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July 16, 1998

Re: Indian Point Unit No. 2  
Docket No. 50-247  
LER 98-08-00

Document Control Desk  
US Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555-0001

The attached Licensee Event Report LER 98-08-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73

Very truly yours,

*Paul H. Kinkel*

Attachment

cc: Mr. Hubert J. Miller  
Regional Administrator-Region I  
US Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Mr. Jefferey F. Harold, Project Manager  
Project Directorate I-1  
Division of Reactor Projects I/II  
US Nuclear Regulatory Commission  
Mail Stop 14B-2  
Washington, DC 20555

Senior Resident Inspector  
US Nuclear Regulatory Commission  
PO Box 38  
Buckanan, NY 10511

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**LICENSEE EVENT REPORT (LER)**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Indian Point No. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 4 7	PAGE (3) 1 OF 0 4
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TITLE (4)  
Missing Radiant Energy Shields for Alternate Safe Shutdown System Instrumentation

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 NAMES		DOCKET NUMBER(S)
0	6	1 6 9 8	9 8	- 0 0 8	- 0 0	0	7	1 6 9 8	NONE		0 5 0 0 0

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)						
	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)						
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 336A)						
	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)							
	20.405(a)(1)(iv)	X 50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)							
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)								

LICENSEE CONTACT FOR THIS LER (12)

NAME Richard T. Louie, Senior Engineer	TELEPHONE NUMBER
	AREA CODE 9 1 4 7 3 4 - 5 6 7 8

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

During the current outage with the unit at cold shutdown, it was determined that radiant energy shielding which was required to be installed on portions of cable and conduit serving instrumentation associated with the Alternate Safe Shutdown System (ASSS) was missing. The separation criteria for redundant safe shutdown related circuits inside containment as defined by 10CFR50, Appendix R, Section III.G.2 require at least 20 ft horizontal separation between redundant trains, with no intervening combustibles in the separation zone, or the installation of a noncombustible radiant energy shield. This shield is intended to prevent both redundant trains from being damaged by a single localized fire. In the containment electrical penetration area, the affected conduits are routed in close proximity at various locations and effectively constitute "intervening combustibles" in most locations. Accordingly, these sections of the ASSS cables and conduits were not shielded with a radiant energy shield, as described in the Indian Point 2 Fire Protection Program Plan (FPPP). The installation of the subject shielding will be completed prior to startup from the current outage.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

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		YEAR 9   8   -	SEQUENTIAL NUMBER 0   0   8   -	REVISION NUMBER 0   0	2   OF	0   4

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

**PLANT AND SYSTEM IDENTIFICATION:**

Westinghouse 4-Loop Pressurized Water Reactor.

**IDENTIFICATION OF OCCURRENCE:**

Missing Radiant Energy Shields for Alternate Safe Shutdown System Instrumentation.

**EVENT DATE:**

June 16, 1998

**REPORT DUE DATE:**

July 16, 1998

**REFERENCES:**

Condition Identification and Tracking System (CITRS) No. 98-E01754

**PAST SIMILAR OCCURRENCE:**

None

**DESCRIPTION OF OCCURRENCE:**

During the current plant outage with the unit at cold shutdown, it was discovered that portions of the radiant energy shield that protect the cables and conduits for the ASSS reactor coolant system hot leg (Th) and cold leg (Tc) temperature instrumentation were damaged. These portions are located inside the crane wall within the vapor containment and were subsequently determined to be unnecessary for compliance with the requirements of Appendix R. The radiant energy shields for all cables and conduits for ASSS instrumentation within the vapor containment were inspected. The radiant energy shields required for portions of cables and conduits in the electrical penetration area outside the crane wall within containment were not installed.

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**ANALYSIS OF OCCURRENCE:**

This report is provided pursuant to the requirements of 10 CFR 50.73(a)(2)(ii) because a condition was discovered which resulted in the plant being in a condition that was outside the design basis of the plant.

The separation criteria for redundant safe shutdown related circuits inside containment as defined by 10CFR50, Appendix R, Section III.G.2 require at least 20 ft horizontal separation between redundant trains, with no intervening combustibles in the separation zone, or the installation of a noncombustible radiant energy shield. This shield is intended to prevent both redundant trains from being damaged by a single localized fire. The specific conduits and cables affected serve both the normal and ASSS reactor coolant system hot leg (Th) and cold leg (Tc) temperature instrumentation and the source range neutron flux monitor. In the containment outer annulus region on 46 ft. elevation, the affected cables and conduits are routed in close proximity at various locations between the point of entry from the electrical penetrations to the point of entry through the crane wall. Although horizontal separation between the redundant conduits is 20 ft. or more, the congested cable configuration effectively constitutes "intervening combustibles" in most locations. Since the separation criteria for redundant safe shutdown related circuits inside containment is not at least 20 ft. horizontal separation between redundant trains, with no intervening combustibles in the separation zone, the installation of a radiant energy shield to prevent both redundant trains from being damaged by a single localized fire is required to ensure the operation of the instruments during and following an Appendix R fire scenario in Fire Zone 75A. These sections of the ASSS cables and conduits were not shielded with a radiant energy shield, as described in the Indian Point 2 Fire Protection Program Plan (FPPP).

**CAUSE OF OCCURRENCE:**

Modification procedure (EGP-84-32098) installed new Th and Tc temperature instrumentation and the source range neutron flux monitor in order to satisfy the requirements of 10 CFR 50 Appendix R. The procedure properly identified the requirement to provide a radiant energy shield, consisting of 2-inch thick flexible fiberglass pipe insulation surrounded with Type 316 stainless steel metal jacket of 0.01-inch thickness, on the "SRM and RTD conduits inside containment areas." No further information was provided as to whether conduit routed both inside/outside crane wall should all be wrapped. The modification drawing initially showed only the sections of cable/conduits inside the crane wall that were to have non-combustible radiant energy shields installed. No conduit sections outside the crane wall were specified to be wrapped. At the time, this discrepancy had been identified during installation, and a drawing change was issued to correctly show both inside and outside the crane wall

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		9   8   -	0   0   8   -	0   0	4	OF	0   4

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cable/conduit sections to be wrapped. It is not known if the radiant energy shield was originally not installed on the cable/conduits in the electrical penetration area, or if it was removed at a later date and not reinstalled. The cause of this occurrence appears to be attributable to inadequate guidance and/or communication of information between Engineering and Construction during the original installation of the radiant energy shielding.

**CORRECTIVE ACTION:**

A new modification procedure has been prepared to install radiant energy shielding on the conduits and cables located in the electrical penetration area within the vapor containment for ASSS instrumentation. The installation of the subject radiant energy shield is required to be completed prior to plant startup from the current outage.