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March 16, 1995

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 95-07-00

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

The attached Licensee Event Report LER 95-07-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

Stephen E. Quinn

Attachment

cc: Mr. Thomas T. Martin
Regional Administrator - Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Francis J. Williams, Jr., Project Manager
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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point Unit No. 2	0 5 0 0 0 2 4 7	1 OF 0 4

TITLE (4)
Failure of Containment Isolation Valves to Close

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 2	1 4	9 5	9 5	0 0 7	0 0	0 3	1 6	9 5		0 5 0 0 0
										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)
		20.406(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.406(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	Voluntarily

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
James Maylath, Engineer	AREA CODE 9 1 4 7 3 4 - 5 3 5 6

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	R L Y	W 1 2 0	N							

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

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

On February 14, 1995, during a refueling outage with the reactor at cold shutdown, neither Train A nor Train B containment isolation valves for the Pressurizer Relief Tank and the Reactor Coolant Drain Tank sample lines were able to be closed by their own manual control switches. This condition was caused by a shorted relay, which resulted in blowing a negative fuse common to four solenoid valves. Positive DC voltage was brought to the solenoids through the common termination at the blown fuse from the shorted relay. This DC supply, through the short, bypassed the manual control switch contacts. The containment isolation actuation contacts were not bypassed, and either a manual or automatic containment isolation signal would have opened all the solenoid circuits and closed all valves. A safety injection signal would have closed the valves due to the stripping of the instrument air power supply with the signal. However, upon reset of containment isolation the containment isolation contacts would have closed and energized the solenoid circuits. This would have resulted in the valves opening again with manual control of the valves precluded, if safety injection was reset and the instrument air power supply was restored.

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Failure of Containment Isolation Valves to Close

EVENT DATE:

February 14, 1995

REPORT DUE DATE:

March 16, 1995

REFERENCES:

Significant Occurrence Report (SOR) 95-116 and follow-up review.

PAST SIMILAR OCCURRENCE:

LER 93-008

DESCRIPTION OF OCCURRENCE:

On February 14, 1995 at 1450 hours with the reactor at cold shutdown for the 1995 Refueling Outage, gas sample valves 548 and 549 from the Pressurizer Relief Tank (PRT) and gas sample valves 1788 and 1789 from the Reactor Coolant Drain Tank (RCDT) could not be closed by their manual control switches in the Central Control Room (CCR). Valves 548 and 549 are respectively the Train A and Train B containment isolation valves in the sample line from the PRT. Similarly, valves 1788 and 1789 are respectively the Train A and Train B containment isolation valves in the sample line from the RCDT. All of the valves are solenoid operated and close upon loss of power to the solenoid or upon loss of instrument air. Each of these solenoid circuits is designed with two manual control switches in series, one in the CCR and one at the Gas Analyzer Panel. Actuation of either switch will remove the positive DC source to the solenoid and an auxiliary relay in parallel with the solenoid which is used in the containment isolation reset circuit. An investigation of these solenoid valve circuits was performed. A blown fuse was found on the negative leg of the DC supply to the solenoid valves. This negative fuse

DESCRIPTION OF OCCURRENCE: (continued)

was common to the auxiliary relays for all of the above solenoid valves as well for two auxiliary relays associated with the steam generator blowdown isolation inboard and outboard valves and two auxiliary relays associated with the hydrogen recombiner isolation valves. A short across the auxiliary relay associated with the steam generator inboard valves blew the negative fuse. This resulted in a positive DC supply being brought to the four auxiliary relays and solenoids associated with the PRT and RCDT. This positive DC supply, through the shorted relay, bypassed the manual control switches keeping the solenoids energized and the valves open. This positive DC supply would not have precluded either an automatic or manual containment isolation because the containment isolation actuation relay contacts are directly in series with the solenoids. These contacts would have opened upon a containment isolation. This would have de-energized the solenoids and closed the valves as required. Also, a safety injection (SI) signal would have caused the valves to close as a result of the SI signal stripping the instrument air power supply because the valves are designed to close on loss of instrument air. However, upon reset of containment isolation and SI and the restoration of the instrument air power supply, the solenoids would have been energized again causing the valves to open with the manual control switch contacts still bypassed by the shorted relay.

ANALYSIS OF OCCURRENCE:

This report is being made voluntarily at the discretion of management. The PRT and RCDT gas sample valves are designed to be manually opened or closed as needed from control switches in the CCR or at the Gas Analyzer Panel. These control switches are overridden by the containment isolation actuation relay contacts in each solenoid circuit. These relay contacts are in series with the solenoids, and upon containment isolation these contacts will open and de-energize the solenoids and close the valve. During this occurrence a shorted relay resulted in DC power bypassing the control switches for the solenoid circuits. Since there was no containment isolation signal at the time, the solenoids were kept energized through the shorted relay. Although the valves would have closed as required upon containment isolation or SI, these valves would have opened again after containment isolation and SI were reset and the instrument air power supply was restored. Note that this failure mode would block normal containment isolation reset requiring the control room operator to utilize the containment isolation key switch bypass. These isolation valve DC solenoid circuits are designed with a common DC source because de-energization of the solenoids results in the valves going to their failsafe position which is closed in this case. There was no impact on operation of the steam generator or hydrogen recombiner isolation valves. Operation of the auxiliary relays associated with these valves monitors control switch position for the containment isolation reset circuit. This monitoring was precluded by the shorted relay. This event did not cause any personnel injury or damage to equipment.

CAUSE OF OCCURRENCE:

A short across an auxiliary relay created a "sneak" circuit which bypassed the manual control switches and brought DC power to the solenoids of the four gas sample valves. The shorted relay showed no signs of deterioration and was not subjected to excessive vibration. This short was an isolated random failure. Each gas sample valve has an associated auxiliary relay which is connected to a common negative fuse. This fuse is also common to two auxiliary relays associated with the steam generator blowdown inboard and outboard isolation valves and two auxiliary relays associated with the hydrogen recombiner isolation valves (the solenoids for the steam generator blowdown and hydrogen recombiner isolation valves are on different circuits). A short across the auxiliary relay associated with the steam generator blowdown inboard isolation valves resulted in blowing the negative fuse and bringing positive DC to this common point. This positive DC was fed across the auxiliary relays associated with gas sample valves to the solenoid portion of the circuit. The positive DC power at this point was sufficient to keep the solenoids energized.

CORRECTIVE ACTION:

The shorted relay and blown fuse were replaced on February 14, 1995, the day of the event. This restored manual control capability for the four gas sample isolation valves. An investigation of all containment isolation sampling valve solenoid circuits was made, and no other similar common fusing condition was found. A modification has been proposed to install separate negative fuses for each of the auxiliary relays which are tied to the common negative DC. Therefore, a fault in any of these auxiliary relay circuits will only blow the fuse associated with it without impacting operation of any of the other isolation valves. This modification will be installed before completion of the 1995 refueling outage.