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U. S. Nuclear Regulatory Commission
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LER 272 / 03 – 005 – 01
Salem Generating Station Unit 1
Facility Operating License DPR- 70
Docket No. 50-272

This supplement to Licensee Event Report (LER) entitled "Condition Prohibited by Technical Specifications: Auxiliary Building Ventilation System Fire Damper Found Out of Position" is submitted to correct the statement concerning Safety System Functional Failure (SSFF) occurrence. A Safety System Functional Failure (SSFF) had occurred as defined in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline. It should be noted that this plant event was correctly reflected in the in the NRC Performance Indicator as an SSFF.

Should there be any questions regarding this matter please contact Howard Berrick at 856-339-1862.

Sincerely,

C. Fricker
Salem Plant Manager

Attachment

HGB

C Distribution
LER File 3.7

JE22

LICENSEE EVENT REPORT (LER)

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

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, NEOF-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.

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4. TITLE
Condition Prohibited by Technical Specifications: Auxiliary Building Ventilation System Fire Damper Found Out of Position

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
12	21	2003	2003	- 005 -	01	03	24	2005		
									FACILITY NAME	DOCKET NUMBER
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: <i>(Check all that apply)</i>										
10. POWER LEVEL 100	<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"/> 50.73(a)(2)(vii)							
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)							
	<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"/> 50.73(a)(2)(vii)(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"/> 50.73(a)(2)(ix)(A)							
	<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"/> 50.73(a)(2)(x)							
	<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"/> 73.71(a)(4)							
	<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"/> 73.71(a)(5)							
	<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"/> OTHER							
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A							

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME Howard G. Berrick, Senior Licensing Engineer	TELEPHONE NUMBER (Include Area Code) 856-339-1862
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
-	-	-	-	No					

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: DAY: YEAR:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On January 25, 2004, as part of a troubleshooting activity to determine the cause of high differential pressure in Salem 1 Auxiliary Building, it was identified that two fire dampers, 1ABF13 and 1ABF15, inside the ECCS room exhaust ductwork were found closed. Additionally, High Energy Break Analysis (HEBA) excess flow damper 1ABS8 was found closed. Further review indicated that this condition might have existed since December 21, 2003 when high differential pressure was first noted. This condition is contrary to Technical Specification 3.7.7.1. The above dampers were subsequently reopened to their normal open position and the airflows were returned to normal.

There were no actual safety consequences associated with this event.

This is being reported under the requirement of 10CFR50.73(a)(2)(i)(B), any operation or condition which was prohibited by the plant's Technical Specifications and 10CFR50.73(a)(2)(v)(D), any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

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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)
Auxiliary Building Ventilation System {VF/DMP} (ABV)*

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

IDENTIFICATION OF OCCURRENCE

Event Date: December 21, 2003
Discovery Date: January 25, 2004

CONDITIONS PRIOR TO OCCURRENCE

The plant was in Mode 1 (POWER OPERATION) at the time of the event.

DESCRIPTION OF OCCURRENCE

On December 21, 2003 a notification was created to address a high differential pressure (DP) across the doors within the Auxiliary Building. An engineering evaluation identified that this excessively high DP was the result of the Auxiliary Building Ventilation (ABV) system running in an abnormal mode with only one exhaust fan in service. After the system was returned to normal mode, the building DP was still abnormally high. On January 23, 2004 engineering performed a walk down of the Salem 1 Auxiliary Building Ventilation (ABV) system to troubleshoot the cause of the high differential pressure. No airflow was noted inside the Emergency Core Cooling System (ECCS) exhaust ductwork or on the 100' elevation. Engineering suspected several different fire dampers as the possible cause and notified the Unit 1 Control Room Supervisor (CRS) of their findings.

On January 25, 2004 Fire Protection personnel inspected several fire dampers suspected to be the problem. At approximately 1700 hours information was provided to the control room from Fire Protection that the 1ABF13 {VF/DMP} damper was found closed. This damper renders the ventilation from the Residual Heat Removal (RHR) rooms as well as other areas inoperable (no flowpath to the Charcoal filters); as such Technical Specification (TS) 3.7.7.1 should have been entered at this time (1700 hours on January 25, 2004).

The deficient condition (1ABF13 impaired) was corrected within 3 hours of discovery (1950 on January 25, 2004). A late entry was made in the Control Room Narrative documenting the late Tech Spec entry and exit, which were made within the LCO time limits of 24 hours. An 8-hour report was made as an "after-the-fact" report at approximately 1800 hours on January 26, 2004. (Event Number 40480)

Fire Protection personnel also found fire damper 1ABF15 and High Energy Break Analysis (HEBA) excess flow damper 1ABS8 closed. NOTE: The fire damper's manual hand quadrant was found in the open position for both 1ABF13 and 1ABF15 while the dampers were closed. The dampers were subsequently reopened and the airflows were returned to normal in the Auxiliary Building.

