

NORTHEAST UTILITIES

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

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July 13, 1981

Docket No. 50-245
A01744



Director of Nuclear Reactor Regulation
 Attn: Mr. Dennis M. Crutchfield, Chief
 Operating Reactors Branch #5
 U. S. Nuclear Regulatory Commission
 Washington, D.C. 20555

- References:
- (1) D. M. Crutchfield letter to W. G. Council, dated May 28, 1981.
 - (2) W. G. Council letter to D. M. Crutchfield, dated April 13, 1981.
 - (3) W. G. Council letter to B. H. Grier, dated July 7, 1980.
 - (4) W. G. Council letter to B. H. Grier, dated March 3, 1981.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1
SEP Topic III-6; Seismic Design Considerations

Via Reference (1), the Staff forwarded the contractor's report on SEP Topic III-6, Seismic Design Considerations, for Millstone Unit No. 1. Reference (1) also identified eighteen open issues concerning this SEP topic for Millstone Unit No. 1.

Northeast Nuclear Energy Company (NNECO) was requested to review Reference (1) and respond to each of the open issues. Accordingly, Attachment 1 identifies each open issue and summarizes NNECO's plans for resolving the Staff concerns.

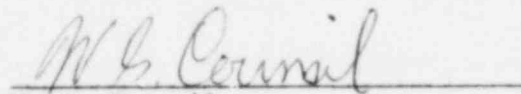
Attachment 1 specifies expected completion dates for reviews and analyses needed to address these open issues. It should be noted that the completion dates given in Attachment 1 are NNECO's best estimate of what is achievable in light of the current status of ongoing seismic review programs. Should NNECO determine that any of these dates cannot be met, the Staff will be notified promptly. NNECO intends to keep the Staff advised on the status of these efforts by providing regular summaries of progress and results. The first such status report is currently scheduled to be submitted on or about August 7, 1981.

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We trust you will find this information responsive to your request.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

A handwritten signature in cursive script, reading "W. G. Council", is written over a horizontal line.

W. G. Council
Senior Vice President

Docket No. 50-245

Attachment 1

Millstone Nuclear Power Station, Unit No. 1

SEP Topic III-6

July, 1981

Item 1

Ventilation Stack - No information was available to evaluate the adequacy of the connection of piles to stack footing.

Response:

NNECO has initiated evaluations of the ventilation stack pile to foundation interface. The expected completion date for this evaluation is July 31, 1981.

Item 2

Turbine Building Bracing - The E-W steel bracing at South end (Co.3) near the roof was found to be slightly over stressed under the postulated SSE load. An evaluation of the connection of bracings to columns is required to demonstrate the adequacy of the connection for the bracing systems to resist seismic forces.

Response:

NNECO is currently performing analysis of the Millstone Unit No. 1 turbine building with the major objective of generating in-structure response spectra for input to other programs (Electrical Equipment Qualification and Cable Tray Qualification programs). It is currently NNECO's intention to utilize this program to develop actual member loadings in the region questioned and evaluate these members and connections. The expected completion date for this evaluation is November 30, 1981.

Item 3

Condensate Storage Tank - Provide a detailed evaluation to demonstrate the adequacy of the welds at the intersection of bottom plate and cylindrical shell.

Response:

The condensate storage tank will be reanalyzed and a local stress evaluation performed at the intersection of the bottom plate and cylindrical shell. This work is scheduled for completion by October 30, 1981.

Item 4

Emergency Service Water Pump - The results of analysis of the anchor bolts showed that they would be overstressed under the postulated SSE loads. Provide detailed evaluation to demonstrate the design adequacy. In addition, evaluate the functional adequacy of the pump. The replacement of the pump components may be necessary if any components were made of cast iron material.

Response:

The Emergency Service Water (ESW) Pump anchorage will be reevaluated for the Millstone Unit No. 1 site specific spectra. Completion of our evaluations are scheduled for completion by August 31, 1981.

An assessment of the functional adequacy of the ESW pump including a materials suitability evaluation will be performed with completion scheduled for November 30, 1981.

Item 5

Emergency Cooling Water Heat Exchanger - Based on the information available to the Staff, it is found that there is no positive restraint against sliding caused by seismic force. Provide detailed analysis to demonstrate design adequacy of the anchorage against longitudinal sliding.

Response:

The anchorage of the Emergency Cooling Water Heat Exchanger will be evaluated for the Millstone Unit No. 1 site specific response spectra. The scheduled completion date for the assessment is August 31, 1981.

Item 6

Recirculation Pump Support - Insufficient information was provided to evaluate the adequacy of the pump snubbers against seismic force and to demonstrate the pump would be functional.

Response:

The recirculation pump supports (snubbers) will be reevaluated for the Millstone Unit No. 1 site specific response spectra. The evaluation will utilize in-structure response spectra currently under development. The scheduled completion date for the evaluation is November 30, 1981.

An evaluation of the ability of the recirculation pump to remain operable during or after an earthquake is not required since the only safety function of the pump is maintenance of the recirculation system pressure boundary.

