

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3160-0104
EXPIRES - 6/31/85

FACILITY NAME (1) INDIAN POINT UNIT NO. 2 DOCKET NUMBER (2) 05000247 PAGE (3) 1 OF 04

TITLE (4) INOPERABLE ROD POSITION INDICATION SYSTEM

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)
07	25	88	88	009	00	08	24	88		05000

OPERATING MODE (9) N

POWER LEVEL (10) 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
20.406(a)(1)(i)	50.36(a)(1)	50.73(a)(2)(v)	73.71(c)
20.406(a)(1)(ii)	50.36(a)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.406(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(i)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: George Dahl, Engineer TELEPHONE NUMBER: 9114 526-5186

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
B	C	F	Z	IW 120	Y				

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yw, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (16)

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (18)

At approximately 1345 hours and 1815 hours on July 25, 1988, a defective regulator board on the Sola transformer that provides a regulated source of power for the Rod Position Indication System caused all rod positions to indicate high. Loss of all rod position indication is a condition not covered by a Technical Specification Limiting Condition for Operation and, therefore, entry into Technical Specification 3.0.1 was required on both occasions. Adjustment of the potentiometer appeared to correct the condition after the first occurrence. The regulator board on the transformer was replaced after the second occurrence, which ultimately corrected the high voltage condition. The health and safety of the public were not affected by this event.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

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		YEAR	SEQUENT. NUMBER	REVISION NUMBER			
		88	009	00	02	OF	04

LET (if more space is required use appropriate HAC form 2664 (11))

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-loop pressurized water reactor

IDENTIFICATION OF OCCURRENCES:

A defective Sola transformer that provides a regulated source of power for the Rod Position Indication (RPI) system caused rod position to indicate high on two occasions on the same day.

EVENT DATE: July 25, 1988

REPORTABILITY DETERMINATION DATE: July 25, 1988

REPORT DUE DATE: August 24, 1988

- REFERENCES:
1. Significant Occurrence Report (SOR) 88-369, dated July 25, 1988
 2. Significant Occurrence Report (SOR) 88-370, dated July 25, 1988

PAST SIMILAR OCCURRENCES: LER 84-03

DESCRIPTION OF OCCURRENCE:

On July 25, 1988 at approximately 1345 hours, all RPI channels in the CCR and rod position indication on the plant computer indicated high and the RPI system voltage was found to be approximately 10 volts higher than normal. The plant was operating at 100% reactor power at the time. Technical Specification 3.10.6.2 allows not more than one RPI channel per group nor two RPI channels per bank to be inoperable at any time.

The I & C technician suspected a dirty contact in the voltage adjustment potentiometer on the Sola transformer. The potentiometer was exercised and set to its original position. The Sola transformer output voltage returned to normal, was monitored for one hour, then the RPI system was considered operable.

At approximately 1815 hours the same day, all RPI channels in the CCR and rod position indication on the plant computer again indicated high and the RPI system voltage again indicated approximately 10 volts higher than normal. The plant was operating at 100% reactor power at the time.

Troubleshooting was conducted by I & C and it was determined the Sola transformer was defective. Maintenance and I & C replaced the transformer but all RPI channels indicated low. The original

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TEXT IF MORE SPACE IS REQUIRED USE ADDITIONAL NRC Form 302a (1/77)

transformer was reinstalled and the regulator board from the new transformer was installed into the original transformer. The RPI system voltage was set to the required voltage and rod positions were verified to be consistent with their positions prior to the event. Additionally, a flux map was performed to further substantiate rod positions.

ANALYSIS OF OCCURRENCE:

Since Technical Specification 3.10.6.2 does not specify a "degraded mode" of operation for exceeding the number of RPI channels permitted to be out of service (inoperable), Technical Specification 3.0.1 was entered. Entries into 3.0.1 are reportable as required by NUREG-1022, Supplement No. 1, because, although Technical Specifications aren't violated when the plant enters 3.0.1 the plant is operating with a condition prohibited by Technical Specifications.

The RPI system requires a regulated source of 118 VAC power that is provided by a Sola transformer from MCC 24. When this input voltage varies, the corresponding output voltage from the rod position detectors will also vary. In these cases, since the source voltage indicated high, the output voltages from the rod position detectors, which are directly proportional to the positions of the rods, also indicated high. For both events, the rods did not physically move, rather, the RPI system was indicating the rods were further out than they actually were.

Since all RPI channels were indicating high, I & C suspected a dirty contact in the voltage adjustment potentiometer on the Sola transformer was changing circuit resistance which could have resulted in increased source voltage. The potentiometer was exercised several times and then set to its original position. This seemed to solve the problem since the source voltage returned to 118 VAC and maintained that value for one hour.

With the recurrence of the problem a few hours later, it was decided to replace the Sola transformer. However, when the new transformer was installed all the RPI channels indicated low even though the source voltage was correctly set to 118 VAC. It was hypothesized each transformer produces unique harmonic wave patterns and the RPI system was calibrated to the original transformer. Since recalibrating the system is an extensive task, it was decided to reinstall the original transformer and only replace the regulator board. The regulator board contains the voltage adjustment potentiometer that was suspected to be defective on the original transformer.

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LET IT MORE SPACE IS REQUIRED USE SUPPLEMENTARY NRC FORM 302A (11/77)

The new regulator board was installed into the original transformer and the voltage was set to 118 VAC. Using data from the plant computer on rod positions prior to the event, I & C verified the Control Bank D rods were at essentially the same positions after the repair. This is valid since the rods weren't intentionally moved and hadn't actually moved during the time taken to effect repairs. Additionally, a flux map was performed after repairs were completed to verify proper control rod alignment.

CAUSE OF OCCURRENCES:

The high source voltage from the RPI system Sola transformer was caused by a defective regulator board that resulted in erroneous high rod position indication.

CORRECTIVE ACTIONS:

The initial corrective action exercised the potentiometer and reset and maintained source voltage at 118 VAC. Final corrective action involved replacing the regulator board of the original Sola transformer, verifying correct rod positions by a comparison to pre-event positions and performing a flux map to further substantiate rod position.

Stephen B. Bram
Vice President

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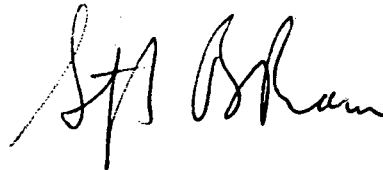
August 24, 1988

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 88-009-00

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

The attached Licensee Event Report LER 88-009-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,



Attachment

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