



Northeast
Nuclear Energy

Rope Ferry Rd. (Route 156), Waterford, CT 06385
 Millstone Nuclear Power Station
 Northeast Nuclear Energy Company
 P.O. Box 128
 Waterford, CT 06385-0128
 (203) 444-4300
 Fax (203) 444-4277
 The Northeast Utilities System
 Donald B. Miller Jr.,
 Senior Vice President - Millstone

Re: 10CFR50.73(a)(2)(ii)
 May 25, 1994
 MP-94-364

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

Reference: Facility Operating License No. DPR-21
 Docket No. 50-245
 Licensee Event Report 93-010-01

Gentlemen:

This letter forwards update Licensee Event Report 93-010-01 required to be submitted pursuant to 10CFR50.73(a)(2)(ii).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

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

BY: Frank C. Rothen
 Director - Maintenance Services

DBM/MB:ljs

Attachment: LER 93-010-01

cc: T. T. Martin, Region I Administrator
 P. D. Swetland, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3
 J. W. Andersen, NRC Acting Project Manager, Millstone Unit No. 1

1003 DP
 cert# P266 578 620

9406010043 940525
 PDR ADDCK 05000245
 S PDR

JE22

LICENSEE EVENT REPORT (LER)

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

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.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 1	DOCKET NUMBER (2) 05000245	PAGE (3) 1 OF 4
---	-------------------------------	--------------------

TITLE (4)
Generator Load Reject Analysis Inconsistencies

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
09	17	93	03	010	01	05	25	94		05000
									FACILITY NAME	DOCKET NUMBER
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) N	THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
POWER LEVEL (10) 100	20.402(b)			20.406(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)(vi)			OTHER
	20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(vii)(A)			(Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iv)			X 50.73(a)(2)(ii)			50.73(a)(2)(vii)(B)			
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.72(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)

NAME Drexel N. Harris, Site Licensing	TELEPHONE NUMBER (include Area Code) (203) 437-5903
--	--

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
--	---	----	-------------------------------	-------	-----	------

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

On September 17, 1993, at 1400 hours with the plant operating at 100% power (531°F, 1031 PSIG) it was discovered that the analysis performed for the generator load rejection scenario contained design assumptions which are not appropriate for Millstone Unit 1. Specifically, the analysis assumes an automatic reactor recirculation pump runback to 70% on a generator load rejection event with select rod insert functioning. Millstone Unit 1 does not have the automatic reactor recirculation pump runback circuitry in place, and therefore, no automatic reactor recirculation pump runback would occur.

General Electric has completed analysis based on the "as built" configuration of Millstone Unit 1 for the Generator Load Rejection. The results of the reanalysis have confirmed that the Generator Load Rejection with Turbine Bypass Valve Failure remains the limiting transient.

The discrepancies between analytical assumptions and plant design features do not impact the analysis of the limiting transient and do not adversely affect the operability of any safety system. No safety systems were required to function as a result of this event and no safety consequences resulted from this event.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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 (MNB 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.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 1	DOCKET NUMBER (2) 05000245	LER NUMBER (6)			PAGE (3) 02 OF 04
		YEAR 93	SEQUENTIAL NUMBER 010	REVISION NUMBER 01	

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

I. Description of Event

On September 17, 1993, at 1400 hours with the plant operating at 100% power, (531 °F, 1031 PSIG) it was discovered that the analysis performed for the generator load rejection scenario contained design assumptions which are not appropriate for Millstone Unit 1. Specifically, the analysis assumes an automatic reactor recirculation pump runback to 70% on a generator load rejection event with select rod insert functioning. Millstone Unit 1 does not have the automatic reactor recirculation pump runback circuitry in place, and therefore, no automatic reactor recirculation pump runback would occur. Without the automatic reactor recirculation pump runback, the addition of cold feedwater would increase reactor power and result in a reactor scram due to an Average Power Range Monitor (APRM) setdown to 90% power. The limiting Minimum Critical Power Ratio (MCPR) transient for Millstone Unit 1 occurs during Generator Load Rejection with Failure of the Turbine Bypass Valves. The discrepancy in the assumptions for the generator load reject with select rod insert analysis had no effect on the components required for safe shutdown of the plant since this is not the limiting transient.

Independent of the above event, a review has revealed the Loss of Feedwater analysis assumes that when feedwater flow drops to 20%, the reactor recirculation pump speed is automatically reduced to the minimum flow without any time delay. The current plant configuration has a 15 second time delay before the reactor recirculation pump speed is reduced. This event is also bounded by the Generator Load Rejection with Failure of the Turbine Bypass Valves transient.

The discrepancies between analytical assumptions and plant design features do not impact the analysis of the limiting transient and do not adversely affect the operability of any safety system. No safety systems were required to function as a result of this event and no safety consequences resulted from this event.

