

# 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 - Seiden Street, Berlin Connecticut

P. O. BOX 270  
HARTFORD, CONNECTICUT 06114-0270  
(203) 665-5000

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

January 11, 1991  
MP-91-30

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

Reference: Facility Operating License No. DPR-21  
Docket No. 50-245  
Licensee Event Report 90-018-00

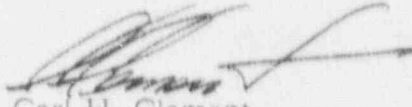
Gentlemen:

This letter forwards Licensee Event Report 90-018-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(v).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: Stephen E. Scace  
Director, Millstone Station

BY:   
Carl H. Clement  
Millstone Unit 3 Director

SES/KEM:mo

Attachment: LER 90-018-00

cc: T. T. Martin, Region I Administrator  
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3  
M. Boyle, NRC Project Manager, Millstone Unit No. 1

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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 1										DOCKET NUMBER (2) 0 5 0 0 0 2 4 5 1			PAGE (3) OF 0 3	
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TITLE (4)  
Low Condenser Vacuum Switches Out of Tolerance Due to 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		
1	2	90	90	018	00	1	1	91	0 5 0 0 0 0 0 0 0 0 0		

OPERATING MODE (9)	THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 3. (Check one or more of the following): (11)										
N	20.402(e)	20.402(f)	50.73(a)(2)(iv)	75.71(b)							
POWER LEVEL (10)	20.405(a)(1)(ii)	50.36(e)(1)	X 50.73(a)(2)(iv)	75.71(c)							
1 0 0	20.405(a)(1)(ii)	50.36(e)(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)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Kevin E. Murphy, Engineer, Ext. 4901	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 NRC/RS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC/RS
X	J   C	P   S	B   0   6   9	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR
0	4	3 0 0 1

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

During routine surveillance on December 12, 1990, at 1417 hours, with the plant at 100% power (530 degrees Fahrenheit and 1030 psig), it was discovered that all four of the condenser low vacuum scram pressure switches were out of calibration in the non-conservative direction, such that Technical Specification requirements were not met. These switches, which provide input to initiate a reactor scram at 23 inches of mercury (nominal) vacuum, were immediately recalibrated.

The condenser low vacuum scram is anticipatory of a turbine stop valve closure scram occurring at 22.5 inches of mercury (nominal) vacuum due to the loss of condenser vacuum. This anticipatory function, although helping to minimize the transient resulting from closure of the turbine stop valves, is not credited in the Millstone Unit 1 Safety Analysis. The turbine stop valve closure scram function alone is adequate to prevent the fuel clad safety limit from being exceeded in the event of a turbine trip with turbine bypass valve closure. Since the turbine stop valve closure scram function was operational, no safety consequences resulted from this event.

To prevent recurrence of this event, consideration is being given to increasing the trip setpoint of the condenser low vacuum scram pressure switches to provide additional margin to the Technical Specification limit.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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 1	DOCKET NUMBER (2)  0   5   0   0   0   2   4   5   9   0	LER NUMBER (3)			PAGE (3)  OF 0   3
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		0   1   8	0   0	0   2	

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

I. Description of Event

During routine surveillance on December 12, 1990, at 1417 hours, with the plant at 100% power (530 degrees Fahrenheit and 1030 psig), it was discovered that all four of the condenser low vacuum scram pressure switches were out of calibration in the non-conservative direction, such that Technical Specification requirements were not met. These switches, which provide input to initiate a reactor scram at 23 inches of mercury (nominal) vacuum, were immediately recalibrated.

The condenser low vacuum scram is anticipatory of a turbine stop valve closure scram occurring at 22.5 inches of mercury (nominal) vacuum due to the loss of condenser vacuum. This anticipatory function, although helping to minimize the transient resulting from closure of the turbine stop valves, is not credited in the Millstone Unit 1 Safety Analysis. The turbine stop valve closure scram function alone is adequate to prevent the fuel clad safety limit from being exceeded in the event of a turbine trip with turbine bypass valve closure. Since the turbine stop valve closure scram function was operational, no safety consequences resulted from this event.

II. Cause of Event

The cause of the instrument setpoint drift appears to be related to changes in ambient temperature. According to the manufacturers literature, the Barksdale vacuum switch is subject to setpoint drift induced by significant changes in temperature. A review of the monthly calibration records confirms that the condenser low vacuum switch setpoint tends to drift downward during the colder months of the year. Instrumentation and Controls (I&C) personnel involved in the calibration noted that the temperature in the area of the switches was noticeably cooler than during recent calibrations, adding to the likelihood of temperature induced drift.

III. Analysis of Event

Loss of condenser vacuum initiates a closure of the turbine stop valves and turbine bypass valves to eliminate the heat input to the condenser. Closure of these valves causes a reactor pressure transient, neutron flux rise, and an increase in surface heat flux. To prevent the fuel clad safety limit from being exceeded, a reactor scram occurs on turbine stop valve closure. This scram function alone is adequate to prevent the fuel clad safety limit from being exceeded in the event of a turbine trip with turbine bypass valve closure. The condenser low vacuum scram acts as an anticipatory scram, helping to minimize the transient.

This event is being reported in accordance with 10CFR50.73(a)(2)(v)(A), which requires the reporting of any event or condition that alone could have prevented the fulfillment of the safety function of systems needed to shut down the reactor and maintain it in a safe condition.

IV. Corrective Action

To provide a greater margin between the setpoint and the Technical Specification limit, a plant design change is currently being considered to change the setpoint of the condenser low vacuum scram switches. This setpoint will take into account the maximum drift which has been attributed to variations in ambient temperature. The new setpoint is being evaluated to ensure sufficient operating margin will remain to preclude the introduction of additional challenges to the Reactor Protection System. Until this review is completed, and appropriate actions are taken to prevent recurrence, the switches will be calibrated on an increased frequency (weekly), and monitored for temperature variations.

Additionally, a review of instrument records was performed to determine if Barksdale vacuum switches or pressure switches are used in similar applications. This review has determined that no other Category 1 Barksdale switches have experienced setpoint drift which can be attributed to variations in ambient temperature. A review of NPRDS data for similar industry events has indicated that there were no reports of Barksdale vacuum switch instrument drift attributed to temperature variations.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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-630), 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 1	DOCKET NUMBER (2)  0   5   0   0   0   2   4   5   9   0	LER NUMBER (5)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9   0	0   1   8	0   0	0   3	OF 0   3

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

V. Additional Information

LER 86-032, submitted for information only, reported the setpoint drift of two condenser low vacuum switches. As a result of this event, and due to age considerations, these switches were replaced during the 1987 refueling outage.

Condenser Low Vacuum Scram Pressure Switch:

Manufacturer - Barksdale

Model Number - D1T-H18SS