NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Millstone Nuclear Power Station Unit 2	0 5 0 0 0 3 3 6	1 OF 0 3

TITLE (4)

Steam Generator Tube Plugging Error

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 NAMES	DOCKET NUMBER(S)
0 1	0 8	8 8	8 8	— 0 0 1	— 0 0	0 2	0 5	8 8		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10) 0 0 0	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 (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	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
R. Thomas Blanchard Jr., Engineer X5350	AREA CODE 2 0 3 4 4 7 - 1 7 9 1

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 fifteen single-space typewritten lines) (16)

On January 8, 1988, with the unit in Cold Shutdown, three tube ends which should have been plugged during the 1986 refueling outage were found unplugged. Three adjacent tubes, not scheduled for plugging were plugged on one end. The unplugged tubes contained flaws with greater than 40% through wall penetration.

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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 2	0 5 0 0 0 3 3 6	8 8	— 0 0 1	— 0 0	0 2 OF 0 3

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

I. Description of Event

On January 8, 1988, during preparation for routine inservice inspection of steam generator tubing, the outlet (cold leg) ends of tubes at Line 154 Row 36, Line 151 Row 37, and Line 145 Row 37 in Steam Generator No. 1 were found unplugged. The inlet (hot leg) ends were plugged. These tube ends should have been plugged during the 1986 refueling outage.

Three adjacent tubes at Line 154 Row 34, Line 151 Row 35, and Line 145 Row 35 were plugged on the outlet end but not on the inlet end. These tubes did not require plugging during the 1986 refueling.

These discrepancies were identified during pre-use position verification of the remotely controlled eddy current probe positioning device.

II. Cause of Event

The apparent cause of the event was equipment operator error during the 1986 steam generator tube plugging. The equipment operator improperly identified the location used for position verification. The verification location (Line 136 Row 42) was input to the Remotely Operated Service Arm as Line 136 Row 44. Thus each of the three plugs installed based on this position verification were mispositioned by two rows. Quality Control checks conducted during the operation did not identify this error.

III. Analysis of Event

This event is reportable pursuant to 10CFR50.73(a)(2)(i)(B), operation in violation of a Technical Specification Limiting Condition for Operation. This report describes the circumstances surrounding a failure to comply with the Technical Specification requirements for repair of steam generators. Specifically, three tubes with defects in excess of the repair limit of Technical Specification 4.4.5.1.4.a.6, were not properly repaired prior to operation. This condition occurred because of equipment operator failure to properly verify the position of remotely controlled tube plugging equipment.

The defective tubes which remained in service are not considered to have significant safety consequences. Retesting of these tubes showed that there was no significant change in defect size. The calculated margin of safety for normal operations was 1.76 and for accident conditions was 1.12. The plugging of one end of the tube effectively prevents heat transfer through the tube. The specific defects in these tubes are believed to be related to contaminant concentration caused by partial steam blanketing during power operation. Without heat flux to cause steam blanketing the concentration of contaminants and stress on the tube is minimized. In addition, if the flaw had propagated completely through the tube wall, the tube would have leaked sufficiently to be detected well in advance of the flaw growing to critical size. No steam generator tube leakage occurred as a result of this condition.

IV. Corrective Action

All other plugs installed during the 1986 refueling outage were verified to be in the proper locations.

The open tube ends of the affected tubes were plugged.

A different remotely controlled device was used for repairs during the current refueling outage. Tubesheet templates, marked to indicate plug installation locations were used to verify plugs were installed in the correct locations. If tubesheet templates could not be used for specific tubes, the tubesheet was marked with an approved marking device. Tube locations for each plug were verified by Northeast Utilities Quality Services Department as well as by the plugging services vendor prior to and after installation. Thus, Northeast Nuclear Energy Company has effectively upgraded the tube plugging program to prevent similar errors from going undetected in the future.

V. Additional Information

The affected steam generator was manufactured by Combustion Engineering and is identified as Series 67.

There were no similar events.

NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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February 5, 1988
MP-11483

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

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 88-001-00

Gentlemen:

This letter forwards the Licensee Event Report 88-001-00 required to be submitted within thirty days pursuant to paragraph 50.73 (a)(2)(i)(B).

Yours truly,

NORTHEAST NUCLEAR ENERGY COMPANY

Stephen E. Scace
Station Superintendent
Millstone Nuclear Power Station

SES/RTB:mo

Attachment: LER 88-001-00

cc: W. T. Russell, Region 1
W. J. Raymond, Senior Resident Inspector

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