II. Cause of Event

The root cause of this event has been attributed to an incorrect analysis assumption in the original plant accident analysis. Contributing to the event was an inadequate review of non-limiting events in subsequent reviews of the non-limiting accident analyses to determine if an update was necessary. Analysis was performed for initial plant licensing based on an automatic runback feature of the reactor recirculation pumps being in service. Millstone Unit 1 did not install the automatic runback feature in the original plant configuration, and therefore, should have had analysis performed based on the actual installation rather than the generic BWR design. Periodic reviews of the Updated Final Safety Analysis Report (UFSAR) should have verified the inputs used to each of the analyses. Since these events were not the limiting transients, the inputs to the analyses were not reviewed as thoroughly as the inputs for the limiting transients.

The Supplemental Reload Licensing Submittal analyzes four (4) events to determine the cycle specific Minimum Critical Power Ratio. These four events have been determined to be the limiting transients and, therefore, all other transients are not required to be analyzed. The four transients analyzed are:

- Generator Load Reject with Failure of Turbine Bypass Valves
- Main Steam Isolation Valve Closure – Flux Scram
- Feedwater Controller Failure
- Misoriented Fuel Bundle

III. Analysis of Event

This event is being reported under 10CFR50.73(a)(2)(ii) which requires the reporting of any condition that was outside the design basis of the plant.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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 (MNBE 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 20505.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 1	DOCKET NUMBER (2) 05000245	LER NUMBER (6)			PAGE (3) 03 OF 04
		YEAR 93	SEQUENTIAL NUMBER 010	REVISION NUMBER 01	

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

The original analysis of the transient and accident events for Millstone Unit 1 was performed prior to the initial licensing of the plant. Upon approval of the General Electric Standard Application for Reactor Fuel, the transient and accident analyses were performed only on the limiting transients. Since the assumptions used in the limiting transients have been verified as appropriate, there are no adverse consequences resulting from the improper assumptions used in the generator load rejection with select rod insert analysis.

Since the assumption errors do not create a new limiting event and do not impact the analysis of the limiting transient, there is no adverse affect of the discrepancies on plant operation.

The assumptions in the Generator Load Rejection with Failure of the Turbine Bypass Valves transients are:

- 100% Rated Power
- Generator Full Load Rejection
- Select Rod Insert Failure
- Turbine Bypass Valves fail to open

In this transient, a reactor scram results from a high flux condition in the reactor.

For the generator load reject scenario with the assumption discrepancies, the turbine bypass valves function and a select rod insert occurs. With a select rod insert, reactor power is reduced approximately 25% and the APRM trip setting is setdown to 90%. Due to the loss of feedwater heating, reactor power will increase to a point where the 90% trip setting will be reached resulting in a reactor scram. If the automatic reactor recirculation pump runback circuitry was in place, the increase in reactor power from the loss of feedwater heating would not be sufficient to reach the 90% trip setting of the APRM system.

IV. Corrective Action

General Electric has completed analysis of the Generator Load Rejection event without the reactor recirculation pump runback. The results confirm that the Generator Load Rejection with Turbine Bypass Valve Failure remains the limiting transient, and the Minimum Critical Power Ratio remains above the safety limit of 1.07.

Based on the event described above, a review of the assumptions used in the other limiting transients was conducted. There have been no discrepancies found which would invalidate the conclusions of the other limiting transients.

During a subsequent detailed review of all other limiting and non limiting UFSAR Chapter 15 events, an additional non-limiting discrepancy was identified. Following a loss of generator stator cooling, an automatic turbine runback occurs, and a main turbine trip will not occur if turbine load is runback to less than 25 percent within three minutes. Millstone 1 has full steam bypass capability, and therefore has the ability to operate at rated reactor power in this condition. If the turbine does not trip, the resulting feedwater temperature reduction will exceed the 100 degrees F temperature change that is generically applied by General Electric for loss of feedwater heating events. A specific assessment of this condition for Millstone 1 was performed by General Electric which indicates that the limiting loss of stator cooling event results in a feedwater reduction of approximately 196 degrees F. Fuel thermal limits, however, will not be exceeded during this event, and the MCPR and MAPLHGR limits previously established for Cycle 15 operation based on analysis of limiting plant transients remain valid. General Electric is continuing to assess this event to determine whether generic implications exist for other BWRs that have full steam bypass capability.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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 (MNB 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.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 1	DOCKET NUMBER (2) 05000245	LER NUMBER (6)			PAGE (3) 04 OF 04
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		93	— 010 —	01	

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

To prevent recurrence of this event for cycles beyond cycle 15, we will develop a document which determines the relationship and applicability of the Millstone Unit 1 important plant parameters to be used for reload licensing analyses with respect to the UFSAR transients and the as built configuration of the plant. We anticipate completion of this effort by September 30, 1994.

V. Additional Information

There have been no previous similar analysis input discrepancies identified for UFSAR chapter 15 events.