

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Millstone Nuclear Power Station Unit 3										DOCKET NUMBER (2) 0 5 0 0 0 4 2 3 1 OF 0 3				PAGE (3) 1 OF 0 3	
TITLE (4) Manual Reactor Trip Due to Inoperable Digital Rod Position Indicator															
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	0 3	8 8	8 8	0 0 7	0 0	0 3	0 4	8 8				0 5 0 0 0 0 1 1			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)													
3		20.402(b)				20.405(e)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)			73.71(b)		
POWER LEVEL (10)		20.405(a)(1)(i)				50.38(e)(1)				<input type="checkbox"/> 50.73(a)(2)(v)			73.71(e)		
0 0 0		20.405(a)(1)(ii)				50.38(e)(2)				<input type="checkbox"/> 50.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
		20.405(a)(1)(iii)				50.73(a)(2)(i)				<input type="checkbox"/> 50.73(a)(2)(viii)(A)					
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				<input type="checkbox"/> 50.73(a)(2)(viii)(B)					
		20.405(a)(1)(v)				50.73(a)(2)(iii)				<input type="checkbox"/> 50.73(a)(2)(ix)					
LICENSEE CONTACT FOR THIS LER (12)															
NAME Keith H. Jensen, Engineer X5496										TELEPHONE NUMBER AREA CODE 2 0 3 4 4 7 - 1 7 9 1					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)															
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS					
B	I U	X I	W 3 5 1	Y											
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)

On 2/3/88 at 0548 hours, while in Hot Standby, with the reactor subcritical at 2250 psia and 557°F, a manual reactor trip was initiated due to an inoperable Digital Rod Position Indication (DRPI) indicator. At the time of the trip, Shutdown Bank D had just been fully withdrawn. The Reactor Operator noticed that rod N-11 had dual position indication at full out and partially inserted positions. The Shift Supervisor ordered the reactor trip breakers opened. The operators verified opening of the trip breakers and insertion of all rods. Trip response procedures were implemented and the plant was stabilized. DRPI now indicated rod N-11 at bottom, with no dual position indication. Rod E-13, however, indicated both at bottom and partially inserted. The operators verified that adequate Shutdown Margin (assuming E-13 fully stuck out) was present.

The root cause of the event was equipment failure. Investigation revealed that the display card for rod N-11 was warped. This caused pins on the N-11 card to contact the adjacent card (E-13), resulting in the faulty position indication. The card was replaced and all rods indicated at bottom.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Millstone Nuclear Power Station Unit 3	0500042388	88	007	00	02	OF 03

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

I. Description of Event

On 2/3/88 at 0548 hours, while in Mode 3 (Hot Standby), with the reactor subcritical at 2250 psia and 557°F, a manual reactor trip was initiated due to an inoperable Digital Rod Position Indication (DRPI) indicator. At the time of the trip, Shutdown Banks were being withdrawn prior to the dilution to initial criticality. All Control Banks were fully inserted. Shutdown Banks A, B, C, and D had been sequentially withdrawn. Per procedure, correct DRPI indication was observed during these withdrawals. After Shutdown Bank D (SBD) was fully withdrawn, and no rod motion was in progress, the Reactor Operator noticed that SBD rod N-11 had dual position indication at full out (225 steps) and partially inserted (approximately 150 steps). No indications were received (count rate, flux rate) that indicated an actual dropped rod.

Per the Action Statement of Technical Specification 3.1.3.3, the Shift Supervisor ordered the reactor trip breakers opened. The operators verified opening of the trip breakers and insertion of all rods. Trip response procedures were implemented and the plant was stabilized. DRPI now indicated rod N-11 at bottom, with no dual indication at 150 steps. Rod E-13 in SBD, however, indicated both at bottom and at approximately 150 steps. (The DRPI indicator cards for rods E-13 and N-11 are next to each other). The operators verified that adequate Shutdown Margin (assuming E-13 fully stuck out) was present.

II. Cause of Event

The DRPI system measures rod position by use of two trains of coils mounted at discreet axial intervals around the rod drive housing. As a rod transits the coil region, a perturbation in the electromagnetic flux generated by each coil results. This causes a change in the applied voltage to the coil. The voltage signals are converted to rod position and supplied to the main control board DRPI panel. Indication for each rod consists of one display card with 39 light emitting diodes (LED) arranged vertically. The 39 LED's represent 6 step intervals from rod at bottom (0 steps) to rod full out (228 steps).

The root cause of the event was equipment failure. Investigation revealed that the LED display card for rod N-11 was warped. This caused pins on the N-11 card to contact the adjacent card (E-13), resulting in the faulty position indication. The card was replaced and all rods indicated at bottom. The N-11 and E-13 indications at the partially inserted positions were therefore incorrect.

III. Analysis of Event

This event is reportable under the provisions of 10CFR50.73(a)(2)(iv) (any event resulting in the manual actuation of the Reactor Protection System). Immediate notification was performed pursuant to 10CFR50.72(b)(1)(i)(A).

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104  
EXPIRES: 8/31/88

FACILITY NAME (1)  Millstone Nuclear Power Station Unit 3	DOCKET NUMBER (2)  0 5 0 0 0 4 2 3	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	0 0 7	0 0	0 3	OF 0 3

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

III. Analysis of Event (Continued)

The Limiting Condition of Operation for Technical Specification 3.1.3.3 requires that one digital rod position indicator be operable and capable of determining control rod position within +/-12 steps for each Shutdown or Control rod not fully inserted (applicable to Mode 3 with the reactor trip breakers closed). The Action Statement for Hot Standby requires that the trip breakers be immediately opened with less than one digital rod position indicator operable. The action for Startup would not require immediate opening of the reactor trip breakers. The action by the operators was conservative. There was no impact to the health and safety of the public based on operating the plant within the design basis of the Safety Analysis.

IV. Corrective Action

The N-11 display card was exchanged with another display card. The N-11 card was placed in a location where its pins would not contact any adjacent cards. All other display cards were inspected to insure no card to card contact was occurring or imminent.

V. Additional Information

There have been no similar events with the same root causes or sequence of events. The failed DRPI card is a Westinghouse Rod Position Indication System Display Board, part number 1054E99.

EIIS CODESComponents

Control Rod - ROD  
Trip Breaker - BKR  
DRPI Display Card - XI

System

DRPI - IU

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
HOLYOKE WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST NUCLEAR ENERGY COMPANY

General Offices • Selden Street, Berlin, Connecticut

P.O. BOX 270  
HARTFORD, CONNECTICUT 06141-0270  
(203) 665-5000

March 4, 1988

MP-11588

Re: 10CFR50.73(a)(2)(iv)

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D. C. 20555

Reference: Facility Operating License No. NPF-49  
Docket No. 50-423  
Licensee Event Report 88-007-00

Gentlemen:

This letter forwards Licensee Event Report 88-007-00 required to be submitted within thirty days pursuant to 10CFR50.73(a)(2)(iv), any event resulting in a manual actuation of the Reactor Protection System.

Yours truly,

NORTHEAST NUCLEAR ENERGY COMPANY

Stephen E. Scace  
Station Superintendent  
Millstone Nuclear Power Station

SES/KHJ:mo

Attachment: LER 88-007-00

cc: W. T. Russell, Region I  
W. J. Raymond, Senior Resident Inspector

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