

Northeast
Nuclear Energy

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The Northeast Utilities System

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

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

August 10, 1995
MP-95-250

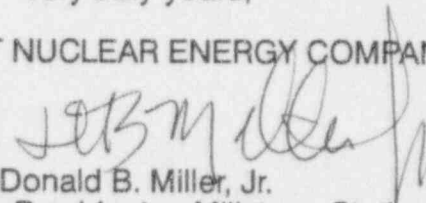
U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Reference: Facility Operating License No. NPF-49
Docket No. 50-423
Licensee Event Report 95-014-00

This letter forwards Licensee Event Report 95-014-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(i)(B), a condition prohibited by the Technical Specification.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY


Donald B. Miller, Jr.

Senior Vice President - Millstone Station

DBM/rlm:dlr

Attachment: LER 95-014-00

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

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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 3

DOCKET NUMBER (2)

05000423

PAGE (3)

1 OF 4

TITLE (4)

Turbine Driven Auxiliary Feedwater Pump Surveillance 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 NAME	DOCKET NUMBER
05	13	95	95	014	00	08	10	95	FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000
OPERATING MODE (9)		1		THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)						
POWER LEVEL (10)		100		20.402(b)		20.405(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)(vi)		OTHER
				20.405(a)(1)(iii)		X 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)(ix)		

LICENSEE CONTACT FOR THIS LER (12)

NAME

Robert L. McGuinness, Senior Engineer

TELEPHONE NUMBER (Include Area Code)

(203) 447-1791 Ext. 6855

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

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 July 13, 1995, with the plant in Mode 1 at 100% power, while performing a surveillance test on the turbine driven auxiliary feedwater pump (TDAFW), the pump did not start within one minute as required by the Technical Specifications. The pump started in approximately three and a half minutes. The cause of the surveillance failure was attributed to the governor valve position. A contributing factor was the presence of water in the steam admission lines. The condition made the TDAFW pump inoperable for a period of time that exceeded the Technical Specification Action Statement.

The investigation following the event determined that the TDAFW governor valve must be in an open position at a rack setting of five or greater for the turbine to be considered operable. The previous experience was that the turbine would start within the required time regardless of the governor valve initial position. This was based on information from the vendor which assumed there was little or no water in the steam admission lines. The investigation also determined that a contributing factor was water in the steam admission lines upstream of the steam admission valves.

The corrective action and action to prevent recurrence was to revise procedures to require the governor valve to be in an open position at a rack setting of five or greater. Design improvements were previously made, and other procedure changes were recently made to minimize the potential for condensate accumulation in the steam admission lines. Also the frequency of the TDAFW surveillance testing was increased to provide additional assurance of operability.

The event had moderate safety significance because the other two motor-driven auxiliary feedwater pumps remained operable in accordance with Technical Specifications. A loss of offsite power would result in the motor-driven AFW pumps being powered from emergency electrical buses. With a loss of all AC power (station blackout) the TDAFW pump would have functioned with a delayed start to mitigate any accident requiring this pump.

EXPIRES: 5/31/95

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 (INBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0114), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Millstone Nuclear Power Station Unit 3	05000423	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	02 OF 04
		95	— 014 —	00	

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

I. Description of Event

On July 13, 1995, with the plant in Mode 1 at 100% power, while performing a surveillance test on the turbine driven auxiliary feedwater pump (TDAFW), the pump did not start within one minute as required by the Technical Specifications. The pump required approximately three and a half minutes to start. At the time of the surveillance both of the motor driven auxiliary feedwater pumps were operable. An investigation following the event determined that the cause of the surveillance failure was an incorrect governor valve position, and a contributing factor was water in the steam admission lines.

The governor valve position is indicated by the relative position of the governor rack setting. The rack is marked from 0 to 10. At the start of the failed surveillance, the governor valve was in a closed position at a rack setting between 0 and 1. Following the failed surveillance it was determined through diagnostic testing and evaluation, that the governor valve must be in an open position at a rack setting of five or greater for the turbine to be considered operable.

When the turbine is shutdown, the governor valve goes to its full closed position. As part of the restoration, the surveillance procedure then requires the trip valve to be opened, which releases any trapped steam through the governor valve. This reopens the governor valve. The governor valve is thus left in an open position following the surveillance.

Prior to the failed surveillance, the last operation of the TDAFW pump was on June 2, 1995. It was observed that the governor rack setting was between 0 and 1 approximately one week prior to the failed surveillance of July 13, 1995. When the turbine was shutdown and when the rack setting was observed, it was considered to be an acceptable condition for the governor valve to be closed.

The information provided by the turbine vendor and our diagnostic tests showed that the turbine will start regardless of the governor valve initial position (although water affects the start time). Once the turbine begins to roll, the governor will automatically reposition the governor valve, regardless of its initial position, and the turbine starts as designed. However, our investigation determined that the presence of water in the steam admission lines will delay the start of the turbine until the water clears the governor valve. This delay can prevent the pump from meeting the one minute start time that is required by the Technical Specifications.

It was noted during the start test on July 13, 1995 that the amount of condensate exiting the turbine discharge was greater than normal. The investigation of this determined that a contributing factor to the delayed start was water in the steam admission lines, potentially upstream of the steam admission valves.