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CAUSE OF OCCURRENCE

The cause of fire dampers 1ABF13 and 1ABF15 going closed is believed to be the bi-metallic link that holds the dampers in the open position not seating properly and inadvertently actuating. The fire dampers are required to be open under normal operating conditions and should not close under these conditions. If the damper is actuated, it is required to close. The fire dampers at Salem use a link to perform its fire protection function. This link connects to the shaft and the spring-loaded louver assembly using a pin attached to a bi-metallic strip. When heated, the bimetallic pin will expand causing it to release the spring-loaded louver assembly. Upon going closed the damper makes-up to a micro switch causing an alarm in the Unit 1 control room area. The micro switch is designed to annunciate upon the damper being fully closed. The micro switch did not annunciate the positions of 1ABF13 and 1ABF15.

The dampers were found closed; yet the fire damper's manual hand quadrant indicated the damper was open. Typically, in order for this to occur the damper bi-metallic link would have to actuate. No heat sources (e.g., fires) sufficient to activate fire dampers 1ABF13 and 1ABF15 were identified.

The closure of the 1ABS8 excess flow damper is attributed to the closure of dampers 1ABF13 and 1ABF15, which caused the flow set point of the 1ABS8 damper to be exceeded, thereby closing the damper as designed.

A contributing factor in this event is the lack of guidance on resetting of dampers to assure the link pin engagement has been achieved, as well as the physical damper position that impacts damper reset and verification.

PREVIOUS OCCURRENCES

A review of LERs at Salem and Hope Creek Generating Stations dating back to 2001 identified a similar event reported in January 2001. LER's 272/01-001 and 272/01-002 described a similar event where a failed fire damper (damper found closed) limited the ability of the auxiliary building ventilation system to perform its safety function. The cause of the failure was attributed to the locking wing nut on the damper operator being loose due to the improper restoration of the damper after functional testing. The corrective actions associated with this event would not have prevented the current event as the wing nut was found secured.

SAFETY CONSEQUENCES AND IMPLICATIONS

The Salem ABV system is a once through ventilation and exhaust filtration system that maintains a slight negative pressure within the building, delivering outside air in sufficient volume to maintain auxiliary building temperatures within design limits. The supply system consists of two fans, each of 100% capacity, powered from vital buses that deliver outside air via ductwork distribution throughout the building.

The exhaust system consists of three fans, each of 50% capacity, taking exhaust from a common plenum, three High Efficiency Particulate Air (HEPA) filters, and one High Efficiency Carbon Adsorber. The HEPA filters receive air from the exhaust system ductwork, and discharge it to a common plenum. The carbon adsorber can be aligned interchangeably between either of two of the three HEPA filters and the common plenum.

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SAFETY CONSEQUENCES AND IMPLICATIONS (contd.)

The carbon adsorber is placed in the exhaust stream only during post LOCA conditions to remove radioactive iodine, which may be introduced to the auxiliary building through ECCS equipment leakage. The exhaust fans are powered from vital buses and are designed for continuous operation. During normal conditions the charcoal adsorber is not in service and filtration of the effluent is provided by the HEPA filter. Monitoring of the effluent is done by the installed radiation instrumentation in the plant vent.

The following areas were affected by the closure of the Excess Flow HEBA Damper 1ABS8, fire damper 1ABF13, and fire damper 1ABF15: Salem Unit 1 piping penetration area, pipe chase area, RHR Heat exchanger area, and the RHR and Safety Injection pump area's. With Excess Flow HEBA Damper 1ABS8 fully closed, and fire dampers 1ABF13 and 1ABF15 closed, the negative pressure of the Auxiliary Building to outside atmosphere was always maintained. Any potential release would have been through the plant vent, and radiation detectors would have monitored the release.

The RHR and Safety Injection pump room coolers were unaffected by this event. If an accident condition had occurred during the time the dampers were failed (December 21, 2003 through January 25, 2004), the area room coolers, along with low outside ambient temperatures would have contributed cooling of the ECCS equipment environment to limit the area temperatures to below their maximum limits.

A review of this condition determined that a Safety System Functional Failure (SSFF) had occurred as defined in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline. Closure of the dampers could have resulted in flows from the ECCS areas being below the minimum required by Technical Specifications and prevented the ability to mitigate the consequences of accident. The shortfall in filtered flowrate did not present a risk to the health and safety of the public or plant personnel. There were no actual safety consequences associated with this event.

CORRECTIVE ACTIONS:

1. Immediate corrective action was to open and reset fire dampers (1ABS8, 1ABF13 and 1ABF15). Flow through the HEPA Charcoal train was verified to meet Technical Specification acceptance criteria.
2. Fire Protection personnel performed a field validation of fire damper positions on both Salem Unit 1 and Unit 2. This will continue, on a monthly basis, until evaluation and appropriate corrective actions are complete.
3. An evaluation (e.g., internal inspection of bi-metallic link assembly, micro switch and dampers) to determine the cause of the dampers failing and lack of annunciation, and the corrective actions to prevent recurrence is not yet complete. If new information is identified that changes the understanding of the event, this LER will be supplemented.

COMMITMENTS

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