

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

May 26, 1993
MP-93-428

Re: 10CFR50.73

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 93-003

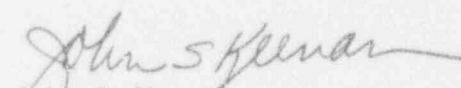
Gentlemen:

This letter forwards Licensee Event Report 93-003 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(i)(B).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: Stephen E. Scace
Vice President - Millstone Station

BY: 
John S. Keenan
Millstone Unit 2 Director

SES/LG:bjc

Attachment: LER 93-003-00

cc: T. T. Martin, Region I Administrator
P. D. Swetland, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3
J. W. Andersen, NRC Acting Project Manager, Millstone Unit No. 1

02-105

9306030268 930526
PDR ADDCK 05000245
S PDR

IF22
11

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 (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) **050002451** PAGE (3) **1 OF 06**

TITLE (4) **LLRT Failure**

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			
04	26	93	93	003	00	05	26	93	05000000			
									05000000			

OPERATING MODE (9) **N** THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

POWER LEVEL (10) 100	20.402(b)	20.402(c)	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)	<input checked="" type="checkbox"/> 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 **Lou Georgian Ext. 5198** TELEPHONE NUMBER **203 447-1791**

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
X	V B	I S V	D 1 4 7	Y					
X	V B	I S V	A 1 8 0	Y					

SUPPLEMENTAL REPORT EXPECTED (14) YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15) MONTH **05** DAY **01** YEAR **93**

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

On April 26, 1993, at 1415 hours with the plant at 100% power, it was identified during the performance of a Local Leak Rate Test (LLRT) on primary containment penetration X-25/202D (Atmospheric Control system valves 1-AC-7 through 1-AC-12) that this penetration exceeded the maximum allowable leakage rate for a single penetration as specified by Technical Specification 4.7.A.3.e.

This LLRT was performed as part of the Northeast Nuclear Energy Company, Millstone Unit One, Corrective Action Plan (CAP) submitted to the NRC by letter dated November 4, 1992. This also fulfills a Northeast Nuclear Energy Company, Millstone Unit One commitment to a 10CFR50, Appendix J exemption granted by the Nuclear Regulatory Commission.

The valves responsible for this penetration failing to meet the local leak rate test requirements were repaired and satisfactorily retested.

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 3	LER NUMBER (6)			PAGE (3) 0 2 OF 0 6
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		9 3	0 0 3	0 0	

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

I. Description of Event

On April 26, 1993 at 1415 hours with the plant at 100% power, a Local Leak Rate Test (LLRT) was performed on penetration X-25/202D (valves 1-AC-7 through 1-AC-12). This LLRT was performed as part of the Millstone Unit One Corrective Action Plan (CAP) submitted to the NRC by letter dated November 4, 1992. During the performance of this test, it was identified that penetration X-25/202D did not meet the leakage requirements for a single penetration as specified by the plant Technical Specification 4.7.A.3.e. Technical Specifications require that no single penetration, except main steam isolation valves, exceed a leakage rate of .05 Lto (18.8 SCFH) at accident pressure (43 psig). A log entry for Limiting Condition for Operation (LCO) 3.7.A.3 was made and the plant was placed in cold shutdown within twenty-four hours.

The following is a listing of valves and the "as found" and "as left" leakage rate for penetration X-25/202D, which failed to pass the LLRT.

	As Found	As Left
A. Atmospheric Control Valves (Penetration X-25/202D)		
1-AC-7, 1-AC-8, 1-AC-9 1-AC-10, 1-AC-11, 1-AC-12	181.74 SCFH	5.645 SCFH

II. Cause of Event

Atmospheric Control Valves
 1-AC-11 Slightly worn seat ring
 1-AC-12 Plug in valve not fully seated due to packing friction on valve stem.

III. Analysis of Event

This event is reportable pursuant to 10CFR50.73.(a)(2)(i)(A) and 10CFR50.73(a)(2)(i)(B).