Item 7

Motor Operated Valves - Generic analysis on motor-operated valves on lines 4 inches or less in diameter should be performed to show resulting stresses are less than 10% of the applicable Condition B (active) or Condition D (passive) allowable stresses. Otherwise, stresses induced by valve eccentricity should be introduced into piping analysis to verify design adequacy or provide a procedure whereby all motor operated valves 4 inches or less in diameter would be externally supported. Seismic testing results supplied on motor operators do not demonstrate functional adequacy for Millstone Unit No. 1.

Response:

NNECO will perform sampling analyses of several selected piping systems of 4 inch nominal pipe size or smaller containing motor operated valves. Dynamic analyses will be performed utilizing in-structure response spectra currently under development to determine the impact of valve eccentricities on the adequacy of these piping systems. The expected completion date for these analyses is November 30, 1981.

Item 8

CRD Hydraulic Control System Including Tubing and Supports - Insufficient information was available on this system to evaluate the seismic design adequacy.

Response:

The Control Rod Drive (CRD) system tubing and supports will be evaluated for the Millstone Unit No. 1 site specific response spectra. Field surveys will be performed to confirm the as-built configuration of the tubing runs and supports. Completion of the analytical investigations is scheduled for October 30, 1981.

Item 9

Battery Racks - Based on the information available to the Staff, it is found that positive anchorage was not provided to prevent battery sliding in longitudinal direction, i.e., the only lateral stability of the batteries in the longitudinal direction is developed by friction. Provide detailed analysis to demonstrate design adequacy of the rack against battery sliding or the modifications intended to correct this problem.

Response:

NNECO will reanalyze the battery racks for the in-structure response spectra provided by the Staff in NUREG/CR-2024. Stability of the batteries against longitudinal sliding will be explicitly addressed. The evaluations are scheduled for completion by August 31, 1981.

Items 10, 11, 12, 13, 14, and 15

10. Motor Control Center - O.K. for structural integrity if the masonry wall to which supports are attached can be demonstrated to be seismically qualified. No information was available to evaluate functionability.
11. Transformers - No positive anchorage was shown on the provided drawings (480V A.C. switchgear emergency transformer). Provide detailed analysis to demonstrate the design adequacy.

12. Switchgear Panel - O.K. for structural integrity if the masonry wall to which supports are attached can be demonstrated to be seismically qualified. No information was available for evaluating functionability.
13. Control Panels (Control room) - No evaluation has been performed since drawings and design calculations were not available.
14. Diesel Generator Remote Control Boards - Same as 10.
15. Battery Room Distribution Panels - Same As 10.

Response:

Anchorage of electrical equipment has previously been addressed in Reference (2). Evaluations of the seismic loadings on masonry walls at the attachment points of these components have been provided in response to I&E Bulletin 80-11. References (3) and (4) provided this information.

Functionality of motor control centers and switchgear panels will be addressed in the SEP Owners Group program on qualification of Class 1E Electrical Equipment. Details of this program were provided to the Staff during the SEP Owners Group meeting on March 5, 1981.

Item 16

Electrical Cable Raceways - No information was available for evaluation.

Response:

NNECO is participating in the SEP Owners Group effort for qualifying cable trays and conduit raceway systems. The details of this program were presented for the Staff during the SEP Owners Group meeting on March 5, 1981.

Item 17

Piping - Provide detailed analyses to demonstrate the design adequacy of the following piping systems:

- A. Feedwater Piping - The results of our analysis showed that over 3 inches piping deflection would occur under the postulated SSE loading.
- B. Shutdown Cooling Line - The result of our analysis showed that two locations would be overstressed (compared with allowable limits) under the postulated SSE loading. In addition, over 2 inches piping deflection would occur under some load conditions.
- C. Condensate Transfer Piping - The result of our analysis showed that piping deflections exceeding 1 inch would occur under the postulated SSE loads.

- D. Diesel Oil Line - The result of our analysis showed that impact between two pipes (oil line and jacket line) would occur under the postulated SSE loading.

Response:

The portions of the feedwater, shutdown cooling, condensate transfer, and diesel oil piping systems that were evaluated in the Millstone Unit No. 1 report will be reevaluated by NNECO. The reevaluations will incorporate as-built geometries from the I&E 79-14 program, floor response spectra generated by NNECO based on the site specific spectra for Millstone Unit No. 1, and dynamic response spectra techniques. The expected completion date for these evaluations is November 31, 1981.

Item 18

Suppression Chamber - Ring Header - Torus, and Support System - The result of our analysis showed that the tie-rod ends and tie columns would be overstressed under the postulated SSE loads. Provide a detailed analysis to demonstrate the design adequacy.

Response:

The torus and torus supports are under evaluation as part of the Mark I Containment program. The evaluations include transient dynamic as well as seismic effects. The torus supports have been modified as a part of the generic Mark I program. Further analyses will be performed on a plant specific basis with completion currently scheduled for April 1982. NNECO concludes the modifications performed to date adequately address the seismic loading conditions.