



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

January 18, 1984

Honorable Nunzio J. Palladino
Chairman
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Dr. Palladino:

SUBJECT: QUANTIFICATION OF SEISMIC DESIGN MARGINS

On January 11, 1983, the ACRS wrote you regarding the quantification of seismic design margins and a possible program to evaluate the contribution to overall LWR risk that arises from earthquakes. We discussed and elaborated on the concerns and recommendations in that letter during our meeting with the Commission on November 17, 1983.

We proposed that a generic solution to our concerns about seismic margins and seismic risk could best be obtained by a four-part program involving both the NRC and the industry. In a memorandum to Commissioner Ahearne dated April 4, 1983, the EDO concurred that such an effort was timely. We understand that a task group has been established within the NRC Staff to consider and develop a program, but we have seen no reports of the activities of this group.

The ACRS Subcommittee on Extreme External Phenomena has held several meetings with NRR and RES Staff members and their consultants or contractors to discuss our concerns and to learn what was being done to address them. These meetings have been useful, but it does not appear that much progress has been made toward developing or implementing an integrated program on seismic margins.

Our ongoing review of the research program and budget for FY 1985 revealed a proposed project designated "Seismic Margins." There are other projects on seismic risk assessment and on seismic resistance (fragility) that would seem to be related to our concerns, but there does not seem to be a focused plan of research to address the problem.

Of equal or greater importance is the fact that we have seen no viable plan for addressing the generic and plant-specific seismic PRAs recommended in our proposed program. We believe that seismic PRAs, properly done and evaluated, can contribute significantly to the resolution of our concerns.

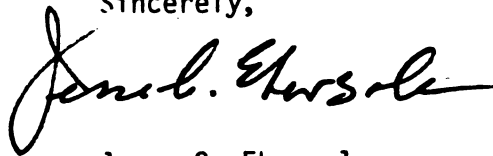
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A particular challenge will be how to obtain the cooperation of licensees in connection with the plant-specific seismic PRAs and that part of the program relating to fragilities. Since the resources required to perform a seismic PRA would be substantially reduced if a conventional PRA had already been done, or was being done, the proposed Integrated Safety Assessment Program might be considered as a medium for obtaining the limited number of seismic PRAs required.

The several programs described in our letter and discussed above will require the involvement of both NRR and RES within the NRC as well as individual utility licensees or an industry group, as appropriate. For this reason, the program has little chance of being initiated, much less completed, without strong centralized direction, clearly defined objectives, adequate funding in both RES and NRR and, above all, support and direction from the Commission.

The Committee or its appropriate Subcommittee is available to meet with the NRC Staff management to discuss approaches to addressing various aspects of this matter.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jesse C. Ebersole". The signature is written in dark ink and is positioned above the typed name.

Jesse C. Ebersole
Chairman