Penetration X-25/202D consists of three 18" inch butterfly valves, one 10" inch butterfly valve and two 2" eccentric plug valves. Due to the configuration of this penetration, all six valves are tested concurrently. Valves 1-AC-8 and 1-AC-10 are common to both penetration X-25 (Drywell) and X-202D (Torus) and are the second containment isolation valves for both penetrations (See attached sketch). The leakage rate recorded for this penetration at accident pressure was 181.74 SCFH. During testing of this penetration, drywell pressure and torus to drywell differential pressure were being monitored. A change in drywell pressure or torus/drywell differential pressure would be indicative of any in-leakage through the inboard containment isolation valves to either the drywell through valves 1-AC-7 and 1-AC-9 (Penetration X-25) or to the torus through valves 1-AC-11 and 1-AC-12 (Penetration X-202D). As indicated by the decrease in torus to drywell differential pressure, the leakage for penetration X-25/202D was back to the torus through valves 1-AC-11 and/or 1-AC-12. A log entry for Limiting Condition for Operation (LCO) was made and the plant was placed in cold shutdown within twenty-four (24) hours.

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 3 -	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0 0 3 -	0 0 0	0 3 OF	0 6	

TEXT (if more space is required, use additional NRC Form 368A s) (17)

With the penetration still pressurized, Atmospheric Control System butterfly valves 1-AC-7, 1-AC-8 and 1-AC-10 were adjusted in both directions (open/close) to determine if these valves might have shifted from their previously set full closed position. Following this evolution, the valves were adjusted back to their original position. During these adjustments, the penetration was being monitored for any increase/decrease in leakage rate. Since the adjustments to the valves did not improve the leakage rate, it became apparent that the valves were performing their containment isolation function. Since there is no physical adjustment for valve full closure on the DeZurik eccentric plug valves, the plug for valve 1-AC-12 was manually assisted into its seat. The only change in leakage rate was observed when valve 1-AC-12 was assisted to its "close" position. The observed decrease in leakage rate for this penetration was approximately 108 SCFH which further re-enforced the conclusion that the leakage was back to the torus through valves 1-AC-11 and 1-AC-12. When the plant was shut down, valves 1-AC-11 and 1-AC-12 were removed and blank flanges installed in their place. The penetration was again pressurized to accident pressure and the observed leakage rate was approximately 2.5 SCFH. This provided reasonable assurance that even though the two torus isolation valves exceeded the technical specification limits for a single penetration, the two outboard containment isolation valves 1-AC-8 and 1-AC-10 would have performed the containment isolation function for penetration X-25/202D. In addition, valves 1-AC-7 and 1-AC-9 would have also performed their containment isolation function for drywell penetration X-25.

10CFR50 Appendix J sets limits for allowable leakages of 0.6La for type B and C testing and a limit of 0.75La for the type A test. For Millstone Unit One, La is 1.2 Wt. %/Day which equates to 500.5 SCFH. The plant limit for type B and C testing is 300.3 SCFH (0.6La). The type B and C "as left" leakage following the 1991 refueling outage was 137.68 SCFH. Adding the increased leakage for penetration X-25/202D to the 1991 "as left" total for type B and C testing results in a total leakage rate of 309.8 SCFH. This exceeds the maximum allowable leakage rate for the type B and C testing by 9.5 SCFH.

However, using the minimum path method as allowed by IEN 85-71 for reporting the "as found" type A leakage rate and assuming that the actual penetration leakage was 2.5 SCFH, the reported 1991 type A "as left" leakage rate for containment of .408 Wt. %/Day would remain essentially unchanged and an "as found" ILRT would have passed. Thus, although the penetration did not pass the individual penetration leakage requirement, the safety significance of this event is considered minimal since the overall containment integrity had been maintained.

IV. Corrective Action

Although valve 1-AC-11, (18" butterfly valve) was considered to have contributed only slightly to the observed leakage rate, the slightly worn seat ring was replaced and the carbon steel disc seating surface was polished.

