NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104

EXPIRES 04/30/98

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 F33), 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 1	05000245	1 OF 3

TITLE (4)

Reactor Building Roof Horizontal Shear Loads

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
10	08	97	97	-- 038 --	00	11	05	97	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (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)	X 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)	50.73(a)(2)(v)	Specify in Abstract below or NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
P. Miner, MP1 Regulatory Compliance Manager	(860) 440-2085

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 October 8, 1997, at 1430 hours, with the plant in COLD SHUTDOWN, it was determined that the Reactor Building roof was not analyzed for the Millstone Unit No. 1 seismic Safe Shutdown Earthquake (SSE). The roof decking and welds to the roof steel were designed to transfer horizontal shear loads for the Operating Basis Earthquake (OBE). The existing welds are at their full capacity based on the OBE analysis, and the higher SSE loads have not been addressed. It is expected that the welds would exceed the code allowable stresses during the SSE loads. The function of the Reactor Building roof is to enclose the reactor and associated equipment and to provide secondary containment.

The cause of this condition is failure to analyze the Reactor Building roof for the higher loads during a SSE due to a limited sampling method used during the assessment of the seismic capacity of the facility.

Administrative controls are in place to prevent fuel movement until the Reactor Building roof has been qualified for the SSE. An analysis of the Reactor Building roof will be performed for the SSE loads and potential modifications made to the roof prior to startup from this refueling outage.

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

I. Description of Event

On October 8, 1997, at 1430 hours, with the plant in COLD SHUTDOWN, it was determined that the Reactor Building [NG] roof was not analyzed for the Millstone Unit No. 1 Safe Shutdown Earthquake (SSE). The existing roof decking and welds to the roof steel were designed to transfer horizontal shear loads for an Operating Basis Earthquake (OBE). This condition was identified while dispositioning an Adverse Condition Report for Reactor Building roof modifications.

Under the Systematic Evaluation Program (SEP) seismic re-evaluation, Millstone Unit No. 1 was placed into the category of "Group 1" plants based upon the NRC assessment of the original seismic design. Group 1 plants were required to review existing seismic design documents and perform a limited re-evaluation of the existing facility to confirm judgements of the adequacy of the original design against current requirements. The evaluation relied upon sampling representative structures and performing confirmatory analysis on the sampled structures. The results served as the principal input for determining the seismic capacity of the facility.

The metal roof deck is designed to support vertical dead and live loads in addition to acting as a load path to resist lateral wind and seismic loads and transfer them to the end walls. The Reactor Building is designed to provide secondary containment to limit the release of radioactivity after a postulated accident during power operation or reactor refueling.

This condition is reportable pursuant to 10CFR50.73(a)(2)(ii) as a principal safety barrier being in an unanalyzed condition that significantly compromises plant safety. This condition was prompt reported on October 8, 1997, pursuant to 10CFR50.72(b)(2)(i).

II. Cause of Event

The cause of this condition is failure to analyze the Reactor Building roof for the higher loads during a SSE. A limited structural review of the Reactor Building was performed under the approach established by the SEP. The Reactor Building roof panels were not included in the review.

III. Analysis of Event

Millstone Unit No. 1 is designed for both the OBE and the SSE events as described in the Updated Final Safety Analysis Report Chapter 3. Seismic Category I structures were originally designed for an earthquake equivalent to the OBE without the usual stress increase for short term loading. The SSE was defined by scaling the OBE response spectrum by 2.4. In general, structures were reviewed to assure that they could resist without any damage which would hinder the ability of the plant to safely shutdown. A limited re-evaluation of existing structures and components was performed under SEP Topics III-6 and III-7B.

The structural review at these higher forces and moments considered a sampling of building elements. The sampling method was used to confirm judgements of the seismic adequacy of the original design with respect to current requirements. The Reactor Building roof panels were not included in the review.

In addition, results from the SEP site specific spectra program indicated that the predicted SSE peak ground acceleration was larger than that used in the original analysis. Therefore, plant structures were re-evaluated to a more conservative ground spectra.

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

It is expected that the steel roof decking panel welds would exceed the code allowable stresses during SSE loads based on the existing analysis. This could compromise the secondary containment boundary. It is not expected that any gross structural failure would occur since the panels would remain supported by the girders if the seam welds became over-stressed.

IV. Corrective Action

Administrative controls are in place to prevent fuel movement until the Reactor Building roof has been qualified for the SSE.

1. NNECO will review existing analysis and SEP topical reports related to the Reactor Building roof for SSE inputs prior to fuel handling.
2. NNECO will evaluate the need and, if necessary, perform a re-analysis of the Reactor Building roof structure prior to fuel handling.
3. NNECO will develop and implement a plan to restore the Reactor Building roof structure to meet the requirements of the SSE analysis including modifications as required prior to fuel handling.
4. NNECO will perform a detailed review of the Reactor Building structure to assess the adequacy for SSE inputs prior to startup from this refueling outage.

V. Additional Information

Similar Events

LER 96-003-02, Seismic Deficiencies Identified Through the USI-A46 Program

Manufacturer Data

Not applicable.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].