PSEG

Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038-0236

Nuclear Business Unit

OCT 01 1998

LR-N980462

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

LER 311/98-014-00
SALEM GENERATING STATION - UNIT 2
FACILITY OPERATING LICENSE NO. DPR-75
DOCKET NO. 50-311

Gentlemen:

This Licensee Event Report entitled "Fire Barrier Material for HVAC Ducts Does Not Meet Required Level of Fire Resistance" is being submitted pursuant to the requirements License Condition 2.I and Technical Specification 6.9.3.

Sincerely,

A. C. Bakken III
General Manager -
Salem Operations

Attachment

BJT 180057

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)
Fire Barrier Material for HVAC Ducts Does Not Meet Required Level of Fire Resistance

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL	REVISION	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									Salem Unit 1	05000272
09	18	98	98	014	00	10	01	98	FACILITY NAME	DOCKET NUMBER

		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
OPERATING	Mode 1	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10)	100	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)	X 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)
Brian J. Thomas, Licensing Engineer	609-339-2022

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

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED	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)

This Special Report is being made pursuant to the requirements of License condition 2.I which requires that a 14 day report be submitted for cases where the provisions of the approved fire protection program are not maintained. Further, Technical Specification 6.9.3 state that "violations of the fire protection program ... which would have adversely affected the ability to achieve and maintain safe shutdown in the event of a fire shall be submitted ... via the Licensee Event Report System within 30 days." The report satisfies both of these requirements.

During recent testing of the FS-195 material, the fire resistance of the FS-195 material did not meet the one-hour rating for certain electrical raceway fire barrier configurations. A review of the test results in conjunction with the as-installed FS-195 configuration for HVAC duct fire wrap resulted in the conclusion that the fire resistance of the HVAC duct fire barrier extensions is less than expected. The exact fire resistance capability of the installed HVAC fire wrap configurations has not been determined. Appropriate compensatory actions for HVAC duct fire barrier extensions have been established in accordance with the fire protection program.

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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

Fire Protection

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

CONDITIONS PRIOR TO OCCURRENCE

Salem Unit 1and 2 were in Mode 1 at 100% reactor power.

DESCRIPTION OF OCCURRENCE

As a result of NRC inspections conducted during 1993 and 1997, the Electrical Raceway Fire Barrier System (ERFBS) project was established to review the fire resistance rating of various materials which were used to protect the electrical raceways at Salem. One of the fire barrier materials being reviewed by the ERFBS project is the 3M FS-195 fire barrier material. The FS-195 fire barrier material was originally evaluated and selected based on limited testing performed by PSE&G and 3M in accordance with the guidance available at the time of initial testing. Although the test configurations did not bound each configuration installed in the plant, the FS-195 material was believed to provide an adequate one-hour fire barrier rating for the protection of electrical raceways. Until the issue of the qualification of the ERFBS fire wrap material is resolved, PSE&G committed to maintain compensatory measures as described in letter LR-N97320 dated May 19, 1997.

Following the issuance of 10CFR50 Appendix R, fire dampers were required to be installed in various fire barriers throughout Salem. Since the fire dampers were being installed after the ventilation systems were constructed, placing the fire dampers at the opening of the fire barrier was not always possible. As stated in PSE&G's letter NLR-N88070 to the NRC, dated July 15, 1988, for fire barriers where the fire damper was not installed in the fire barrier, the ductwork between the fire barrier and the fire damper was wrapped in FS-195 to extend the fire barrier to the fire damper.

During recent testing of the FS-195 material, the fire resistance of the FS-195 material did not meet the one-hour rating for certain electrical raceway fire barrier configurations. A review of the test results in conjunction with the as-installed FS-195 configuration for HVAC duct fire wrap resulted in the conclusion that the fire resistance of the HVAC duct fire barrier extensions is less than expected. The exact fire resistance capability of the installed HVAC fire wrap configurations has not been determined. Appropriate compensatory actions for HVAC duct fire barrier extensions have been established in accordance with the fire protection program.

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

CAUSE OF OCCURRENCE

The cause of this condition is attributed to the level of understanding that existed for the evaluation, testing and installation of the fire barriers at the time the barriers were selected and installed. A contributing cause to the unacceptable evaluation at the time of installation of the fire barriers was the evolution of more stringent requirements for fire protection within the nuclear industry over time.

PRIOR SIMILAR OCCURRENCES

A review of LERs for the past three years did not identify any similar occurrences.

SAFETY CONSEQUENCES AND IMPLICATIONS

The fire protection program uses defense in depth with multiple levels of protection. The multiple levels of protection include limiting combustibles and ignition sources in plant design, administrative control of transient combustibles and ignition sources, detectors for prompt detection of fires, automatic suppression in areas with high fire loads, fire barriers to provide for the separation and containment of fires, and an on-site fire department which responds and extinguishes fires upon detection. Although the fire resistance of the installed configuration of the FS-195 material was less than expected, this results in a reduction of only one level of fire protection. In addition, HVAC ductwork is constructed of metal and does not contain combustible material. Therefore a fire of significant magnitude would not be expected to occur that would not be detected and extinguished prior to breaching the integrity of the fire barrier. Based on the above there was no impact to the health and safety of the public.

CORRECTIVE ACTIONS:

1. The affected fire dampers were identified via walkdowns and appropriate compensatory measures were established in accordance with the fire protection program. These compensatory actions will remain in place until the fire barrier wrap issue is resolved for the affected components.

2. To ensure qualified HVAC fire barriers are installed in the plant either;

   - A review of the safe shutdown analysis will be performed to determine if the fire barrier can be eliminated, or
   - The fire barrier(s) will be upgraded or replaced as appropriate.

   The above actions will be completed as part of the ERFBS project and are consistent with our approach outlined in letter LR-N97357, dated June 6,1997.