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-530), U. S. Nuclear Regulatory Commission, Washington, DC 20565, 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 3	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			0 0 3	0 0	0 4	OF 0 6

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

Valve 1-AC-12 is a two inch eccentric plug valve which operates on air to open and spring return on loss of air to close. The design of this valve utilizes a rack and pinion arrangement for rotating the soft seat plug into the steel seat in the valve body. The packing on the plug shaft is preloaded by adjusting a valve packing nut on the plug shaft which compresses the valve packing spring to obtain the proper preload on the packing to effect a leak tight fit. Over time, a slight increase in valve friction coupled with a high preload on the valve stem packing which was a result of an improper factory adjustment, the higher force required to completely rotate the plug into the seat was slightly above the preload of the return spring and resulted in the valve not attaining its full closure position. The valve packing nut was adjusted to the proper preload setting and the valve was retested several times to ensure the full closure would be obtained consistently. This valve was leak tested on the bench at accident pressure in both directions to ensure that both the valve packing was air tight as well as the plug being fully seated. The valve leakage prior to installing this valve back into the system was 0.65 SCFH. Since the two plug valves in this penetration were installed new during the 1991 refueling outage, the other valve (1-AC-9) was also checked visually to ensure that the valve stem packing was properly adjusted. The valve packing for valve 1-AC-9 was found to be properly adjusted by the factory. Additionally, the In Service Test (IST) records for valve stroke time on valves 1-AC-9 and 1-AC-12 were reviewed which indicated that valve 1-AC-12 was originally stroking approximately 0.5 seconds slower than valve 1-AC-9. This can be attributed to the higher packing preload on valve 1-AC-12. Following adjustment of the packing preload on valve 1-AC-12, both valves are stroking at approximately 1.5 seconds.

The maintenance procedure for these valves was reviewed and found that this adjustment is properly addressed for any future maintenance activities. All valves in the Atmospheric Control System are stroked quarterly and the times recorded are monitored as part of the In Service Test (IST) program. Both plug valves (1-AC-9, 1-AC-12) were marked to indicate the valve full close position. This will be visually checked for the remainder of this fuel cycle following each quarterly IST valves test to confirm the valves full close position.

Subsequent LLRT of Penetration X-25/202D yielded a total valve leakage rate of 5.645 SCFH. This demonstrated that the corrective action taken for valves 1-AC-11 and 1-AC-12 was effective.

In addition, the Technical Specification requirement for individual penetration leakage of .05 Lto will be reviewed to determine if a more reasonable requirement for penetration leakage is appropriate, consistent with maintaining overall containment integrity.

V. Additional Information

As reported in LER 91-009-01, several modifications were made during the 1991 refueling outage to the Atmospheric Control System butterfly valves to address the problem of repeatability of valve closure position. The only butterfly valve that required a final adjustment for full closure positioning was 1-AC-11. This adjustment was performed following the replacement of the valve seat ring. During testing of this penetration, all valves were cycled several times with consistent leakage rates being observed. The consistent leakage rate for the remaining valves in Penetration X-25/202D demonstrated that the modifications made during the 1991 refuel outage have achieved their intended design function of ensuring the integrity of this penetration.

As part of the changes made to this penetration during the 1991 refueling outage, the two 2" DeZurik plug valves were replaced. Thus, this particular failure mode for the DeZurik plug valve was a first time occurrence, it is considered an isolated case. Because of the above, no augmented testing is considered necessary, however, penetration X-25/202D will be tested again during the scheduled 1994 refueling outage. Testing at that time represents approximately 50% of the normal interval allowed by Technical Specification and 10CFR50 Appendix J.

To further improve the reliability of this penetration, stainless steel vanes for the remaining butterfly valves in the Atmospheric Control System will be installed during the next scheduled refueling outage. This will complete all the planned modifications as part of the Corrective Action Plan to ensure that this penetration will achieve the reliability required for containment isolation.

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	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 3	0 0 3	0 0	0 5	OF 0 6

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

The requirement by plant technical specifications for individual penetration leakage of .05 Lto will be reviewed with respect to the overall leakage rate of 0.6La for type B and C testing required by both plant technical specifications and 10CFR50 Appendix J.

Previous Similar Events

- LER 91-009
- LER 89-008
- LER 87-015
- LER 85-023
- LER 82-23/3L
- LER 80-14/1D
- LER 80-14/1T

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)

DOCKET NUMBER (2)

LER NUMBER (5)

PAGE (3)

Millstone Nuclear Power Station
Unit 1

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
93	003	00

0 5 0 0 0 2 4 5 9 3 - 0 0 3 - 0 0 0 6 OF 0 6

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

