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

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June 12, 1989
MP-13196

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 89-009-00

Gentlemen:

This letter forwards Licensee Event Report 89-009-00 required to be submitted within thirty (30) days pursuant to 10 CFR 50.73(a)(2)(iv), any event or condition that resulted in automatic actuation of the Reactor Protection System.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR:
Stephen E. Scace
Station Superintendent
Millstone Nuclear Power Station

BY:
Harry F. Haynes
Station Services Superintendent
Millstone Nuclear Power Station

SES/RDC:tjp

Attachment: LER 89-009-00

cc: W. T. Russell, Region I Administrator
D. H. Jaffe, NRC Project Manager, Millstone Unit No. 3
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3

IE22
1/1

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Millstone Nuclear Power Station Unit 3	0 5 0 0 0 4 2 3	1 OF 0 3

TITLE (4)
Reactor Trip Due to Inadequate Rod Drop Time Recording System Procedure

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	
										0 5 0 0 0
0 5	1 1	8 9	8 9	- 0 0 9	- 0 0	0 6	1 2	8 9		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.402(c)	X 50.73(a)(2)(iv)	73.71(b)
		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)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Robert D. Conway, Senior Engineer, x5642	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	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	
X	B A	H C	F 1 8 0	Y		X	A A	X R	W 3 5 1	Y	

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)

At 1514 on May 11, 1989 while operating in Mode 1, 100% reactor power, 557 degrees and 2250 psia, a reactor trip occurred due to a power range neutron flux high negative rate signal. Upon deenergizing a rod drop time recording system connected to the Control Rod Drive System, the control rods unlatched. The recording system had been connected in preparation for tests during the second refueling outage, scheduled to start May 12, 1989. Root cause of the reactor trip was procedural inadequacy in that the procedure did not specify that control rods must be unlatched prior to connecting the rod drop time recording system. Spurious rod drop signals were generated by the rod drop time recording system while being deenergized. This condition does not occur every time the system is deenergized. To prevent recurrence plant procedures were changed to require rods to be unlatched before connecting the rod drop time recording system.

Since this event occurred within 48 hours of the scheduled start of the second refueling outage, the refueling outage commenced immediately after the trip.

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

I. Description of Event

At 1514 on May 11, 1989 while operating in Mode 1, at 100% reactor power, 557 degrees and 2250 psia, a reactor trip occurred on power range neutron flux high negative rate, when a rod drop time recording system connected to the Control Rod Drive System was deenergized, causing control rods to unlatch.

A reactor shutdown was scheduled for May 12, 1989 to commence the second refueling outage. The measuring of control rod drop times was scheduled to follow reactor shutdown. On May 11, 1989 preparations for the outage were in progress, including connection of the Automatic Rod Drop Test Cart to the Digital Rod Position Indication System and the Control Rod Drive System in accordance with approved plant procedures. The Automatic Rod Drop Test Cart is a microprocessor-based system which is used to unlatch a preselected group of rods and measure the rod drop times. Following satisfactory completion of installation tests, the cart was deenergized. Upon shutdown of the cart, spurious signals were sent to the Control Rod Drive power cabinets, which interrupted power to the rod drive mechanisms, causing rods to unlatch. A negative neutron flux rate reactor trip resulted.

At the time of the trip, operators verified that the reactor trip breakers were open, that all control rods were fully inserted and that neutron flux was decreasing. A Feedwater Isolation was received due to low average reactor coolant system temperature following the trip. An Auxiliary Feedwater actuation occurred as a result of a steam generator low-low level signal. These are normal plant responses following a trip. Other automatic and manual-initiated Engineered Safeguards Features actuations were not required. Main Steam Isolation valves were shut, and Main Feedwater Pumps were stopped to control the plant cooldown.

The turbine-driven Auxiliary Feedwater Pump was out of service for surveillance testing. The motor-driven Auxiliary Feedwater Pump started in response to the Auxiliary Feedwater Actuation. Operators controlled plant cooldown by adjusting auxiliary feedwater flow to the steam generators. The hand controller for auxiliary feedwater flow from the motor-driven Auxiliary Feedwater Pump to the "D" steam generator failed "as-is", preventing flow adjustment. Operators reset the feedwater isolation signal and fed the "D" steam generator from the main feedwater system. Following reset of the feedwater isolation signal, an isolation valve malfunction prevented feeding the A steam generator from the main feedwater system. Operators continued to feed the "A" steam generator from the auxiliary feedwater system. A normal cooldown rate was maintained throughout the shutdown.

Approximately 15 minutes after the reactor trip, with reactor coolant system pressure increasing toward the normal operating pressure, it was observed that a pressurizer spray control valve was partially open, and the pressure control system was directing 20% spray. Operators took manual control of pressurizer spray to control reactor coolant system pressure.

The plant was stable in Mode 3 (Hot Standby), 557 degrees, and 2250 psia, at 1540 based on average reactor coolant system temperature returning to a stable value.

II. Cause of Event

The root cause of the event was procedural inadequacy. The procedure governing operation of the Automatic Rod Drop Test Cart did not specify that control rods must be unlatched prior to connecting to the Control Rod Drive System. The procedure was developed from the vendor's technical and operating manual, which does not explicitly specify that rods must be unlatched prior to connecting the system. In discussion with the vendor, it was learned that the vendor assumed rods would always be unlatched prior to connecting the system. While being deenergized, the Automatic Rod Drop Test Cart generated a drop signal.

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

III. Analysis of Event

This event is reportable under 10CFR50.73.(a)(2)(iv). Immediate notifications were performed in accordance with 10CFR50.72(b)(2)(ii).

After consulting with the vendor for the Automatic Rod Drop Test Cart, it was learned that one or more signals to the power cabinets may undergo transition to a low voltage state, unlatching the affected rods as the cart is deenergized. This occurrence is not always repeatable. On at least one occasion during rod drop time tests conducted in the first refueling outage, the cart was deenergized without unlatching control rods that had been withdrawn in preparation for drop tests in accordance with approved plant procedures.

The failure in the "D" steam generator auxiliary feedwater hand controller was caused by a broken internal string. The hand controller was replaced. The malfunction in the A steam generator main feedwater isolation valve was due to a slight misalignment of a position switch. The switch was aligned. The pressurizer spray controller malfunction is being investigated in accordance with approved plant administrative and work control procedures. Redundant systems, the inherent flexibility and safety of designed systems, operator training and plant procedures prevented any of the above equipment malfunctions from posing a danger to the health and safety of the public, or the potential for adverse safety implications.

IV. Corrective Action

The procedure for conducting rod drop tests was revised to require that control rod drive mechanisms be unlatched prior to connecting and disconnecting the Automatic Rod Drop Cart to the Control Rod Drive System.

V. Additional Information

There are no previous Licensee Event Reports with the same root cause and sequence of events.

The Automatic Rod Drop Test Cart is manufactured by Westinghouse Electric Corporation (W351).

SYSTEMS

Control Rod Drive System - AA

COMPONENTS

Special Recorder (Automatic Rod Drop Test Cart) - XR
Hand Controller - HC
Position Switch - 33