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

February 18, 1994
MP-94-130

DONALD B. MILLER, Jr.
SENIOR VICE PRESIDENT - MILLSTONE

Re: 10CFR50.73

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 94-001-00

Gentlemen:

This letter forwards Licensee Event Report 94-001-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(i).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

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

DBM/RM:bjo

Attachment: LER 94-001-00

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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NRC Form 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES: 5/31/95

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.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Millstone Nuclear Power Station Unit 3	05000423	1 OF 03

TITLE (4)
Inadequate Overtemperature Delta T and Overpower Delta T Channel Surveillance

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
										05000
01	20	94	94	- 001 -	00	02	18	94	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)	86%	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)(vii)	OTHER
		20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(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)(viii)(B)	
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
William J. Temple, Site Licensing	(203) 437-5904

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)			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 20, 1994, with the plant in Mode 1 at 86% power, it was discovered that the Overtemperature Delta T (OTΔT) and Overpower Delta T (OPΔT) CHANNEL CHECKs were not being adequately performed every 12 hours. The method of satisfying the CHANNEL CHECK surveillance requirement for OTΔT and OPΔT channels included a comparison of the OTΔT and OPΔT trip setpoints, however, the loop ΔT channels were not included in satisfying these surveillance requirements. The OTΔT and OPΔT trips will actuate when any two of the four ΔT channels exceed the variable OTΔT and OPΔT trip setpoints. Therefore, the four ΔT channels should have been included in the OTΔT and OPΔT CHANNEL CHECKs to ensure the process outputs, in addition to the trip setpoints, are within an allowed tolerance.

There were no adverse safety consequences as a result of this event.

The root cause for the failure to adequately perform OTΔT and OPΔT CHANNEL CHECKs has been determined to be a program failure due to a procedure deficiency. Procedures did not require a channel check of the loop ΔT instruments.

The immediate corrective action was to perform a CHANNEL CHECK on the four ΔT channels, and to implement supplemental monitoring until a change to the Technical Specification logs was implemented. Additionally, the MODE 1 and MODE 2 Technical Specification logs have been revised to reflect this omission, and all Technical Specification CHANNEL CHECKs are being reviewed to ensure existing CHANNEL CHECK methodology is in full compliance with existing requirements.

I. Description of Condition

On January 20, 1994, with the plant at 86% power, it was discovered that the Overtemperature Delta T (OTΔT) and Overpower Delta T (OPΔT) CHANNEL CHECKs were not being adequately performed. The method of satisfying the CHANNEL CHECK surveillance requirement for OTΔT channels included a comparison of the four OTΔT trip setpoints. The method of satisfying the CHANNEL CHECK surveillance requirement for OPΔT channels included a comparison of the four OPΔT trip setpoints. However, the OTΔT and OPΔT CHANNEL CHECKs did not include the four loop ΔT channels. The OTΔT and OPΔT trips will actuate when any two of the four ΔT channels exceed the variable OTΔT and OPΔT trip setpoints. Therefore, the four ΔT channels should be included in the OTΔT and OPΔT CHANNEL CHECKs to ensure the process outputs, in addition to the trip setpoints, are within an allowed tolerance.

II. Cause of Condition

The root cause for the failure to adequately perform OTΔT and OPΔT CHANNEL CHECKs has been determined to be a program failure due to a procedure deficiency. Technical Specification Surveillance Requirement 4.3.1.1, Table 4-3.1, Functional Units 7 and 8, require a CHANNEL CHECK be performed every 12 hours on the OTΔT and OPΔT channels. It was believed that comparing the OTΔT and OPΔT meter indications on the main control board, would satisfy this CHANNEL CHECK. However, the OTΔT and OPΔT meters are actually the computed trip setpoints. The trip setpoints and the process signal need to be compared between loops.

III. Analysis of Condition

This condition is being reported in accordance with 10CFR50.73(a)(2)(i)(B), as an operation or condition prohibited by Technical Specifications. Technical Specification 3.3.1 provides the operability requirements for Reactor Trip System instrumentation and interlocks. Surveillance Requirement 4.3.1.1, Table 4-3.1, Functional Units 7 and 8, provide the surveillance requirements for the OTΔT and OPΔT channels. The OTΔT and OPΔT channel surveillance requirements require performing a CHANNEL CHECK at least once per 12 hours.

The Overtemperature ΔT trip provides core protection to prevent Departure from Nucleate Boiling (DNB) for all combinations of pressure, power, coolant temperature, and axial power distribution. The trip setpoint is automatically varied with: coolant temperature (to correct for temperature induced changes in density and heat capacity of water, and includes dynamic compensation for piping delays from the core to the loop temperature detectors), pressurizer pressure, and axial power distribution for each loop. This trip setpoint is then compared to actual ΔT for the associated loop. A reactor trip will be initiated when two of the four loops' actual ΔT exceeds their respective loops' OTΔT trip setpoints.

The Overpower ΔT trip provides assurance of fuel integrity under all possible overpower conditions, limits the required range for Overtemperature ΔT trip, and provides a backup to the High Neutron Flux trip. The setpoint is automatically varied with: coolant temperature (to correct for temperature induced changes in density and heat capacity of water), and rate of change of temperature (for dynamic compensation for piping delays from the core to loop detectors), to ensure that the allowable heat generation rate is not exceeded. A reactor trip will be initiated when two of the four loops' actual ΔT exceeds their respective loops' OPΔT trip setpoints.

There were no adverse consequences as a result of this event. There is sufficient redundancy available, such that even assuming one ΔT channel inoperable the system design will ensure protection and mitigation during accident and transient conditions. The OTΔT and OPΔT reactor trips are initiated when two of the four ΔT channels exceed the trip setpoints. In the unlikely event that a ΔT channel failed, and the need for a reactor trip was required, the trip signal would still be generated from the remaining three ΔT channels. In addition, an alarm in the control room is generated should the difference between the auctioneered highest ΔT channel as compared to the remaining ΔT channels exceed ±4%. Furthermore, it is expected that the successful performance of CHANNEL CALIBRATIONs and ANALOG CHANNEL OPERATIONAL TESTs would have also identified an inoperable condition, since ΔT meters are physically next to the setpoint meters.

IV. Corrective Action

The immediate corrective action taken was to perform a CHANNEL CHECK on the four ΔT channels, and additionally to implement supplemental monitoring until Technical Specification log changes were implemented. The Mode 1 and Mode 2 Technical Specification logs, which are performed every shift, have been revised to include the ΔT CHANNEL CHECK. All Technical Specification CHANNEL CHECKs are being reviewed to ensure existing CHANNEL CHECK methodology is in full compliance with existing requirements.

V. Additional Information

There have been no LERs similar to this event.

EIIS Codes

System	Component
JC (Plant Protection System)	None