The condition made the TDAFW pump inoperable for a period of time that exceeded the Technical Specification Action Statement. Accordingly, the event is reported under 10CFR50.73(a)(2)(i)(B), as a condition prohibited by the Technical Specifications.

A review of the previous surveillance tests showed that the governor rack setting at the start of the prior tests was greater than five. Therefore, the previous surveillances were conducted with the governor valve positioned at a mid-open position. In those cases the turbine was tested successfully.

II. Cause of Event

The cause of the surveillance failure was attributed to the governor valve position. A contributing factor was water in the steam admission lines. The investigation following the event determined that the TDAFW governor valve must be in an open position at a rack setting of five or greater for the turbine to be considered operable. This position ensures that the potential water in the lines does not cause an excessive start time. The previous experience was that the turbine would start within the required time regardless of the governor valve initial position. This was based on information from the vendor which assumed there was little or no water in the steam admission lines.

EXPIRES: 5/31/95

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)
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Millstone Nuclear Power Station	05000423	95 -- 014 -- 00	03 OF 04
Unit 3			

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

The information provided by the turbine vendor and our diagnostic tests showed that the turbine will start regardless of the governor valve initial position (although the start time is affected by water). Once the turbine begins to roll, the governor will automatically reposition the governor valve, regardless of its initial position, and the turbine starts as designed. However, our investigation determined that the presence of water in the steam admission lines will delay the start of the turbine until the water clears the governor valve. This delay can prevent the pump from meeting the one minute start time that is required by the Technical Specifications.

It was noted during the start test that the amount of condensate exiting the turbine discharge was greater than normal. The investigation of this determined that a contributing factor to the delayed start was water in the steam admission lines potentially upstream of the steam admission valves.

The plant had experienced some problems in previous years with water accumulation in the lines between the admission valves and the governor valve. During the spring 1995 refueling outage, improvements were made to prevent these problems. Maintenance was done on the steam admission valves to improve their leak tightness, and a continuous drain system was installed on these lines to remove any condensate accumulation downstream of the admission valves. These improvements have been effective. However, they were not applicable to the lines upstream of the admission valves. The increased leak tightness of the admission valves may have reduced the potential for condensate downstream of the valves, and increased the potential for condensate upstream of the valves. The condensation in either location is a contributing factor to the root cause, which is the governor valve position causing a delayed start.

III. Analysis of Event

The event is reportable under 10CFR50.73(a)(2)(i)(B), as a condition prohibited by the Technical Specifications. The Technical Specifications require verification that each AFW pump starts as designed automatically upon receipt of an AFW actuation signal on an 18-month surveillance frequency. The surveillance program includes a quarterly cold start test which is much more frequent than the 18-month Technical Specification requirement. On July 13, 1995, the TDAFW pump did not start within one minute, as required by Technical Specifications, but did start in three and a half minutes.

The event had moderate safety significance because the other two motor-driven auxiliary feedwater pumps remained operable in accordance with Technical Specifications. The operability of the Auxiliary Feedwater System ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating or accident conditions coincident with a total loss-of-offsite power. A loss of offsite power would result in the motor-driven AFW pumps being powered from emergency electrical buses. With a loss of all AC power (station blackout) the TDAFW pump would have functioned with a delayed start to mitigate any accident requiring this pump.

IV. Corrective Action

The corrective action and action to prevent recurrence was to revise procedures to require the governor valve to be in an open position at a rack setting of five or greater. To minimize the potential for condensate accumulation downstream of the admission valves, improvements were already made in the spring 1995 refueling outage. To minimize the potential for condensate accumulation upstream of the admission valves, a procedure for frequent blowdown of the lines was implemented. A design review of the steam traps concluded they were adequately designed. In addition, an accelerated surveillance schedule for turbine start testing was implemented to provide increased confidence in the operability of the pump. Successful tests will permit the test frequency to be gradually returned to the normal quarterly frequency.

EXPIRES: 5/31/95

LICENSEE EVENT REPORT (LER)
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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)
		YEAR SEQUENTIAL NUMBER REVISION NUMBER	
Millstone Nuclear Power Station Unit 3	05000423	95 — 014 — 00	04 OF 04

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)**V. Additional Information**

Licensee Event Report 94-014-00 reported the "Terry Turbine Auxiliary Feedwater Pump Surveillance Failure Due to Trip Linkage Problems." That LER described problems with incorrect trip valve linkage adjustments, which resulted in the turbine failure to start. The cause and corrective action of that LER are not related to the current reported event.

Licensee Event Report 94-011-00 reported the "Manual Reactor Trip Due to Main Steam Isolation Valve Failure During Part-Stroke Test." During the reactor trip the TDAFW pump automatically started as designed, but tripped on overspeed after eight seconds due to a control valve/governor linkage problem. That LER described problems with incorrect trip valve linkage adjustments, which resulted in the turbine failure to start. The cause of the overspeed and corrective action reported in that LER are not related to the current reported event.

ELIS CodesSystem

Auxiliary Feedwater System - BA

Components

Pump - P