

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Millstone Nuclear Power Station Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 2 4 5 1 OF 0 3				PAGE 3	
TITLE (4) Recirculation Flow Characteristic Change															
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)		
01	14	85	85	008	00	10	29	85					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)													
N		20.402(b)				20.406(a)				50.73(a)(2)(iv)				73.71(b)	
POWER LEVEL (10)		20.406(a)(1)(i)				50.36(a)(1)				50.73(a)(2)(v)				73.71(a)	
100		20.406(a)(1)(ii)				50.36(a)(2)				50.73(a)(2)(vi)				X OTHER (Specify in Abstract below and in Text, NRC Form 386A)	
		20.406(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(vii)(A)					
		20.406(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(vii)(B)					
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(viii)					
		20.406(a)(1)(vi)				50.73(a)(2)(iv)				50.73(a)(2)(ix)					
LICENSEE CONTACT FOR THIS LER (12)															
NAME M. J. Bigiarelli Assistant Engineering Supervisor										TELEPHONE NUMBER AREA CODE 203 447-1791					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)															
CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC					
X				N											
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)

(Non-reportable event submitted for information only) On January 14, 1985, after return to full power following a minor power reduction to place the "A" Condensate Booster Pump in service, a five (5) percent increase in recirculation flow was required to attain the same core flow and core thermal power. The change was attributed to injection of oxides from the Condensate Booster Pump and associated piping into the reactor coolant system. There were no consequences.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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TEXT (If more space is required, use additional NRC Form 308A's) (17)

EVENT DESCRIPTION

On January 14, 1985 at 1430 hours, after a minor power reduction to place the "A" Condensate Booster Pump in service following pump maintenance, five (5) percent additional recirculation flow was required to attain the same core flow and core thermal power.

DESCRIPTION OF IMMEDIATE ACTION

An investigation of the event was immediately initiated. Validity of all flow indications was verified by review of control room instrumentation and process computer data. The increased recirculation flow was indicated on instrumentation that used several different monitoring points and was therefore considered to be valid.

Since the Reactor Protection System flow converters that are used for determining flow-biased APRM rod block and scram setpoints were also affected, a potential existed for non-conservative setpoints at recirculation flows less than 100% of the baseline value (at 100% flow, the rod block and scram setpoints are clamped at 108% and 120% respectively). Operations personnel were instructed to maintain full flow while the investigation continued. The signal to the RPS flow converters was then adjusted so that proper setpoints would be applied in the event that a flow reduction should be necessary.

During the initial investigation, special attention was given to jet pump instrumentation. Through instrument calibration checks, analysis of jet pump transmitter data and analysis of jet pump instrumentation statistical data, it was determined that the flow mismatch was not due to jet pump failure.

The results of the initial investigation and actions were reported to the PORC. It was concluded that no condition existed that would prevent continued reactor power operation.

SUBSEQUENT ACTION AND INVESTIGATION

Subsequent monitoring of recirculation loop flows and core flow indicated a gradual return to baseline values. To verify the preliminary conclusion that the shift in the flow relationship was due to particulate contamination of the reactor coolant, reactor water cleanup system (RWCU) flow was increased and an additional RWCU demineralizer was placed in service. These actions increased the rate at which the flow relationship was returning to the baseline values. As the relationship returned to normal, the RPS flow converters were adjusted to maintain proper input to the RPS rod block and scram setpoint circuitry.

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

Data from previous fuel cycles was reviewed by Engineering personnel and by General Electric Company. This data indicated that recirculation loop m-ratios and the recirculation flow-to-core flow relationships were bounded by data from previous cycles. Again, it was concluded that a condition that would prevent continued reactor power operation did not exist.

After several days, the flow relationships returned to the baseline values, and RWCU system operation and RPS flow converter calibration was returned to normal status. During this period, test procedures had been prepared to aid in analysis of the event. It was deemed not necessary to perform these tests, since jet pump operability had been verified and all operational and safety concerns had been addressed.

CONCLUSION AND CORRECTIVE ACTION

It is believed that the change in flow characteristic was due to injection of oxides into the reactor coolant system. The postulated source of the oxides was a fine rust film that formed in the condensate booster pump and associated piping while maintenance was being performed. Upon returning the pump to service, this rust would have entered the reactor recirculation system, resulting in a flow characteristic change by affecting fluid mixing and the resistance to flow in the recirculation system piping.

Operations procedures were reviewed and found to be adequate for flow performance monitoring. Additionally, maintenance procedures adequately address cleanliness and flushing of systems following maintenance activities where possible. No additional corrective action is considered to be required at the present time.

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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October 29, 1985
MP 8323

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

Reference: Facility Operating License No. DPR-21
Docket No. 50-245
Reportable Occurrence RO-85-008-00

Gentlemen:

This letter forwards the Licensee Event Report 85-008-00, submitted for information only, in accordance with 10CFR50.73.

Yours truly,

NORTHEAST NUCLEAR ENERGY COMPANY

A handwritten signature in dark ink, appearing to read 'Wayne D. Romberg'.

Wayne D. Romberg
Station Superintendent
Millstone Nuclear Power Station

WDR/MJB:ejl

Attachment: LER 50-245/85-008-00

cc: Dr. T. E. Murley, Region I

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