

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
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November 13, 1989
MP-13727

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

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 89-025-00

Gentlemen:

This letter forwards Licensee Event Report 89-025-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(i), any operation or condition prohibited by the Plant's Technical Specifications.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

Stephen E. Scace
Station Superintendent
Millstone Nuclear Power Station

SES/NDH:mo

Attachment: LER 89-025-00

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

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LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this information collection request: 60.0 hrs. Forward comments regarding burden estimate to the Records and Reports Management Branch (6-530), 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 3	DOCKET NUMBER (2) 05000423	PAGE (3) 1 OF 1
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TITLE (4)
Lifting of Pressurizer Safeties Above the Allowed Tolerance

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	0	12	8	9	025	0	0	11	1	1	3	8	9	0500000

OPERATING MODE (9) 1	THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § 1.616 (Check one or more of the following) (11)											
POWER LEVEL (10) 11010	20.402(b)			20.402(c)			50.73(a)(2)(iv)			73.71(b)		
	20.405(a)(1)(i)			50.36(b)(1)			50.73(a)(2)(v)			73.71(c)		
	20.405(a)(1)(ii)			50.36(b)(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)(iii)			50.73(a)(2)(viii)(B)					

LICENSEE CONTACT FOR THIS LER (12)

NAME Nelson D. Hulme, Senior Engineer, Ext. 5398	TELEPHONE NUMBER AREA CODE: 203 447-1791
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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	A	B	R V	C 7 1 1	Y				
B	A	B	R V	C 7 1 1	Y				

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On October 12, 1989, Wyle Laboratories notified Northeast Utilities of an anomaly in the test results on two previously installed Pressurizer Safety Valves. The subject valves are required by Technical Specifications to be operable with a setting of 2500 psia ±1 percent (2475-2525 psia) during Modes 1, 2, and 3. Bench testing at Wyle Laboratory revealed one valve (S/N N56964-07-0102) initially lifted at 2534 psia and the other valve (S/N N56964-07-0059) initially lifted at 2553 psia. As the valves were not installed in the plant at the time, no operator action was required in response to this event.

The root cause for Pressurizer Safety S/N 102 lifting higher than the one percent tolerance is unknown. The root cause for Pressure Safety S/N 59 lifting higher than tolerance is believed to be an improperly machined disc insert. An inspection of the S/N 59 revealed that a surface on the disc insert which mates to the disc holder was not flat. This allowed the disc to rock and possibly reseat in a different location after each lift. The different locations can affect spring tension and in turn the lift pressure.

The disc insert for S/N 59 was replaced with one specifically inspected to assure there was a flat, polished mating surface for the disc holder. Also, parts considered critical to the proper operation of safety S/N 59 were thoroughly inspected for proper fit and function.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

Estimated burden per response to comply with this information collection request: 60.0 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.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	

TEXT (if more space is required, use additional NRC Form 366A, 3) (17)

I. Description of Event

On October 12, 1989, Wyle Laboratories notified Northeast Utilities of an anomaly in the test results on two previously installed Pressurizer Safety Valves. The subject valves are required by Technical Specifications to be operable with a setting of 2500 psia \pm 1 percent (2475 - 2525 psia) during Modes 1, 2, and 3. Bench testing at Wyle Laboratory revealed one valve (S/N N56964-07-0102) initially lifted at 2534 psia and the other valve (S/N N56964-07-0059) initially lifted at 2553 psia. Each valve was tested three more times. The first valve (S/N 102) lifted within one percent of 2500 psia all three times. The second valve (S/N 59) lifted within one percent one time, but was outside the tolerance the other two times. Lift pressures of 2542 psia and 2529 psia respectively were the recorded values. As the valves were not installed in the plant at the time, no immediate operator action was required in response to this event.

Millstone Unit 3 has six Pressurizer Safety Valves available for use: three are installed safeties, and the other three are used as spares. Each refueling outage, it is the policy to replace the three installed safeties with the three available spares. The replaced valves are sent to Wyle Laboratories for inservice testing (per ASME Section XI), refurbishment, and retesting to confirm that each safety lifts within one percent of 2500 psia. The successfully retested valves are then returned to Millstone Unit 3 for installation during the following refueling outage. The subject valves in this report are two of the three safeties that were removed during the last outage (which lasted from May 17, 1989 to July 9, 1989).

II. Cause of Event

The root cause for S/N 102 lifting higher than the allowed one percent tolerance is unknown. After the initial lift, valve S/N 102 lifted at pressures of 2507 psia, 2511 psia, and 2509 psia. This indicates that the safety not only met the required one percent tolerance, but it also exhibited a consistency that is indicative of a good safety valve.

The root cause for S/N 59 lifting higher than the allowed one percent tolerance is believed to be an improperly machined disc insert. An inspection revealed that a surface on the disc insert which mates to the disc holder was not flat. This allowed the disc to rock and possibly reseal in a different location after each lift. The different locations can affect spring tension and in turn the lift pressure.

III. Analysis of Event

This event is reportable in accordance with the requirements of 10CFR50.73(a)(2)(i). Plant Technical Specification 3.4.2.2 requires all Pressurizer Safety Valves to be operable with a lift setting of 2500 psia \pm 1 percent during Modes 1, 2, and 3. The lift setting pressure corresponds to ambient conditions of the valve at normal operating temperature and pressure.

