

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1) D. C. Cook Nuclear Plant, Unit 1										DOCKET NUMBER (2) 0   5   0   0   0   3   1   1   5   1   OF   0   3										PAGE (3) 1 OF 1												
TITLE (4) Operation With Inoperable Intermediate Range Neutron Flux Detector, Caused by Instrument Drift																																
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)															
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1	1	1	7	8	5	8	5	0	6	9	0	1	0	7	0	7	8	6							0   5   0   0   0							
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																													
1			20.402(b)						20.405(c)						50.73(a)(2)(iv)						73.71(b)											
POWER LEVEL (10)			0   2   9						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)																	
			20.405(a)(1)(iii)						X 50.73(a)(2)(i)						50.73(a)(2)(viii)(A)																	
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			20.405(a)(1)(v)						50.73(a)(2)(iii)						50.73(a)(2)(x)																	

LICENSEE CONTACT FOR THIS LER (12)																	
NAME							TELEPHONE NUMBER										
							AREA CODE										
A. A. Blind - Assistant Plant Manager							6	1	6	4	6	5	-	5	9	0	1

COMPLETE ONE LINE FOR EACH COMPONENT FAIL/RE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NPRDS	
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SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO				

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

This revision is submitted to update the cause for the inoperable instrument.

On November 17, 1985, at 0043 hours, Intermediate Range (IR) Neutron Flux Instrument N-35 (EIIS/IG) was determined to be inoperable. The reactor trip setpoint for N-35 was discovered to be above the allowable limit of less than or equal to 30 percent Reactor Thermal Power (RTP). The determination was made while RTP was at 29 percent. With 1 inoperable IR instrument and power above 5 percent RTP, power escalation continued as allowed by Technical Specifications. It was not evident from the data available below 5 percent RTP that the setpoint was above allowable limits. The cause has been attributed to instrument drift which is presumed to be the result of a faulty detector tube (EIIS/DET).

The N-35 detector has been replaced and the instrument will be trended in an effort to identify any future drift.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
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D. C. Cook Nuclear Plant, Unit 1	05000315	85	069	01	02	OF	03

TEXT (If more space is required, use additional NRC Form 365A's) (17)

Conditions Prior to Event

Unit 1 was operating at 29 percent reactor thermal power (RTP) during the initial power escalation for Fuel Cycle 9.

Description of Event

On November 17, 1985, at 0043 hours, intermediate range (IR) nuclear instrument N-35 (EIIS/IG) was discovered to be inoperable. The reactor trip setpoint was in excess of Technical Specification 2.2.1 Table 2.1-1 which requires the setpoint to be less than or equal to 30 percent RTP. The reactor trip setpoint for N-35 was determined to be above the allowable limit while plotting detector current versus reactor thermal power (while at approximately 29 percent RTP) during startup. Technical Specification 3.3.1.1 Table 3.3-1, Item 5, Action 3, allowed the unit to continue power escalation with one inoperable IR nuclear instrument as RTP was above 5 percent. It was not evident from the data available below 5 percent power that the setpoint was above allowable limits.

The reactor trip setpoint for N-35 was lowered to less than 25 percent RTP at 1051 hours on November 17, 1985, fulfilling Technical Specification requirements. The detector (EIIS/DET) current output for N-35 continued to be trended and was later found to be decreasing. On February 13, 1986, the setpoint was found to have drifted above 30 percent RTP. The Unit during this time period was operating at 90 percent RTP. The IR detector high voltage and compensating voltage were checked and found to be set correctly. Based on vendor recommendations, voltage was increased to 1200 volts to place the detector tube at what appeared to be its saturation point. The detector output current was trended with the indication of continued instrument drift evident.

Following an unrelated Unit 1 reactor trip on May 28, 1986, the unit was placed in cold shutdown to replace the N-35 detector. There were no other components or systems related to this event that were inoperable at the start of the event.

Cause of Event

The intermediate cause for IR instrument N-35 reactor trip setpoint being in excess of Technical Specifications was instrument drift. The root cause is not known, but it is, presumed to be the result of a faulty detector tube.

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

Analysis of Event

This supplemental report is submitted to report on actions taken since the original LER. The additional actions taken, including replacement of the N-35 detector, were based on trending of the instrument output. The original LER reported that the setpoint was erroneous based on reduced neutron leakage from the core, it has since been determined that the instrument setpoint had drifted.

The IR instrument (N-35) provides redundant protection for high startup rates (SUR). This trip is blocked above 10 percent RTP. The second of two IR instruments (N-36) remained operable and would have tripped the reactor if required as the coincidence is one out of two instruments. In addition, the four power range instruments provided high positive rate trip (5 percent RTP per 2 seconds) and high flux low setpoint trip (25 percent RTP) protection with a two out of four coincidence. Based on the redundant IR instrument (N-36) and the four power range instruments it is concluded that adequate core protection existed and that this condition did not constitute an unreviewed safety question nor did it create a substantial hazard to the health and safety of the public.

Corrective Actions

The immediate corrective action was to reduce the setpoint below 25 percent RTP. This action did not correct the problem because the instrument continued to drift.

The instrument (N-35) detector has been replaced and the Plant will base its future setpoint predictions on detector current data and average power distribution from the end of the previous fuel cycle. This will give a more conservative prediction as it will account for any instrument drift. Previous predictions were based on data from the beginning of the last fuel cycle. In addition, the detector currents will be trended in order to identify any further instrument drift that may occur during a fuel cycle.

Failed Component Identification

Westinghouse intermediate range nuclear instrument detector model number WL-23707, EIIS:DET.

Previous Similar Events

None



**INDIANA & MICHIGAN ELECTRIC COMPANY**

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July 7, 1986

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

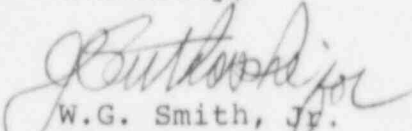
Operating License DPR-58  
Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by 10CFR50.73  
entitled Licensee Event Reporting System, the following  
report/s are being submitted:

85-069-01

Sincerely,

  
W.G. Smith, Jr.  
Plant Manager

/cbm

Attachment

cc: John E. Dolan  
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