



Northeast
Nuclear Energy

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Millstone Nuclear Power Station
Northeast Nuclear Energy Company
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The Northeast Utilities System

Donald B. Miller Jr.,
Senior Vice President - Millstone

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

November 22, 1994

MP-94-644

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

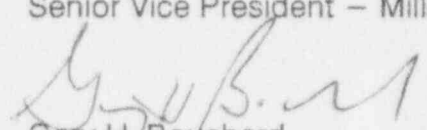
Reference: Facility Operating License No. DPR-65
Docket No. 50-336
Licensee Event Report 94-032-00

This letter forwards Licensee Event Report 94-032-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(v).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: Donald B. Miller, Jr.
Senior Vice President - Millstone Station

BY: 
Gary H. Bouchard
Millstone Unit 2 Director

DBM/PHB:ljs

Attachment: LER 94-032-00

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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EXPIRES: 5/31/95

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION
COLLECTION REQUEST 50.0 HRS. FORWARD COMMENTS REGARDING
BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT
BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION,
WASHINGTON, DC 20555-0001, 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) 05000336 PAGE (3) 1 OF 03

TITLE (4) Post Incident Recirculation Fan Flow Below Design

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 NAME	DOCKET NUMBER
10	28	94	94	032	00	11	22	94	FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	6	THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)			
POWER LEVEL (10)	0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(iv)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(k)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Philip J. Lutz, Nuclear Licensing TELEPHONE NUMBER (include Area Code) (203) 440-2072

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
	BB	FAN	J127	Y						

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) X NO EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On October 28, 1994, at 0945 hours, with the plant in Mode 6 at 0% power, it was determined that neither Facility 1 nor 2 Post Incident Recirculation (PIR) fans met the required air flow rate per the design basis of Millstone Unit 2.

The root cause is unknown but is probably related to age, changes in test methodology or testing equipment accuracies. The first air flow test was performed in October 1974 and the second test performed in October 1994.

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 INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001 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) 05000336	LER NUMBER (6)			PAGE (3) 02 OF 03
		YEAR 94	SEQUENTIAL NUMBER 032	REVISION NUMBER 00	

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

I. Description of Event

On October 28, 1994, at 0945 hours, with the plant in Mode 6 at 0% power, it was determined through system performance testing that neither Facility 1 nor 2 Post Incident Recirculation (PIR) fans met the required air flow rate per the design basis of Millstone Unit 2.

The design basis of the PIR fans is to reduce the local concentration buildup of hydrogen in the containment dome region following a Loss of Coolant Accident (LOCA) by recirculation and mixing. The PIR fans accomplish this by delivering one (1) air change per hour from the upper 20% of the containment volume to the -3' level of the containment building. A Bechtel Calculation for Millstone Unit 2 identified that the air flow requirements should be 6,430 CFM. Additional margin was built into the fan capacity by installing fans capable of delivering 7000 CFM.

Following the shutdown of Millstone Unit 2 for refueling, testing of the Post Incident Recirculation fans commenced. The air flow was identified to be less than that required by design.

The airflow for the PIR fans was tested at the following flow rates.

	Calc CFM	1974 CFM	1994 CFM	Difference (1974-1994)	% degradation over 20 years
Facility 1	6430	6918	5833	1085	16
Facility 2	6430	7549	6351	1198	16

Instead of recirculating the upper 20% of containment volume once per hour, the flows that were identified during October 1994 would recirculate the air at a rate of once per 66 minutes (Facility 1) and once per 61 minutes (Facility 2).

Following the event discovery on October 28, 1994, the PIR ventilation system was immediately declared inoperable. Since the plant was in mode 6 when the ventilation systems were tested and declared inoperable and since the PIR system is not required in Mode 5 or 6, no additional immediate actions were required.

There were no automatic or manually initiated safety systems actuated as a result of the event.

II. Cause of Event

The root cause of this event is unknown, but is probably related to age, changes in test methodology or testing equipment accuracies. The original test performed in 1974 identified acceptable flow rates for the fans. In 1994 (20 years later) airflow was identified to be below design. Air flow tests conducted on a regular basis may have been able to identify the degradation and corrective action could have been taken. However, there were no requirements to measure flow rates for each fan. As required by the system engineering program, the engineer is in the process of establishing a testing program to monitor system performance for ventilation systems on Millstone Unit 2.

EXPIRES: 5/31/95

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

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WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)						
Millstone Nuclear Power Station Unit 2	05000336	<table border="1"><tr><th data-bbox="999 355 1073 388">YEAR</th><th data-bbox="1073 355 1239 388">SEQUENTIAL NUMBER</th><th data-bbox="1239 355 1346 388">REVISION NUMBER</th></tr><tr><td data-bbox="999 388 1073 457">94</td><td data-bbox="1073 388 1239 457">-- 032 --</td><td data-bbox="1239 388 1346 457">00</td></tr></table>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	94	-- 032 --	00	03 OF 03
YEAR	SEQUENTIAL NUMBER	REVISION NUMBER							
94	-- 032 --	00							

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

III. Analysis of Event

This event was originally reported under the criteria of 10CFR50.72(a)(2)(ii), any event found while the reactor is shutdown, that, had it been found while the reactor was in operation, would have resulted in the nuclear power plant, including its principal safety barriers, being seriously degraded or being in an unanalyzed condition that significantly compromises plant safety. After subsequent evaluation, the event is considered reportable under the criteria of 10CFR50.73(a)(2)(v)(D), any event or condition that alone could have prevented the fulfillment of the safety function of structures or system are needed to: (D) Mitigate the consequences of an accident.

In 1970 the calculated air flow for the Post Incident Recirculation fans was 6430 CFM based on a containment free air volume of 1.93×10^6 cubic feet. In 1975 containment free air volume was recalculated to be 1.899×10^6 cubic feet. Based upon the 1975 value the required flow rate to recirculate 20% of the containment volume is reduced to 6330 CFM. Utilizing the revised containment volume in conjunction with the recent tests, Facility 1 will recirculate the required 20% in 65 minutes and Facility 2 will recirculate the required 20% in 60 minutes. This evaluation identifies that the Facility 2 Post Incident Recirculation fan is capable of performing its intended design function. However, the Facility 1 fan does not meet design requirements. Therefore, only 1 facility of Post Incident Recirculation is considered inoperable as opposed to both as originally determined. The safety consequences were determined to be negligible. The Facility 1 fan could still operate to recirculate containment atmosphere even though it would take an additional 5 minutes to perform its design function. The FSAR failure mode table identifies that with one PIR fan inoperable the redundant fan on the opposite facility will accomplish the design function.

IV. Corrective Action

Following the event discovery on October 28, 1994, immediate action was to declare the ventilation systems inoperable. Since the plant was in mode 6 when the ventilation systems were tested and declared inoperable and since the PIR system is not required in Mode 5 or 6, no additional immediate actions were required.

Work was scheduled to adjust fan blades as necessary to achieve the required air flow rate. These corrective actions have been completed and Facility 1 and Facility 2 are operating at 7052 CFM and 7130 CFM respectively.

Ventilation testing for Millstone Unit 2 will continue during next refuel. Based upon the results of the testing performed, testing frequencies will be established. Ventilation system failures have been identified and there is an ongoing commitment by Unit 2 System Engineerings to ensure that all of the vital ventilation systems are tested.

V. Additional Information

Joy Fan; Model #24-17½-3450

Similar LERs

None

EIIS Codes

PIR Fan: BB-FAN-J127