

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3160-0104  
EXPIRES - 8/31/85

FACILITY NAME (1) <b>INDIAN POINT UNIT NO. 2</b>						DOCKET NUMBER (2) <b>0500021471</b>		PAGE (3) <b>1 OF 015</b>	
TITLE (4) <b>INADVERTENT OPENING OF MAIN STEAM ISOLATION VALVES</b>									

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	2	9	8	8	8	0	7	2	9	8	8	0	5	0	0	0		

OPERATING MODE (9) <b>N</b>		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10-CFR §: (Check one or more of the following) (11)																	
POWER LEVEL (10) <b>01010</b>	20.402(b)			20.406(e)			50.73(a)(2)(iv)			73.71(b)									
	20.406(a)(1)(i)			50.34(a)(1)			50.73(a)(2)(v)			73.71(e)									
	20.406(a)(1)(ii)			50.34(a)(2)			50.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)									
	20.406(a)(1)(iii)			<input checked="" type="checkbox"/>			50.73(a)(2)(vii)(A)												
	20.406(a)(1)(iv)			50.73(a)(2)(iii)			50.73(a)(2)(vii)(B)												
20.406(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(viii)													

LICENSEE CONTACT FOR THIS LER (12)									
NAME <b>Michael Vasely, Engineer</b>							TELEPHONE NUMBER		
							AREA CODE		
							<b>9114 51216-1511815</b>		

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	
X	J	M	FUB	51619	N						

SUPPLEMENTAL REPORT EXPECTED (14)							EXPECTED SUBMISSION DATE (15)		
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO							MONTH	DAY	YEAR

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

At approximately 0300 hours on June 23, 1988, all four main steamline isolation valves (MSIVs) inadvertently opened during the performance of monthly surveillance test PT-M14B, "Safety Injection Logic Test". The plant was in cold shutdown at the time. PT-M14B requires removal of DC power fuses for one SI logic train at a time for relay coil continuity checks. The SI logic power also supplies power for the main steamline isolation logic (MSIL). The MSIL circuits are of the "energize to actuate" type whereby the actuating relays in either train are energized to initiate valve closure. Both circuits must be de-energized to initiate MSIV opening. The MSIL circuitry has separate fuses that provide isolation from the SI logic. Post-event troubleshooting discovered a blown fuse in the MSIL Train A. The fact of this blown fuse coincident with performance of the train B portion of PT-M14B caused both MSIL trains to de-energize, thus opening the valves. Immediate corrective actions included modifications to provide fuse monitoring alarm indication for the MSIL circuitry and the affected portion of the SI logic circuitry, together with procedure revisions. These actions have been fully implemented. The health and safety of the public were not affected by this event.

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

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-loop pressurized water reactor

IDENTIFICATION OF OCCURRENCE:

A blown fuse in the train A manual control portion of the main steamline isolation logic (MSIL), coincident with de-energization of the train B logic for testing, caused all four main steamline isolation valves to open.

EVENT DATE: June 23, 1988

REPORTABILITY DETERMINATION DATE: June 29, 1988

REPORT DUE DATE: July 29, 1988

- REFERENCES:
1. Significant Occurrence Report (SOR) 88-310, dated June 23, 1988.
  2. Significant Occurrence Report (SOR) 88-326, dated June 29, 1988.

PAST SIMILAR OCCURRENCES: None

DESCRIPTION OF OCCURRENCE:

On June 23, 1988 at approximately 0300 hours, all four main steamline isolation valves (MSIVs) inadvertently opened during the performance of monthly surveillance test PTM-14B "Safety Injection Logic Test." The plant was in cold shutdown at the time. The I & C technicians were in the process of performing step 3.13 of PTM-14B, which is a continuity check of the SI logic relay coils. This step requires the removal of 125VDC power fuses for one SI logic train at a time. After continuity checks are completed, the fuses are replaced and the same sequence is performed on the remaining train. The MSIVs opened when the train B fuses were removed.

The SI logic power also supplies power for the main steamline isolation logic (MSIL). The MSIL circuits are of the "energize to actuate" type whereby the actuating relays in either train are energized to initiate valve closure. Both circuits must be de-energized to initiate MSIV opening. The MSIL circuitry has separate fuses that provide isolation from the SI logic.

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TEXT (If more space is required, use additional NRC Form 306A (17))

Troubleshooting was conducted by the I & C technician with support from a plant engineer. A blown fuse was discovered on the positive side of the train A MSIL manual control circuit. The fuse was replaced, the MSIV's were operated properly and the continuity checks in both trains were successfully completed.

ANALYSIS OF OCCURRENCE:

Prior to 1982, the MSIL circuits were connected directly to the safeguards actuation logic trains. The main fuses provided overall circuit protection, including the MSI logic circuitry. The main fuses were continually monitored by undervoltage relays and indicating lights. Monthly functional testing of safeguards actuation circuitry was also performed by test procedure PTM-14B which provides a continuity check, including the negative fuse.

In 1982, the MSI logic was modified to include a three position selector switch. This modification also added a positive and a negative fuse in the MSI logic circuit for each of the redundant trains. The new fuses were coordinated with the main safeguards actuation circuit fuses such that a fault in the MSI logic would not blow the main fuses.

The redesigned MSIL circuitry did not provide monitoring for the new fuses via alarm indication. The modification procedure stipulated that testing should be performed periodically in accordance with PTM-14B. The negative fuses are tested. Review of test procedure PTM-14B confirms that the positive fuses for the Main Steam isolation logic are not tested. In fact, the test of safeguards actuation train A was completed without the disclosure that the positive fuse was blown.

The opening of the MSIVs occurred when the redundant train "B" was tested. The main fuses were removed to allow continuity testing of the safeguard relay coils and pushbuttons. Removal of these fuses concurrent with the existing undetected blown fuse in train A caused the MSIVs to open.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

(EXPIRES 6/31/85)

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IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC Form 302A (11/77)

CAUSE OF OCCURRENCE:

The opening of the MSIVs was caused by a blown fuse in one MSIL train in conjunction with a deliberate de-energization of the redundant train as dictated by the test procedure.

CORRECTIVE ACTIONS:

The initial corrective action replaced the fuse, tested the circuit and added a high impedance neon indicating lamp across the MSIL circuit fuses. In addition to the MSIL circuit review, all other safeguards actuation logic circuits were reviewed to ensure that a blown fuse scenario would be detected. The results of the review indicate that all energize to actuate engineered safeguards logic circuits are provided with fuse monitoring via undervoltage relays tied to an alarm and light indication. The only exception was the MSIL circuitry and certain SI auxiliary relays. These circuits were modified to be consistent with the other engineered safeguards actuation logic circuits and appropriate alarm response and test procedures were revised.

Stephen B. Bram  
Vice President

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July 29, 1988

Re: Indian Point Unit No. 2  
Docket No. 50-247  
LER 88-07

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555

The attached Licensee Event Report LER 88-07 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,



Attachment

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