



JUL 27 2001

LRN-01-0238

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

Gentlemen:

LICENSEE EVENT REPORT 272/01-002-01
SALEM GENERATING STATION - UNIT 1
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-272

Licensee Event Report 272/01-002 "Past Non-Compliance With The Auxiliary Building Ventilation Technical Specification Flow Requirements Special Report " originally submitted on April 4, 2001 is being supplemented to include additional information in the Safety Consequences and Implications section of the LER. The attached report contains no commitments.

Sincerely,

D. F. Garchow
Vice President -
Operations

Attachment

/EHV

C Distribution
LER File 3.7

IE22

TO: Harry Keiser

FROM:

D. F. Garchow



SUBJECT: LER #272/01-002-01

DATE:

JUL 27 2001

Title:

Past Non-Compliance With The Auxiliary Building Ventilation Technical Specification Flow Requirements

Licensee Event Report 272/01-002 "Past Non-Compliance With The Auxiliary Building Ventilation Technical Specification Flow Requirements Special Report " is being supplemented to include the following additional information in the Safety Consequences and Implications section of the LER

"During accident conditions the equipment room coolers provide cooling of the ECCS equipment environment. The room coolers were unaffected by this event."

CC

Ken Moore

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

LICENSEE EVENT REPORT (LER)

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

| | | |
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TITLE (4)
Past Non-Compliance With The Auxiliary Building Ventilation Technical Specification Flow Requirements

| 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 |
| 07 | 14 | 99 | 01 | - 002 | - 01 | 07 | 27 | 01 | | |
| OPERATING MODE (9) | | 1 | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR []: (Check one or more) (11) | | | | | | |
| POWER LEVEL (10) | | 100 | | 20.2201(b) | | 20.2203(a)(2)(v) | | 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) | X | 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 E. H. Villar, Licensing Engineer | TELEPHONE NUMBER (Include Area Code) (856) 339-5456 |
|---|---|

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

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

On February 6, 2001, during the root cause investigation associated with LER 272/01-001, "Auxiliary Building Ventilation System Fire Damper Found Out of Position Limiting The Ability of The System To Perform Its Safety Function." PSEG personnel determined that fire damper 1ABF11 {DMP} had closed on July 14, 1999. Similar to the event described in LER 272/01-001, closure of this damper could have resulted in flows from Emergency Core Cooling System (ECCS) areas being below the minimum required by Technical Specifications. Thus, the Auxiliary Building Ventilation would have been incapable of performing its safety function due to the reduced emergency flow rate (air flow being discharged through the HEPA-Charcoal adsorber {FLT}). The root cause of the closure of the 1ABF11 damper was attributed to the locking wing nut being loose due to the improper restoration of the damper after the functional test. Corrective actions proposed and taken as a result of LER 272/01-001 were: (1) To revise the surveillance test procedures to ensure setscrews are tightened and standardized hardware configuration is used, including improving the procedure wording to stress proper tightening of the locking mechanism, (2) Loss prevention personnel to perform a field validation of all appropriate fire dampers in Salem Unit 1 and Unit 2.

This condition is being reported in accordance with the requirements of 10CFR50.73(a)(2)(v).

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PLANT AND SYSTEM IDENTIFICATION

Westinghouse – Pressurized Water Reactor

Auxiliary Building Ventilation System {VF} (ABV)

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

CONDITIONS PRIOR TO OCCURRENCE

Salem Unit 1 was in Mode 1 at 100% power at the time of the event.

Event Date: July 14, 1999

No structures, systems, or components were inoperable at the time of the occurrence that contributed to the event.

DESCRIPTION OF OCCURRENCE

On January 26, 2001, PSEG issued Licensee Event Report (LER) 272/01-001-00, "Auxiliary Building Ventilation System Fire Damper Found Out of Position Limiting The Ability of The System To Perform Its Safety Function." During the root cause investigation into LER 272/01-001, PSEG non-licensed personnel determined that fire damper, 1ABF11 {DMP}, had closed on July 14, 1999. Similar to the event discussed in LER 272/01-001, closure of this damper could have resulted in flows from Emergency Core Cooling System (ECCS) areas being below the minimum required by Technical Specifications. Thus, the Auxiliary Building Ventilation {VF}(ABV) would have been incapable of performing its safety function due to the reduced emergency flow rate (air flow being discharged through the HEPA-Charcoal adsorber {FLT}). Therefore, this condition should have been reported in accordance with the requirements of 10CFR50.72.

ANALYSIS OF OCCURRENCE

On July 14, 1999, Unit 1 In Service Inspection (ISI) non-licensed utility personnel commenced Technical Specification surveillance testing of the Auxiliary Building Ventilation system to verify ventilation flow rates throughout the auxiliary building. During the performance of the surveillance, personnel noted that the exhaust airflow from one of the auxiliary building areas (elevation 84, ECCS area) was below the required Technical Specification acceptance criterion. The cause of this low flow condition was traced to the normally open fire damper 1ABF11 {DMP} being closed. The damper was reopened and the surveillance test was satisfactorily completed.

