

Northeast
Utilities System

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
(203) 665-5000

September 23, 1996

Docket No. 50-423
B15889

Re: 10CFR 50.73(a)(2)(v)(D)

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

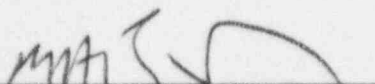
This letter forwards Licensee Event Report 96-028-00, documenting a condition that was determined at Millstone Unit No. 3 on August 22, 1996. This LER is submitted pursuant to 10CFR 50.73(a)(2)(v)(D).

The following are NNECO's commitments made within this letter:

B15889-01: Corrective action to resolve the potential for overcooling the charging pump lube oil system as the result of a failure of the component cooling water (CCE) temperature control valves when the service water temperature is 33°F will be identified and implemented prior to November 1, 1996. A supplemental report detailing the corrective action taken will be issued not later than November 15, 1996.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY


M. H. Brothers
Unit Director, Millstone Unit No. 3

Attachment: LER 96-028-00

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

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: 50.0 HRS. REPORTED LESSONS
LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED
BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN
ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-
6 P33), 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 3

TITLE (4)

Potential Overcooling of Charging Pump Lube Oil System Due to Failure of Air-Operated Temperature Control
Valves

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	16	96	96	028	00	09	23	96	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)							
POWER LEVEL (10)		000	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)	
			20.2203(a)(1)		20.2203(a)(3)(i)		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)		<input checked="" type="checkbox"/> 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

R. T. Laudenat, Nuclear Licensing Supervisor

TELEPHONE NUMBER (Include Area Code)

(860)444-5248

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)

<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input type="checkbox"/> NO	EXPECTED SUBMISSION	MONTH	DAY	YEAR
			11	15	96

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

On August 22, 1996, with the plant in Mode 5 at 0-percent power, an engineering evaluation identified a failure scenario in which a loss of instrument air to temperature control valves in the component cooling water (CCE) system serving the charging pump lube oil coolers, coincident with 33 degrees Fahrenheit (°F) Service Water (SW) temperature could potentially result in an overcooling of both trains of the charging pump lube oil system and challenge charging pump operability. On September 16, 1996 it was determined that this condition alone could have prevented the fulfillment of the safety function of the system. An immediate notification was made at 1151 hours on September 16, 1996, pursuant to 10CFR50.72(b)(2)(iii)(D).

The potential cause of charging pump inoperability is inadequate initial design. This condition would result from overcooling of the lube oil system following a failure of the non-QA instrument air system coincident with worst case minimum service water temperature and maximum flow and heat exchanger cleanliness. Under these conditions, the air-operated CCE valve(s) would fail open and excessive cooling of the lube oil system would occur. This particular combination of conditions was not considered in the initial design.

An engineering evaluation determined that the charging pump lube oil system was operable to a minimum SW temperature of 42°F. Based on historical temperature data for the Niantic Bay region, this condition will not be exceeded until after November 1, 1996. Therefore, this issue will be resolved prior to November 1, 1996 and a supplemental report detailing the corrective action taken will be issued.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		96	--	028	--	00

Millstone Nuclear Power Station Unit 3

05000423

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

I. Description of Event

On August 22, 1996, with the plant in Mode 5 at 0-percent power, an engineering evaluation identified a failure scenario in which a loss of instrument air to temperature control valves in the component cooling water (CCE) system serving the charging pump lube oil coolers, coincident with 33°F Service Water (SW) temperature could result in overcooling of both trains of the charging pump lube oil system and an challenge charging pump operability. Failure of the air-operated CCE valves to the full open position due to a loss of the non-safety related instrument air system would adversely affect both trains of the charging pumps by allowing excessive cooling of the CCE system which cools the lube oil system. On September 16, 1996 it was determined that this condition alone could have prevented the fulfillment of the safety function of the system. An immediate notification was made at 1151 hours on September 16, 1996, pursuant to 10CFR50.72(b)(2)(iii)(D) for a condition that alone could have prevented the fulfillment of the safety function of the system.

The minimum CCE inlet temperature to the charging pump oil cooler is specified as 55°F by the pump manufacturer to assure operability of the pump. Preliminary calculations indicate that the CCE inlet to the oil cooler could reach 46°F under worst case conditions.

This LER is submitted pursuant to 10CFR50.73.(a)(2)(ii)(B) for a condition that alone could have prevented the fulfillment of the safety function of the system.

II. Cause of Event

The potential cause of charging pump inoperability is inadequate original design. This condition would result from overcooling of the lube oil system from a failure of the non-safety related instrument air system coincident with worst case minimum service water temperature and maximum flow and heat exchanger cleanliness. Under these conditions, the air-operated CCE valves would fail open and excessive cooling of the lube oil system would occur. This particular combination of conditions was not considered in the initial design.

III. Analysis of Event

A review of the system indicates that the CCE temperature could be reduced to approximately 46°F when service water flow is at its maximum value, SW temperature at 33°F and heat transfer surfaces are clean. The minimum component cooling water CCE inlet temperature to the oil cooler to assure operability of the pump is specified as 55°F by the pump manufacturer. Therefore, acceptable minimum operating temperatures for charging pump operability may not be maintained under winter conditions based on the current cooling system's design. This potentially could prevent the fulfillment of the safety function of the system.

IV. Corrective Action

An engineering evaluation determined that the charging pump lube oil system was operable to a minimum service water temperature of 42°F. Based on historical temperature data for the Niantic Bay region, this condition will not be exceeded before November 1, 1996. Corrective action to resolve this condition will be identified and implemented prior to November 1, 1996. A supplemental report detailing the corrective action taken will be issued not later than November 15, 1996.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		96	--	028	-- 00	

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05000423

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

V. Additional Information

No additional information available.

Similar Events

- LER 96-013-00 Residual Heat Removal System Design Deficiency Due to Non-conservative Original Design Assumption: An engineering evaluation determined that a design deficiency in the Residual Heat Removal System (RHS) was a condition that was outside the design basis of the plant. The Safety Grade Cold Shutdown (SGCS) design requirements specify that the unit be capable of being brought to Cold Shutdown with limited operator action outside the control room. If RHS heat exchanger operation is initiated at a 350°F RCS temperature as currently assumed in the analysis, and if the RHS throttle control valves 3RHS*HCV606/607 were to fail open as the result of a loss of Control Air, the RHS heat exchanger Reactor Plant Component Cooling Water System (CCP) outlet temperature is estimated to be 250°F which is greater than the 125°F used in the system stress analysis. The original plant design did not consider that the RHS flow control valves failing open on a loss of air, could create unacceptably high RHS heat exchanger discharge temperatures. This would have created the potential for the CCP piping to not meet the ASME Appendix F stress criteria.
- LER 96-006-00 Plant Shutdown Required by Technical Specifications, for Auxiliary Feedwater Containment Isolation Valves Declared Inoperable: This LER involved an original plant design discrepancy with a containment isolation valve not being capable of remaining closed against maximum accident pressure.
- LER 96-007-00 Containment Recirculation Spray and Quench Spray System Outside Design Basis due to Design Errors: This LER involved an original plant design deficiency with piping and supports not being adequately designed for loads resulting from accident temperatures.

Manufacturer Data

EHS System Code:

Chemical & Volume Control System - Charging Pump Cooling System - CB

Fisher Controls Co., air-operated 3-way temperature control valve

Size: 2"

Model: 667NS-YS