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February 25, 1994
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Chief
Rules Review and Directives Branch
Division of Freedom of Information and Publications Services
Mail Stop P-233
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Comment on NUREG-1488, "Revised Livermore Seismic Hazard Estimates for 69 Nuclear Power Plant Sites East of the Rocky Mountains," dated October, 1993

Dear Sir:

Yankee Atomic Electric Company appreciates the opportunity to comment on the subject draft NUREG. Yankee is the owner of the Yankee Nuclear Power Station in Rowe, Massachusetts and provides engineering and licensing services to other nuclear power plants in the northeast, including Vermont Yankee, Maine Yankee, and Seabrook. Yankee has been deeply involved in and a significant contributor to the development and use of seismic hazard analysis methods for more than a decade

As a general comment, we find the revised results to be encouraging and the format of the report to be clear and useful. As discussed in NUREG-1488, changes have been made to improve estimates of uncertainty in seismicity parameters and ground motion models. Since the first Lawrence Livermore National Laboratory (LLNL) seismic hazard report (NUREG/CR-1582), Yankee has consistently identified and commented on problems associated with seismicity parameter estimation and attenuation used in those LLNL analyses. We believe that these issues have finally been addressed in the subject NUREG. The result is clearly significant reductions in the estimated seismic hazard at all Eastern U.S. sites.

We believe these revised LLNL results represent significant new information that should not only be used in the review of Individual Plant Examinations of External Events (IPEEE) submittals, and early site reviews, but, most importantly, in a timely review of the level of effort required by each utility for the seismic portion of IPEEE. Given these improved 1993 LLNL results, it can be shown that the seismic hazard at existing EUS nuclear power plants is much less than what originally had been

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believed (see Figure 1 attached). To date, however, this drastic reduction in the LLNL seismic hazard estimates has not been accompanied by a reduction in either Staff review effort or reductions in NRC mandated programs which have their basis in the early LLNL estimates of the seismic hazard.

We remain concerned that the revised results contained in NUREG-1488 continue to show differences with respect to the EPRI findings, and that these differences are not fully investigated or explained. In particular, Figure 2 of NUREG-1488 demonstrates the effect of the difference in the application of amplification factors for soil sites between LLNL and Electric Power Research Institute (EPRI). Also, Figure 3 in NUREG-1488 shows that there is reasonable agreement between LLNL and EPRI at low acceleration, but at higher accelerations the difference is greater. This may be due to larger upper bound magnitudes used in the LLNL study. Lastly, even though we are pleased with the revised results, the documentation presented in both NUREG-1488 and LLNL Report UCRL-ID-115111 does not describe in sufficient detail why changes were made. It is noteworthy that in 1983, Yankee recommended that each expert's seismicity parameters be cross-checked against recorded data. This recommendation has now been incorporated into the improved methodology.

Figure 2 (attached) compares the probability of exceeding the SSE at all EUS sites based upon the 1989 LLNL (NUREG\CR-5250) and 1989 EPRI results (EPRI NP-6395-D). As can be seen, the LLNL results are much higher in probability than the EPRI results. This large difference in seismic hazard estimates led to the NRC use of relative rankings in the IPEEE binning process. Figure 3 (attached) is a similar comparison to Figure 2, except now the 1993 LLNL results are used. The detailed issues mentioned above notwithstanding, we believe that these latest (NUREG-1488) results confirm the validity of the 1989 EPRI seismic hazard analyses.

With regard to IPEEE seismic evaluations, Yankee believes that this new information provides sufficient basis for utilities to reconsider present commitments to seismic reviews. Specifically, based upon our review, these revised LLNL hazard estimates have confirmed that the seismic hazard at most EUS plants is low, and is comparable in fact to the 1989 LLNL seismic hazard estimates at the eleven "reduced scope" plants. This information can be used to support a position that most EUS plants should be doing only the "reduced scope" seismic margins studies. Such a revision to individual plant commitments could well qualify for expedited review as a Cost-Beneficial Licensing Action (CBLA).

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Although many "focused scope" IPEEE Seismic Margin Programs are well underway (with some even completed), the effort required by a "reduced scope" program could result in significant dollar savings for affected plants, especially since the "reduced scope" evaluation is made against the plant's own Safe Shutdown Earthquakes (SSE) design level versus the Review Level Earthquake of 0.3g. There are direct dollar savings due to the lesser effort required by "reduced scope", as well as potential large savings in avoiding analytical evaluations of components with high confidence of low probability of failure (HCLPF) values which are less than 0.3g, but greater than the plant SSE.