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ANALYSIS OF OCCURRENCE (cont'd)

At the time of the discovery, the closure of the 1ABF11 damper was not deemed reportable because the closure of the damper was assumed to have occurred at the time of discovery in accordance with the guidance provided in NUREG 1022 Rev 02, and the damper was re-opened restoring the system's flow requirements to within the required Technical Specification allowed outage time of 24 hours. However because the Auxiliary Building Ventilation system from the HEPA/Charcoal filter train perspective is a single train system, the ability of the system to perform its safety function could not be assured. Therefore, this event should have been reported to the NRC in accordance with the requirements of the 10CFR50.72 and 10CR50.73.

This report is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR50.73(a)(2)(v).

CAUSE OF OCCURRENCE

The apparent cause for the closure of the 1ABF11 damper was attributed to the locking wing nut being loose due to the improper restoration of the damper after the functional test.

The 1ABF11 damper has a functional test performed every 18 months in accordance with S1.FP-ST.FBR-0028(Q), CLASS I FIRE DAMPER FUNCTIONAL TEST. Section 5.5 of the procedure provides direction to the individual performing the test on how to reset a tested fire damper. Step 5.5.5 directs that the *wing* nut on the handle be tightened. On the 1ABF11 damper this fastener is not a wing nut, but a standard four-sided nut. The apparent cause conducted surmised that the individual performing the functional testing did not have the proper tool when performing this step and the nut may not have been tightened sufficiently. Over time the locking nut could have worked itself loose as a result of vibration, causing the damper to close under its own weight. This description would explain the loose holding nut and the as found position of the damper. The failure to recognize the single train vulnerability of the system resulted in the event not being reported at the time of the occurrence.

PRIOR SIMILAR OCCURRENCES

A review of LERs form 1998 through the present date for both Salem and Hope Creek did not identify any additional fire damper closures. However, Hope Creek LER 354/00-009 issued on June 23, 2000, identified the closure of a manual damper in the Filtration, Recirculation, and Ventilation System (FRVS). Closure of this damper was attributed to inattention to detail by a non-licensed utility operator while securing the locking device.

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PRIOR SIMILAR OCCURRENCES (cont'd)

A contributor to this event was an inadequate procedure. Corrective actions taken associated with LER 354/00-009 were specific to the event and they would not have prevented the January 26, 2001 event. LER 272/01-001 issued January 26, 2001, and LER 354/00-009, which described similar events are contemporaneous to the event described in this LER, and could not have prevented this event.

SAFETY CONSEQUENCES AND IMPLICATIONS

There were no safety consequences associated with this event.

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. Supply fan start circuits are administratively controlled to prevent more than one supply fan from operating at any time, avoiding pressurization of the Auxiliary 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 the common plenum. The carbon adsorber can be aligned interchangeably between either of two of the three HEPA filters and the common plenum.

The third HEPA filter cannot be aligned to the carbon adsorber. 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. The exhaust fans are powered from vital buses and are designed for continuous operation. The exhaust fans maintain Auxiliary Building pressure slightly negative with respect to ambient atmospheric pressure. The system is normally operated with two exhaust fans and one supply, and in cases where the outside temperature is low enough, only exhaust fan(s) may be in operation.

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SAFETY CONSEQUENCES AND IMPLICATIONS (cont'd)

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 {IL} in the plant vent {VL}. Although this damper was found closed, flow through the 1ABF11 damper existed thereby providing some limited filtration through the HEPA-Charcoal adsorber of the effluents from the affected area during accident conditions. A review of the control room operators logs (Licensed operators) for the month of July revealed that the negative pressure of the auxiliary building to outside atmosphere was always maintained. Therefore, any potential release would have been through the plant vent, and radiation detectors would have monitored the release.

During accident conditions the equipment room coolers provide cooling of the ECCS equipment environment. The room coolers were unaffected by this event.

Based on the above, PSEG Nuclear believes that this condition did not present a risk to the health and safety of the public or plant personnel.

CORRECTIVE ACTIONS

1. The surveillance test procedures will be revised to ensure setscrews are tightened and standardized hardware configuration is used. The revision will address:
 - a. Improve procedure wording to stress proper tightening of the locking mechanism. Proper tightening of the indicating arm nut is critical to ensuring the arm (which holds the damper) stays in the open position before the locking mechanism is applied.
 - b. Setscrews should be checked periodically (recommend during 18 month ST) to ensure they have not vibrated loose.
 - c. All hardware should be replaced with the same size nut and bolt
 - d. Nut size should be specified in procedure or Order to allow proper tool to be used (socket, nut driver, box wrench)
 - e. Adjustable wrenches should not be used at any time

2. Loss Prevention personnel are performing a periodic field validation of all appropriate fire dampers in Salem Units 1 and 2.

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CORRECTIVE ACTIONS (cont'd)

- With regard to the failure to report this event at the time of occurrence, licensing personnel have been made aware of the single train vulnerability of the Auxiliary Ventilation System during the training recently conducted due to the changes of the reporting requirements of 10CFR50.72 and 10CFR50.73. Training of the new reporting requirement changes was also provided to appropriate licensed and non-licensed personnel.

COMMITMENTS

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