



**Northeast
Nuclear Energy**

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Millstone Nuclear Power Station
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The Northeast Utilities System

FEB 17 2000

Docket No. 50-423
B18004

Re: 10 CFR 50.73(a)(2)(ii)

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Millstone Nuclear Power Station, Unit No. 3
Licensee Event Report 2000-001-00
Ultimate Heat Sink Below Minimum Design Temperature

This letter forwards Licensee Event Report (LER) 2000-001-00, documenting an event that occurred at Millstone Nuclear Power Station, Unit No. 3, on January 21, 2000. This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(ii).

Northeast Nuclear Energy Company's (NNECO) commitments made within this letter are included in Attachment 1.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: C. J. Schwarz
Station Director

BY:


D. S. McCracken
Assistant Station Director - Safety

Attachments: 1. List of Regulatory Commitments
2. LER 2000-001-00

cc: H. J. Miller, Region I Administrator
V. Nerses, NRC Senior Project Manager, Millstone Unit No. 3
A. C. Cerne, Senior Resident Inspector, Millstone Unit No. 3

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Attachment 1

Millstone Nuclear Power Station, Unit No. 3

List of Regulatory Commitments

February 2000

List of Regulatory Commitments

The following table identifies actions committed to by NNECO in this document.

Number	Commitment	Due
B18004-01	Obtain station approval and implement design changes to align the existing design basis lower limit for service water with the historically lower temperatures observed prior to the onset of next winter's sub-33 degree F water temperatures.	December 15, 2000

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Attachment 2

Millstone Nuclear Power Station, Unit No. 3

LER 2000-001-00

February 2000

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 3		DOCKET NUMBER (2) 05000423	PAGE (3) 1 OF 3
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TITLE (4)
Ultimate Heat Sink Below Minimum Design Temperature

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
01	21	2000	2000	-- 001	-- 00	02	17	2000	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)										
	20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)		50.73(a)(2)(viii)		
POWER LEVEL (10) 100	20.2203(a)(1)			20.2203(a)(3)(i)			X 50.73(a)(2)(ii)		50.73(a)(2)(x)		
	20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)		73.71		
20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)		OTHER			
20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A			
20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)					

LICENSEE CONTACT FOR THIS LER (12)										
NAME D. W. Dodson, Supervisor - MP3 Regulatory Compliance							TELEPHONE NUMBER (Include Area Code) (860) 447-1791, x2346			

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).				X NO						

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

On January 21, 2000, with the plant in Mode 1, the inlet temperature of the service water system (SWP), as determined by the circulating water inlet temperature, decreased below the 33 degree F design basis minimum and a prompt report was made pursuant to 10CFR50.72(b)(1)(ii)(B). The Ultimate Heat Sink (UHS) for the service water system is Niantic Bay, Long Island Sound. On multiple occasions subsequent to this event, as detailed in this report, the UHS again dropped below 33 degrees F. The SWP provides cooling water for plant safety-related systems during normal and accident conditions. Operability Determination MP3-004-00 provides justification for continued operation with SWP temperature below 33 degrees F and above 29 degrees F. Compensatory actions were put in place to run safety injection pump cooling system (CCI) at SWP temperatures below 33 degrees F to prevent potential freezing of stagnant freshwater CCI fluid in the shell side of the CCI heat exchanger, while cold SWP passes through the tube side. Throughout the event, safety systems and components remained operable and continued to function as designed.

The condition of potential operation outside design basis with SWP temperatures below 33 degrees F had previously been identified by the station Corrective Action Program in 1998. The cause of the event on January 21, 2000, was determined to be a failure to appreciate the operational significance of this condition and to assign adequate priority to its resolution prior to seasonal cold temperatures. The corrective action is to align the existing design basis SWP lower limit with the historically lower temperatures observed by December 15, 2000.

This condition is reportable pursuant to 10CFR50.73(a)(2)(ii)(B) as an event or condition that resulted in the nuclear plant being in a condition that was outside the design basis of the plant.

