

# 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)655-5000

December 30, 1992  
MP-92-1369

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

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

Reference: Facility Operating License No. DPR-65  
Docket No. 50-336  
Licensee Event Report 90-015-02

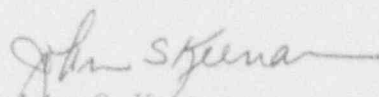
Gentlemen:

This letter forwards update Licensee Event Report 90-015-02.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: Stephen E. Scace  
Vice President - Millstone Station

BY:   
John S. Keenan  
Millstone Unit 2 Director

SES/CS:amc

Attachment: LER 90-015-02

cc: T. T. Martin, Region I Administrator  
P. D. Swetland, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3  
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2

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## LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with 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.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 3 3 6 1				PAGE (3) 1 OF 0 3	
TITLE (4) Inadvertent ESAS Actuations															
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 9	1 9	9 0	9 0	0 1 5	0 2	1 2	3 0	9 2	0 5 0 0 0 0 0 0 0 0 0 0						
OPERATING MODE (9) 5		THIS REPORT IS BEING 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)				20.402(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)	
		20.405(a)(1)(i)				50.36(c)(1)				<input type="checkbox"/> 50.73(a)(2)(v)				73.71(c)	
		20.405(a)(1)(ii)				50.36(c)(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)(vii)(A)					
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				<input type="checkbox"/> 50.73(a)(2)(vii)(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 Woodrow C. Saccoccio, Engineer, Ext. 4460										TELEPHONE NUMBER AREA CODE 2 0 3 4 4 7 1 - 1 7 9 1					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)															
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC					
X	J/E	X/C	C 5 6 0	N											
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)

Event 1

While in Mode 5 on September 19, 1990, at 0244, the Unit experienced an inadvertent isolation of Containment Purge Valves 2-AC-4, 2-AC-5, 2-AC-6, and 2-AC-7. Operators verified that the Engineered Safeguards Actuation System (ESAS) functioned properly, that the actuation was inadvertent and reopened the valves. This actuation resulted from operator error during the operation of a wrong circuit breaker. There were no safety implications.

Event 2

On September 20, 1990, while in Mode 5, at 1103, the Unit experienced an inadvertent actuation of the Facility 2 Safety Injection Actuation System (SIAS), Containment Isolation Actuation System (CIAS), and Enclosure Building Filtration Actuation System (EBFAS). When the actuation occurred, charging pumps P-18B and C started. Reactor Operators manually opened the charging header isolation valve and one of the two loop charging supply isolation valves to provide a flow path and prevent challenging the pumps relief valves. The estimated water addition to the Reactor Coolant System (RCS) was less than 50 gallons. Operators implemented AOP 2571, verified that the actuation was inadvertent and returned the actuated equipment to the lineup that existed prior to the event. The actuation was caused by voltage transients created when the Channel "A" Pressurizer Pressure inhibit switch was operated while Channel "D" Pressurizer Pressure was also being calibrated. As a result of electromagnetic interaction between the trip signal isolation module and the block matrix isolation module, the block matrix module saw a momentary 2 out of 4 logic and removed its blocking voltage from the actuation modules which initiated a SIAS, CIAS, and EBFAS. There were no safety implications.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)		
		YEAR	SEQUENTIA. NUMBER	REVISION NUMBER			
Millstone Nuclear Power Station Unit 2	0 5 0 0 0 3 3 6 9 0	0 1 5	0 2	0 2	OF	0 3	

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

1. Description of EventsEvent 1

While in Mode 5 on September 19, 1990, at 0244, the Unit experienced an inadvertent isolation of Containment Purge Valves 2-AC-4, 2-AC-5, 2-AC-6, and 2-AC-7. Operators verified that the Engineered Safeguards Actuation System (ESAS) functioned properly, that the actuation was inadvertent and reopened the valves. This actuation resulted from a plant equipment operator clearing a tag on circuit breaker VA20-16. VA20-18 was opened by mistake and then immediately closed. This circuit breaker provides power to the ESAS Channel "B" sensor cabinet which processes a signal from one of the four containment radiation monitors. These four monitors input to a unique 1 out of 4 logic matrix for containment purge isolation. The loss of the bistable power for one channel resulted in the logic being satisfied and therefore, an actuation.

