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Nuclear Business Unit

JUL 28 1999

LR-N990354

Regional Administrator
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Gentlemen:

**LICENSEE EVENT REPORT 99-008-00
SALEM GENERATING STATION - UNIT 2
FACILITY OPERATING LICENSE NO DPR 75
DOCKET NO. 50-311**

This Special Report entitled " Fire Program Deficiency - Limit Switch Cables Subject to Multiple Hot Shorts in Same Fire Area " is being submitted pursuant to the requirements of License condition 2.1 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 states that "violations of the fire protection program ... shall be submitted ... via the Licensee Event Report System within 30 days." This report satisfies both of these requirements.

Sincerely,

Mark B. Bezilla
Vice President-Operations

Attachment

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

/JCN
Distribution:
LER File 3.7

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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-8 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.

FACILITY NAME (1)
Salem Generating Station Unit 2

DOCKET NUMBER (2)
05000311

PAGE (3)
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TITLE (4)
Fire Program Deficiency - Limit Switch Cables Subject to Multiple Hot Shorts in Same Fire Area

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	99	008	00	07	28	99	Salem Unit 1	05000272
									FACILITY NAME	DOCKET NUMBER
OPERATING		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
			20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER		100	20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)	50.73(a)(2)(x)
			20.2203(a)(2)(ii)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(iii)			20.2203(a)(4)			50.73(a)(2)(iv)	<input checked="" type="checkbox"/> 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)
John C. Nagle, Licensing Engineer	856-339-3171

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)

YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO	EXPECTED	MONTH	DAY	YEAR

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 states that "violations of the fire protection program ... shall be submitted ... via the Licensee Event Report System within 30 days." This report satisfies both of these requirements. During the on-going review of the Fire Protection Program and the post fire safe shutdown analysis as part of the fire wrap project it was determined that cables associated with the limit switches for both of the service water header valves (SW22) are routed through the same fire protection area (mechanical penetration area). This is not in conformance with the approved fire protection program. In the event of fire in this area, hot shorts are required to be postulated, per NRC guidance, in both of these cables. These shorts could result in the closure of both of the header valves with the attendant loss of service water to safety related equipment. Long term loss of service water would result in loss of some equipment necessary to maintain safe shutdown, if left uncorrected. The area in question has been subject to compensatory actions due to fire wrap issues which had been previously identified. The likelihood of this hot short event is extremely low. No further immediate actions are necessary. Current plans are to perform a design change which will eliminate the concern. There is no significant impact on the public health and safety.

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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

CONDITIONS PRIOR TO OCCURRENCE

Salem Units 1 and 2 were operating at 100 percent power at the time this discrepancy was identified.

DESCRIPTION OF OCCURRENCE

During the continuing review of the fire safe shutdown scenarios for both Units 1 and 2, it was determined that the limit switch cables for both of the SW22 Valves (Service water header isolation valves 11(21)SW22 and 12(22) SW22) are routed in separate cable trays that are located in close vicinity of each other. This was identified for fire area 1(2)FA-MP-78I (Mechanical Penetration Area). If both of these valves spuriously operate, it will cut-off SW supply to both nuclear headers. The loss of service water to both the nuclear headers will exist until the operator recognizes the concern and takes action to restore the service water cooling by manually opening the SW22 valves.

The condition is assumed to occur as follows: the limit switch cable conductor loses its insulation during the fire, but does not short to ground or open circuit. A live wire from an adjacent cable (in the same cable tray) also loses its insulation and comes in contact with the limit switch cable conductor. This condition causes the limit switch conductor to become energized and causes the valve to spuriously operate.

CAUSE OF OCCURRENCE

The original post fire safe shutdown analysis did not consider the external hot shorts for the limit switch cables associated with Motor Operated Valves. However, conductor to conductor hot shorts within the limit switch cable were considered. This concern is isolated to the limit switch type circuits for Motor Operated Valves.

PREVIOUS OCCURRENCES

A review of LERs for the past three years did not identify any similar occurrences. However, Special Report 311/98-014-00 reported a degraded condition due to inadequate fire wrap material.

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

SAFETY SIGNIFICANCE AND IMPLICATIONS

Service water provides cooling to the following systems during post fire safe shutdown scenario:

- A. Turbine Generator Area (not affected by closing of the SW22 Valves)
- B. Diesel Generators (not affected by closing of SW22 valves)
- C. Safety Injection pump lube oil coolers
- D. Containment Fan Coil Units and the associated motor cooler units
- E. Room Coolers
- F. Component Cooling Heat Exchangers
- G. Chiller Condensers
- H. Centrifugal Charging pump lube oil coolers
- I. Centrifugal Charging pump gear oil coolers

A loss of all service water cooling to the auxiliary and containment buildings (i.e. both nuclear headers) is beyond the normal system design basis. An evaluation was performed which has determined that there is sufficient redundancy and diversity in the plant design such that the operators can cope with the condition until service water can be safely restored and the plant can proceed to cold shutdown. Manual actions would be required by the operators to support restoration. Examples of these actions include temporary isolation of equipment that could be affected during refill of the system, manual re-opening of the SW22 valves and starting of redundant pumps.

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. In addition, compensatory measures are currently in place requiring an hourly fire watch of the affected area. Based on the above there is no impact to the health and safety of the public.

CORRECTIVE ACTIONS

1. All limit switch cables for Motor Operated Valves have been reviewed for external hot shorts. A total of 134 Motor Operated Valves were identified. The evaluation concluded that only four valves discussed in this report are of concern.
2. Current and future compensatory measures and necessary corrective actions will continue to be addressed, monitored and implemented using the corrective action program.