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TEXT CONTINUATION

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		2000	-- 001 --	00	

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

I. Description of Event

On January 21, 2000, with the plant in Mode 1, the inlet temperature of the service water system (SWP), as determined by the circulating water inlet temperature, decreased below the 33 degree F design basis minimum and a prompt report was made pursuant to 10CFR50.72(b)(1)(ii).

On January 17, 2000, the UHS temperature for the service water system was observed to be decreasing and approaching the design basis minimum temperature of 33 degrees F. The UHS for the service water system is Niantic Bay, Long Island Sound. The average temperature reached 34.5 degrees F before increasing with the incoming tide. An action plan was initiated and Operability Determination (OD), MP3-004-00, was drafted to justify continued operation with SWP temperature below 33 degrees F and above 29 degrees F in anticipation of continued cold temperatures. On January 21, 2000, the UHS dropped below 33 degrees F with subsequent occurrences on January 22, 23, 28 and 29.

An evaluation of the effects of cold SWP on stagnant freshwater loops resulted in implementation of compensatory measures for the safety injection pump cooling system (CCI). CCI provides cooling for the lube oil for the safety injection (SI) pumps which are in standby during normal plant operation. Stagnant freshwater CCI fluid has the potential for freezing in the shell side of the CCI heat exchanger while cold SWP passes through the tube side. The OD provides for operation of CCI at SWP temperatures below 33 degrees F.

Average circulating water inlet temperatures are not expected to drop below 29 degrees F and safety-related and supporting systems remain operable.

This condition is reportable pursuant to 10CFR50.73(a)(2)(ii)(B) as an event or condition that resulted in the nuclear plant being in a condition that was outside the design basis of the plant.

II. Cause of Event

Historically, there was a failure to translate the design basis into operating procedures. The condition of potential operation outside design basis with SWP temperatures below 33 degrees F had previously been identified by the station Corrective Action Program in 1998. At that time, it was recognized that there have been temperatures recorded below 33 degrees in the past. Corrective actions to modify the design basis to resolve this issue have not yet been implemented. The design basis for the inlet operating temperature range of the service water system does not fully bound the historically observed transient low temperature extremes. The cause of this event is attributed to a failure to appreciate the operational significance of the issue and to assign adequate priority to its resolution.

III. Analysis of Event

On January 17, 2000, Design Engineering identified that the UHS temperature may drop below the design basis minimum of 33 degrees F as described in the Final Safety Analysis Report, Section 9.2.1, and an action plan was initiated to analyze the effects of low SWP temperature on structures and components. There is no Technical Specification or Bases that addresses a minimum required SWP temperature.

The service water system piping, supports and equipment have been analyzed to meet ASME Code stress requirements at a minimum temperature of 33 degrees F. The theoretical freezing point of seawater is approximately 28.6 degrees F. Through an engineering evaluation, it has been determined that service water

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

temperatures as low as 29 degrees F will have no effect upon the operability of SWP piping supports, equipment nozzles, and equipment anchorage. Additionally, systems and components that are cooled by service water were evaluated for the impact of low SWP temperatures and it was determined that compensatory measures were needed only for the safety injection pump cooling system (CCI).

The CCI provides lube oil cooling for the safety injection (SI) pumps. The SI pumps are in standby during normal plant operation. Each SI pump's lube oil is cooled by a standby freshwater cooling system (CCI) which is in turn, cooled by service water. The determination was made that although the SI pump can be started and operated at low lube oil temperatures, the stagnant CCI water in the shell side of the CCI heat exchanger *could* approach freezing temperatures during standby operation. Therefore, a compensatory action was taken to start the CCI pumps to prevent this stagnant condition. Based on this action, continued availability of SI pumps has been assured.

There has been no loss of safety function as a result of this event. This event had negligible safety significance since there was no loss of operability or availability to safety or non-safety related systems or components.

IV. Corrective Action

As a result of this event, the following action will be performed:

1. By December 15, 2000, obtain station approval and implement design changes to align the existing design basis lower limit for service water with the historically lower temperatures observed prior to the onset of next winter's sub-33 degree F water temperatures.

V. Additional Information

Similar Events

None

Energy Industry Identification System (EIIS) codes are identified as follows:

Ultimate Heat Sink System - BS