We appreciate the opportunity to comment and Yankee would be pleased to amplify the comments with further detail if desired.

Sincerely,



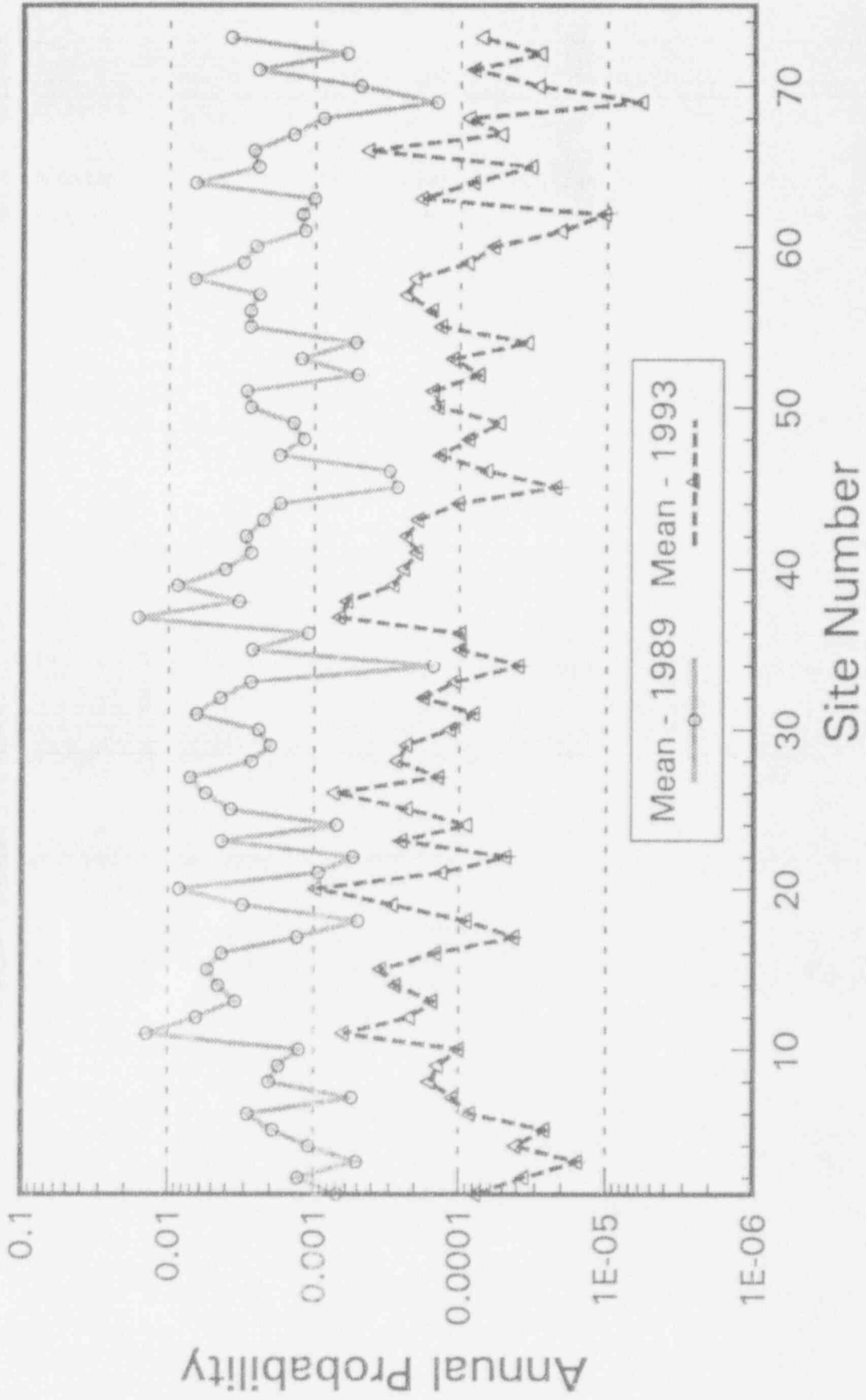
Donald W. Edwards
Director, Industry Affairs

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Attachments

Probability of Exceeding the 5 & 10 hz Spectral

Ordinates at EUS NPPs. Comparisons Based on 1989 & 1993 LLNL Results. NUREG-1488 Spectra.

