and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to Infocollects@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 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.

LICENSEE EVENT REPORT (LER)

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

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4. TITLE

Operation in a Condition Prohibited by Technical Specification – Containment Isolation Valves

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	15	2004	2004	- 006 -	00	11	15	2004	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE

1

10. POWER LEVEL

99.6%

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

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☒ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY 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
A	BI	V		No					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

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

On September 17, 2004, a review of actions associated with the performance an In Service Test (IST) determined that the actions taken on September 15 were inappropriate and the Plant was not in compliance with Technical Specifications. On September 15, 2004, during performance of the quarterly In Service Test in accordance with approved plant surveillance test procedures, the Service Water inlet valve to the 11 Containment Fan Coil Unit (11SW58) failed to indicate closed on the control console upon stroking the valve, thus exceeding its Required Action stroke time. Technical Specification 3.6.3.1 was entered at 21:17 on September 15, 2004.

Following non-intrusive troubleshooting, additional strokes, and consultation with IST personnel, the Technical Specification was exited at 22:41 on September 15. A review of the actions taken on September 15 by the IST Program Manager concluded that Technical Specification 3.6.3.1 should not have been exited. According to the requirements of the IST program, the first stroke is the IST stroke time. The IST program does not include provisions for multiple strokes to determine operability of a valve that has exceeded its Required Action stroke time without the performance of maintenance or a rigorous engineering evaluation. The cause of this event was determined to be personnel error. An immediate corrective action taken was to repair and retest the 11SW58 valve.

This report is being made in accordance with 10CFR50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications..."

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse – Pressurized Water Reactor (PWR/4)
Service Water (SW) {BI} *
Containment Fan Coil Unit Ventilation System (CFCU) {BK} *

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

IDENTIFICATION OF OCCURRENCE

Event Date: September 15, 2004

Discovery Date: September 17, 2004

CONDITIONS PRIOR TO OCCURRENCE

Salem Unit 1 was in Mode 1 (POWER OPERATION) at approximately 100% Reactor Thermal Power (RTP). No structures, systems or components were inoperable at the time of the occurrence that contributed to the event.

DESCRIPTION OF OCCURRENCE

On September 15, 2004, during performance of the quarterly In Service Test, the inlet Service Water (SW) {BI} valve to the 11 Containment Fan Coil Unit (CFCU) {BK} (11SW58) failed to indicate closed on the control console.

Following verification that the control console light bulbs for the 11SW58 valve were operating properly, the Nuclear Control Operator (NCO – Licensed operator) entered Technical Specification (TS) Limiting Condition For Operation (LCO) 3.6.3.1 at 21:17 on September 15, 2004.

TS 3.6.3.1 states that each containment isolation valve shall be OPERABLE in Modes 1, 2, 3 and 4. With one or more of the isolation valve(s) inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either:

a. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or
b. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or
c. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange; or
d. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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

DESCRIPTION OF OCCURRENCE (cont'd)

After entering TS LCO 3.6.3.1, the NCO requested a visual inspection of the 11SW58 valve. A Nuclear Equipment Operator (NEO – Non licensed operator) and an Instrument and Control (I&C) technician observed that the valve was closed; however, it appeared that the closed limit switch was not making contact. The I&C technician requested the NCO to stroke the valve for observation. The valve was stroked and the closed limit was received. The valve was timed at 6.5 seconds, which is within the required evaluation range. This value was recorded in the procedure as the initial stroke time. Subsequently, the valve was stroked two additional times with stroke times of 5.4 and 4.9 seconds respectively. The I&C technician reported that the valve stroked smoothly on all three occasions and there did not appear to be a problem with valve operation. Based on these results and discussions with IST personnel TS 3.6.3.1 was exited at 22:41 on September 15, 2004.

On September 16, 2004, additional non-intrusive troubleshooting was performed without finding a reason for the varying stroke times. The normal consistent stroke time for this valve is 3.3 seconds.

The valve was stroked again three times early on the morning of September 17, 2004, with stroke times of 5.47, 4.85 and 4.47 seconds.

On September 17, 2004, the In Service Test Program Manager reviewed the actions that had been taken relative to the11SW58 valve. At this point, the IST Program Manager identified that TS 3.6.3.1 should not have been exited. According to the requirements of the IST program, the first stroke (in this case the failure to obtain the close limit) is the IST stroke time of record. The IST program has no provisions for multiple strokes to determine operability of a valve that has exceeded its Required Action stroke time without the performance of maintenance or a rigorous engineering evaluation. Therefore, the subsequent strokes were not valid strokes for the IST program. Additionally, although the subsequent stroke time values were within the ten second UFSAR limit, the times were almost twice as long as the baseline stroke times, indicating a problem with either the valve or its operator. For these reasons, the IST program manager concluded that TS 3.6.3.1 was inappropriately exited on September 15, 2004. TS 3.6.3.1 was re-entered on September 17 at 12:50.

Further investigation revealed that the valve's upper bearing seal had been compromised. The broken seal had allowed process fluid (service water) to get into the bearings, thus damaging the valve bearing. The 11SW58 valve was repaired and the TS exited on September 21 at 04:37.

This report is being made in accordance with 10CFR50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications..."

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

CAUSE OF OCCURRENCE

The apparent cause(s) of the event (missed operability call) was due to personnel error. Some of the factors that contributed to this human performance issue were:

1. Overconfidence by Operations and IST personnel.
2. Imprecise communication. IST personnel missed the fact that the valve had already been declared inoperable, and critical communication protocol (e.g. repeat backs) was not used for this conversation.

PREVIOUS OCCURRENCES

Salem and Hope Creek Generating Station LERs for years 2001 through 2004 were reviewed for similar occurrences, which involved human errors attributable to poor communication.

LER 272/04-004-00, Non-essential Loads Not Isolated With One Chiller Inoperable as Required by Technical Specifications, was an event where the cause of the occurrence was multiple human errors attributed to a lack of attention to detail by operators and the lack of quality verification (QV&V) prior to taking action.

The corrective actions were specific to that event and as such may not have precluded the occurrence of this event.

SAFETY CONSEQUENCES AND IMPLICATIONS

There were no safety consequences associated with this event.

The 11SW58 valve is listed in the UFSAR Table 6.2-10 as a containment isolation valve, and as such it has an active safety function in the closed position. The Containment Fan Coil Unit and the motor cooler are considered a closed system, which separates the open system outside containment from the Reactor Coolant System and the containment atmosphere. Because the system is closed to the containment, Type C leak rate testing of the 11SW58 valve is not required.

As a component of the Service Water system, the valve is the inlet service water supply to the 11 CFCU and it is normally open and remains open for accident mitigation. The CFCU are required to provide containment cooling and to mitigate containment pressure peaking, which requires this valve to be open.

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

SAFETY CONSEQUENCES AND IMPLICATIONS (cont'd)

A review of this event determined that a Safety System Functional Failure (SSFF) as defined in NEI 99-02 did not occur.

CORRECTIVE ACTIONS

1. The 11SW58 valve was repaired and retested satisfactorily.
2. Procedure SH.RA-AP.ZZ-0105 (Q) will be reviewed and revised as necessary to ensure that proper guidance is included for helping in assessing operability determinations to preclude recurrence of this type of event.
3. This event will be included in the IST Training module being developed for licensed operator requalification training.

COMMITMENTS

This LER contains no commitments.