

# 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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August 8, 1985

Docket No. 50-423  
B11610

Director of Nuclear Reactor Regulation  
Mr. B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

- References: (1) J. M. Taylor to J. F. Opeka, Construction Appraisal Team  
Inspection No. 50-423/85-04, dated May 21, 1985.
- (2) B. K. Grimes to J. F. Opeka, MP-3 Engineering Assurance  
Program (EAP) Technical Audit Preparation Inspection  
Report 50-423/85-29, June 21, 1985.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3  
Seismic Interaction Program

Representatives from Northeast Nuclear Energy Company (NNECO), Stone & Webster, and EQE Incorporated met with the NRC Staff on June 21, 1985 to present the seismic interaction program for Millstone Unit No. 3. The program presented at the meeting by NNECO addresses the seismic interaction between both Non-seismic Category I to Seismic Category I equipment and Seismic Category I to Seismic Category I equipment. Regulatory Guide 1.29 and Standard Review Plan (SRP) 3.9.2 outline the requirement for non-seismic equipment in the vicinity of seismic equipment. Most Near Term Operating License applicants (NTOLs) have chosen to design and install Non-seismic Category I equipment supports in the vicinity of Seismic Category I equipment to seismic criteria. The Millstone Unit No. 3 method for implementing the NRC criteria is by verifying that Non-seismic Category I equipment will not adversely interact with Seismic Category I equipment based upon a historical data base of equipment subjected to large motion earthquakes. A brief summary of the program as presented at the meeting is provided in Attachment I. The program outlined in Attachment I will allow us to reduce unnecessary hardware and will result in less congested areas in the plant. This program would allow enhanced maintenance and improved in-service inspection access (less interference) resulting in lower radiation exposure over the life of the plant. In summary, NNECO considers the program will result in schedular and economic benefits without impacting the safety of the plant.

We trust that the information provided in Attachment I should also resolve the NRC Staff's concerns identified in Reference (1) and (2).

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If you have any questions or concerns regarding this submittal, please feel free to contact our licensing staff directly.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY  
et. al.

By NORTHEAST NUCLEAR ENERGY COMPANY  
Their Agent

*J. F. Opeka*

J. F. Opeka  
Senior Vice President

*C. F. Sears*

By: C. F. Sears  
Vice President

STATE OF CONNECTICUT   )  
                                  ) ss. Berlin  
COUNTY OF HARTFORD   )

Then personally appeared before me C. F. Sears, who being duly sworn, did state that he is Vice President of Northeast Nuclear Energy Company, an Applicant herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Applicants herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

*Jeanette L. Powers*  
Notary Public  
My Commission Expires March 31, 1989

## ATTACHMENT I

### SEISMIC INTERACTION PROGRAM SUMMARY

#### MILLSTONE UNIT NO. 3

The seismic interaction program for Millstone Unit No. 3 addresses the potential interactions due to the seismic movement of both Seismic Category I and Non-Seismic Category I equipment. The program utilizes knowledge gained through investigation of past earthquakes to insure the structural integrity of Non-Seismic Category I equipment installed in Seismic Category I buildings when subjected to the SSE, thereby precluding unacceptable interactions between Non-Seismic Category I systems and Seismic Category I systems. The earthquake database was assembled by our consultant EQE Inc. through first-hand site inspections and accounts reported by qualified engineers. The database information applicable to the Millstone Unit No. 3 program draws from an assortment of power plants, petrochemical plants and pumping stations which have experienced strong motion earthquakes far in excess of the Millstone Unit No. 3 design basis. The facilities in the database contain equipment which has structurally survived such earthquakes and is either similar or identical to that found in Non-Seismic Category I installations at Millstone Unit No. 3. The database equipment has support and anchorage details which are either similar or less robust than those utilized for the Non-Seismic Category I installations at Millstone Unit No. 3.

The program addresses all potential seismic interactions and distinguishes between the following types.

- Gravity missile interactions - Non-Seismic Category I equipment installed above Seismic Category I equipment.
- Zone of influence interactions - sway of Non-Seismic Category I equipment interacting with Seismic Category I equipment or unusually close proximity of Seismic Category I equipment to Seismic Category I equipment.

The original design basis for Millstone Unit No. 3 included the physical separation of Non-Seismic Category I equipment from Seismic Category I equipment. In cases where it was not practical to separate the Non-Seismic Category I equipment from Seismic Category I equipment, the Non-Seismic Category I equipment is either specifically designed to resist the SSE or addressed through the seismic interaction program. Typically, the large Non-Seismic Category I equipment in Seismic Category I buildings has been designed for seismic loads (e.g. skid mounted equipment, maintenance platforms). The smaller, less bulky equipment (e.g. piping, conduit) does not have a specific seismic design. The database illustrates that non-seismic, industry standard design practice is sufficient to satisfy structural integrity concerns for many types of equipment which possess inherent seismic stability, especially piping.

The seismic interaction program is implemented through a series of plant walkdowns. Walkdowns are performed by trained reviewers on an area by area basis (i.e. cubicle approach) at several stages of plant completion. The reviewer is familiar with the content of the database and the typical failure modes found in the database. The reviewer is aware of the types of components susceptible to

seismic damage and utilizes a set of review criteria to assess potentially unacceptable seismic interactions. These assessments are documented through worksheets which are included in the final report for the seismic interaction program.

Through the knowledge of the database and program criteria, the reviewer is skilled in assessing seismic interactions and can readily address potential problems. This practical approach to the seismic interaction issue is an effective method to provide a high degree of confidence that potential adverse seismic interactions involving Seismic Category I components will not occur.