FIGURE 1



Probability of Exceeding the 5 & 10 Hz Spectral

Ordinates at EUS NPPs. Comparisons Based on LLNL and EPRI Results. NUREG-1488 Spectra.

FIGURE 2

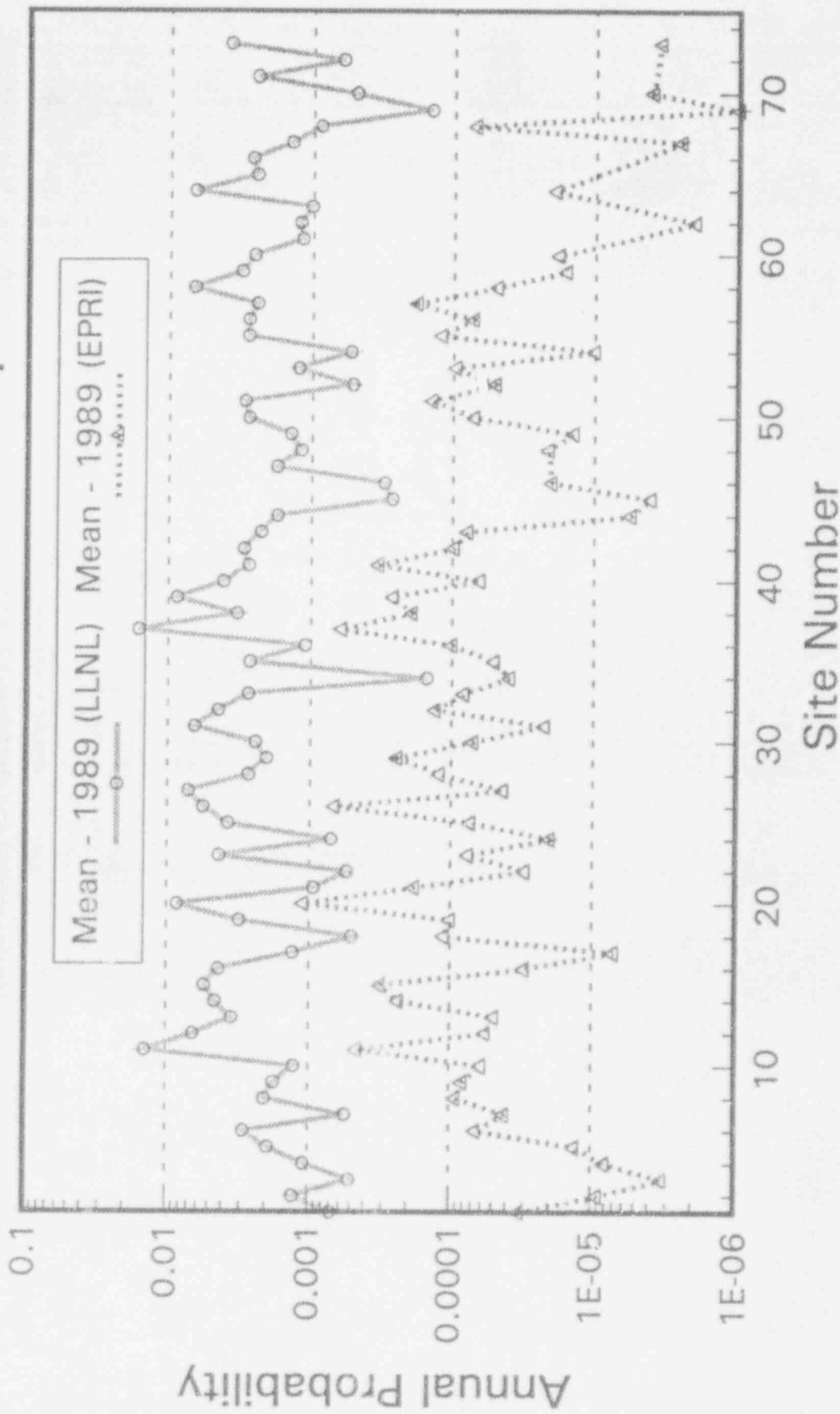


FIGURE 3

Probability of Exceeding the 5 & 10 hz Spectral

Ordinates at EUS NPPs. Comparisons Based on LLNL and EPRI Results. NUREG-1488 Spectra.

