



MAINE YANKEE ATOMIC POWER COMPANY •

October 18, 1985
MN-85-181

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GDW-85-263

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Edward J. Butcher, Jr.
Acting Branch Chief
Operating Reactors Branch No. 3
Division of Licensing

References: (a) License No. DPR-36 (Docket No. 50-309)
(b) USNRC Letter to MYAPCo dated October 29, 1984

Subject: Maine Yankee Seismic Review

Gentlemen:

In 1982, Maine Yankee undertook a voluntary comprehensive program to evaluate the adequacy of Maine Yankee to withstand a greater than design basis earthquake. The attached report, "A Comparison of the Maine Yankee Atomic Power Plant with the SQUG Data Base," is the last of a series of planned submittals pertaining to our evaluation and voluntary seismic upgrades. This report provides the information requested in questions 2, 7 and 9 of Reference (b). We plan to continue to work with SQUG toward the resolution of Generic Issue A-46.

This evaluation of the seismic adequacy of selected critical equipment at the Maine Yankee plant by comparison to the seismic experience data base and the criteria developed by the Seismic Qualification Utility Group (SQUG) leads to the conclusion that the Maine Yankee equipment possesses an inherent seismic ruggedness well beyond that required for a reevaluation earthquake based on the USNRC Regulatory Guide 1.60 ground motion spectrum at 0.10g. Empirical seismic data find essential equipment maintaining post-earthquake function at several times this level of motion, provided its anchorage has been properly engineered and installed. (Anchorage review and upgrade was targeted and completed early in our program.)

The seismic experience data were compiled through a study of the effects of several strong motion earthquakes in California. These earthquakes affected dozens of facilities that contain equipment the same as found in nuclear power plants. The study generally focused on the most heavily shaken areas of each earthquake. The study has resulted in the development of a description of the performance of a large inventory of various types of equipment, installations and structures that have experienced seismic loads comparable to or in excess of those for which the Maine Yankee plant is designed. Based on a review of this seismic experience data base, an appointed panel of experts in earthquake engineering, the Senior Seismic Review and Advisory Panel (SSRAP) has developed a set of response spectra below which explicit seismic qualification is unnecessary for eight classes of equipment.

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The NRC staff has reviewed the experience data base and has endorsed the following conclusions:

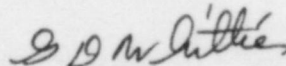
- ° Seismic damage to equipment is rare, even in earthquakes much stronger than the design basis for most nuclear plants.
- ° The few instances of equipment damage are usually related to inadequate equipment anchorage.
- ° Equipment in nuclear plants is generally similar to, and at least as rugged as, equipment in non-nuclear facilities that have survived strong motion earthquakes.
- ° There is a sufficiently large experience data base to waive the requirement of seismic qualification for many types of equipment.

In application to Maine Yankee, the seismic adequacy of these eight classes of equipment was examined by a comparison with the performance of similar equipment in the seismic experience data base. Extensive walkdowns of critical plant equipment were performed to establish the similarity of each equipment type to that which formed the basis for the SQUG/SSRAP acceptance criteria. Equipment anchorages were also reviewed for appropriate ruggedness during the walkdowns. Favorable conclusions are drawn in the attached report.

Several tanks, the only items remaining to be re-evaluated, are scheduled for review following the current outage. Required upgrades, if any, will be completed by the end of the next refueling outage. Please feel free to contact us if you should have any questions in this matter.

Very truly yours,

MAINE YANKEE ATOMIC POWER COMPANY



G. D. Whittier, Manager
Nuclear Engineering & Licensing

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Enclosure:

cc: Dr. Thomas E. Murley
Mr. Cornelius F. Holden