The fact that safety S/N 102 lifted initially at 1.4 percent above its nominal setpoint is not significant, especially since it lifted within the one percent tolerance three times immediately after the initial test. It is not unusual for a safety valve to initially lift somewhat outside the nominal setpoint tolerance, especially if the valve has not lifted for a long period of time. In this case, S/N 102 was refurbished and then verified to lift within one percent of 2500 psia in March, 1987. This represents a 2.5-year period during which, the safety valve was never challenged.

**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.

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

III. Analysis of Event (Cont'd)

Like valve S/N 102, valve S/N 59 had not been exercised in over three years. The initial lift pressure for S/N 59 was also higher than the nominal pressure of 2500 psia. However, it was higher than S/N 102 at 2.1 percent above its nominal setpoint. Also, the subsequent lift pressures were not consistent, and two of the three remaining tests had lift pressures outside the one percent tolerance (one at 1.2 percent and the other at 1.7 percent above 2500 psia). The one test that did meet the tolerance lifted at a pressure of 2512 psia. While these values are not substantially above the nominal pressure of 2500 psia, the relatively wide differences in lift pressures that occurred in the three tests following the initial lift indicate there is a mechanical problem. For example, the last three lift pressures for valve S/N 102 differed by 4 psi, while those for S/N 59 differed by 30 psi.

This event posed no significant threat to plant safety during normal or accident conditions. Pressurizer code safety valves are sized to prevent the Reactor Coolant System from being pressurized above its safety limit of 2750 psia. Specifically, the combined relief capacity of all valves is greater than the maximum surge rate resulting from a 100 percent load rejection, assuming no reactor trip until the first Reactor Trip System trip setpoint is reached. The plots and data tables delineated in the Final Safety Analysis Report (FSAR) and supporting safety documents were reviewed to determine the maximum pressure which would occur. The maximum pressure was found to be 2613 psia. An increase in a safety valve setpoint from 2525 psia (nominal value plus one percent) to 2553 psia (highest lift pressure identified during Wyle Laboratory's testing) is conservatively assumed to raise the peak pressure by the difference in lift pressures. Therefore, the peak transient pressure would be 2641 psia (2613 psia plus 28 psi). This is well below 2750 psia, the faulted limit of 110% design pressure. Thus, there is no safety impact on the FSAR results or conclusions.

IV. Corrective Action

The disc insert for Pressurizer Safety S/N 59 was replaced with one specifically inspected to assure there was a flat, polished mating surface for the disc holder. Also, parts considered critical to the proper operation of safety S/N 59 were thoroughly inspected for proper fit and function.

V. Additional Information

Pressurizer safety valves are Crosby Model Number HB-BP-86 6M6 safety valves. A search of the NPRDS indicates the problem of setpoint drift is a common problem in the industry. Information from this search indicates the setpoints may drift high or low. No specific failure mechanism was identified in any of the reports. Millstone 3's original safety valves, which were removed from the system in November, 1985, and tested at Crosby in June, 1986, also failed their set pressure test. Whether these valves failed high or low cannot be determined from the vendor test records. Since these valves were removed from the pressurizer prior to issuance of the facility Operating License, their failure was not reportable.

LERs 87-036 and 89-010, "Setpoint Drift on Main Steam Safety Valves Due to Unknown Causes", discuss drift problems associated with Main Steam Safety Valves. No failure mechanism was identified for the drift. The corrective action for both events was to reset the subject valves and test or replace the other Main Steam Safeties on the established frequency.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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

V. Additional Information (Cont'd)

LER 87-009-02 describes previous setpoint drift problems with three Pressurizer Safety Valves during bench testing at Wyle Laboratories. The reasons for the drift were undetermined. The valves were reset to their pressure setpoint, and reworked such that no leakage was experienced when leak tested with air. The LER also provides information about the valves including a chronology which covers events from November, 1985 through February, 1988. The following is a chronological update from February, 1988 to the present.

- 2/88 Valve S/N 101 lifts during plant heat-up. This valve was replaced by valve S/N 59. Valves 60, 61, and 101 were sent to Wyle for testing/refurbishment. Valve S/N 61 was found to be lifting outside its acceptance criteria. Valves S/N 60 and S/N 101 were found to be lifting within acceptable limit.
- 3/88 Valves S/N 60, 61, and 101 were received back from Wyle.
- 4/88 Noted that valve S/N 103 was leaking. During a Unit shutdown, S/N 103 was replaced with S/N 101. S/N 103 was sent to Wyle.
- 9/88 LER 87-009-02, update report submitted.
- 12/88 Received valve S/N 103 back from Wyle.
- 5/88 During refueling, valve S/N 59, 101, and 102 were replaced with S/N 60, 61, and 103.
to During startup, it was noted that S/N 103 was leaking a minor amount. S/N 101 was
7/89 shipped immediately to Wyle for refurbishment and resetting in case replacement of S/N 103 was required.
- 9/89 Valves S/N 59 and 102 were sent to Wyle.
- 10/89 Valves S/N 59 and 102 reported to be lifting higher than the allowed tolerance. Received valves S/N 101 and 102 back from Wyle retested and certified.

EIIS CODES

<u>System</u>	<u>Components</u>
Reactor Coolant System - AB	Relief Valve - RV Pressurizer - PZR