Event 2

On September 20, 1990, while in Mode 5, at 1103, the Unit experienced an inadvertent actuation of the Facility 2 SIAS, CIAS, and EBFAS. When the actuation occurred, charging pumps P-18B and C started. Reactor Operators manually opened the charging head or isolation valve and one of the two loop charging supply isolation valves to provide a flow path and prevent challenging the pumps relief valves. The estimated water addition to the RCS was less than 50 gallons. Operators implemented AOP 2571, verified that the actuation was inadvertent and returned the actuated equipment to the lineup that existed prior to the event.

An ESAS actuation can be initiated when any 2 of 4 Pressurize Pressure signals reach a specified low pressure setpoint. This actuation can be blocked if any 3 of the 4 pressure signals reach a separate "Block" pressure setpoint, and a manual blocking pushbutton is pushed. This is a process routinely followed for placing the unit in a cold shutdown condition. Refer to Attachment 1 for a sample logic diagram that illustrates the relationships between bistables, isolation modules, trip actuation modules, and block matrix modules.

The block matrix module was in the block condition as a result of the plant being previously shut down. An I&C technician began calibrating Channel "A" Pressurizer Pressure instrument loop with the inhibit key in the "inhibit" position. When starting to perform the pressure transmitter calibration portion of the procedure, he discovered other workers in the area of the transmitter and felt it prudent to work on Channel "D" as authorized by the Work Order. He began exercising the transmitter on Channel "D" above the block reset value and then realized that the inhibit key was still in Channel "A." He called the control room and requested another I&C technician to remove the key from Channel "A" and put it in Channel "D." When the inhibit key was switched from the "inhibit" to the "operate" position on Channel "A," a voltage transient was created from the deenergization of a relay in the trip isolation module. Because of the close proximity between the block isolation module and the trip isolation module, the block isolation module circuitry received transmitted Electromagnetic Interference (EMI) and momentarily produced a change in state. This created a 2 out of 4 logic input to the block matrix module resulting in removal of its block voltage from the actuation modules. This initiated an actuation because the 2 out of 4 logic was satisfied and the blocking signal was removed.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)

DOCKET NUMBER (2)

R NUMBER (6)

PAGE (3)

Millstone Nuclear Power Station  
Unit 2

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SEQUENTIAL  
NUMBERREVISION  
NUMBER

0 5 0 0 0 3 3 6 9 0 - 0 1 5 - 0 2 0 3 OF 0 3

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

II. Cause of EventsEvent 1

The root cause for the event which occurred on September 19, 1990, was operator error.

Event 2

The root cause for the event which occurred on September 20, 1990, was EMI resulting from the collapsing magnetic field of the relay in the trip isolation module. This relay deenergizes when the inhibit keyswitch is placed in the "inhibit" position. Failure to follow the proper procedure step sequence also contributed to the conditions that caused the actuation.

III. Analysis of Events

These events are being reported pursuant to the requirements of 10CFR50.72(b)(2)(ii) and 10CFR50.73(a)(2)(iv), a condition which resulted in manual or automatic actuation of any Engineered Safety Feature.

Event 1

For the event which occurred on September 19, 1990, there were no safety consequences since the actuation was inadvertent and the ESAS functioned according to design criteria.

Event 2

For the event which occurred on September 20, 1990, there were no safety consequences since the actuation was inadvertent and the Facility 2 equipment functioned properly, considering the transient noise actuation. However, the Facility 1 equipment would also have actuated in the event of an actual SIAS signal as is routinely demonstrated by the Automatic Test Insertion.

IV. Corrective ActionsEvent 1

For the event that occurred on September 19, 1990, the operator has been counseled to be more attentive to detail when tagging and untagging equipment.

Event 2

For the event occurring on September 20, 1990, the technician has also been counseled to follow procedural sequences and the ESAS calibration procedure has been revised to limit the calibration of one channel of one parameter at any given time.

The ESAS Bistables, Isolation Modules, Block Logic Modules, Undervoltage Modules and Sequencers have been replaced. The upgraded isolation modules have been verified not to be susceptible to the type of interference that previously occurred.

V. Additional Information

Similar LERs: 89-005, 88-004, 84-001

EHS Code JE/C560/XC - Engineered Safety Features Actuation System.

Attachment 1



# Attachment 1 to LER 90-015-02

