

NUCLEAR MANAGEMENT AND RESOURCES COUNCIL

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(202) 872-1280

Byron Lee, Jr.
President & Chief
Executive Officer

June 22, 1992

The Honorable Ivan Selin
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Chairman:

In a letter to NRC staff dated May 8, 1992 (Enclosure 1), NUMARC identified an industry concern that the proposed Appendix B to 10 CFR Part 100 is too prescriptive. In our letter, we recommend several changes which are significant in principle but require only minor editorial modifications to the NRC staff proposed rule language. This letter informs you of our concern and forwards our request that the changes be considered for incorporation in the proposed Appendix B prior to its release for public comment.

The proposed Appendix B to 10 CFR Part 100 requires the performance of dual analyses; one applying probabilistic methods and one applying deterministic methods. Specifically, the proposed Appendix B states that "both deterministic and probabilistic evaluations shall be conducted" and goes on to require both probabilistic and deterministic site determinations, which we are concerned could be in conflict. Further, because the technologies and methods available for seismic siting are continuing to evolve, we believe that it is undesirable for the regulation to lock in current technology and methods. Such a regulation could prevent the introduction and application of new scientific information, state-of-the-art technology, and analytical methods. This has been shown to be a difficulty with the existing Appendix A of 10 CFR Part 100. Our recommended changes are designed to remove the specification of dual evaluations and provide flexibility for the Commission to determine the degree of reliance that should be placed on probabilistic, deterministic or integrated deterministic/probabilistic methods.

In a response to our letter, dated May 29, 1992 (Enclosure 2), the Office of Nuclear Regulatory Research states that they have reviewed our comments and are "in general agreement with some of the clarifying language." The letter also acknowledges that the NRC Advisory Committee on Reactor Safeguards (ACRS) in their February 14, 1992, letter has stated that "the need for a probabilistic approach was successfully argued by the staff but not for the use of a dual approach" and that the ACRS "is not convinced that the proposed dual approach is either necessary or desirable."

NUMARC met with members of NRC staff on June 17, 1992, to discuss the proposed seismic siting regulation and to outline the industry's views on an

The Honorable Ivan Selin
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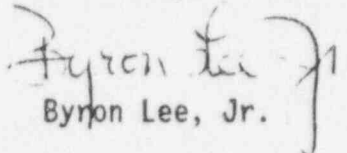
alternative siting-decision process which integrates both deterministic and probabilistic information in a single decision process. In this meeting, the NRC staff expressed favorable support for the proposed process and stated that they would like to be further briefed on the results of trial demonstrations. The NRC staff also restated their concern that the regulation should explicitly identify the need for deterministic investigations to support a regulatory determination of site acceptability. We believe that this need can be expressed in the draft Appendix B with the following proposed modification to current draft language:

"The geological, seismological and engineering characteristics of a site and its environs shall be investigated in sufficient scope and detail to permit an adequate evaluation of the proposed site, and to provide sufficient information to support ~~both probabilistic and deterministic~~ determinations required by these criteria and to permit adequate engineering solutions to actual or potential geologic and seismic effects at the proposed site."

Removal of the proposed requirement for dual determinations is appropriate prior to release for public comment to provide assurance that comments received during the public comment period are properly focused so that subsequent adoption of this modification would not require republication for further comment. Further, such changes will facilitate industry review of the rulemaking package, and will increase our confidence that siting processes which integrate all information in a single evaluation process will continue to be allowed by the regulations.

We hope our perspective on this matter is useful as the Commission considers the revision of this important regulation relative to the siting of future nuclear power plants and implementation of the Nuclear Power Oversight Committee's (NPOC) Strategic Plan for Building New Nuclear Power Plants. We would be happy to discuss this matter further at your convenience.

Sincerely,


Byron Lee, Jr.

JCB/acf
Enclosures

cc: Commissioner Rogers
Commissioner Curtiss
Commissioner Remick
Commissioner de Planque
James M. Taylor, Executive Director for Operations
Eric S. Beckjord, Director, Office of Nuclear Regulatory Research
Thomas E. Murley, Director, Office of Nuclear Reactor Regulation



ENCLOSURE 1

NUCLEAR MANAGEMENT AND RESOURCES COUNCIL

1776 Eye Street, N.W. • Suite 300 • Washington, DC 20006-2496
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William H. Bessin
Vice President & Director
Technical Division

May 8, 1992

Mr. Eric S. Beckjord, Director
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Mail Stop NLS 007
Washington, D.C. 20555

Dear Mr. Beckjord:

The purpose of this letter is to forward early industry comments on language being proposed for the seismic siting portion of the 10 CFR Part 100 rulemaking package and to urge modification of the language prior to release for public comment. We believe that such changes are necessary to ensure that comments received during the public comment period are meaningfully focused and do not result in a final rule which is fundamentally different from the package released for public comment. Further, such changes will facilitate industry review of the rulemaking package and will greatly increase our confidence that remaining issues can be adequately addressed during the public comment period.

The proposed criteria for seismic and geologic siting of new plants are contained in a new Appendix B to 10 CFR Part 100. A draft of this regulation, dated January 21, 1992, was released to the NRC public document room. The draft Appendix B contains language which requires that "both probabilistic and deterministic evaluations shall be conducted" and is accompanied by draft regulatory guidance (DG-1015) which outlines a dual path process for assessing Safe Shutdown Earthquake ground motions.

The draft rulemaking package was reviewed by ACRS in February 1992. In a letter dated February 14, 1992, ACRS stated that "...we are not convinced that the proposed dual approach is either necessary or desirable..." It is NUMARC's understanding, based on discussions with NRC staff on April 23, 1992, that the rationale for requiring both probabilistic and deterministic evaluations is:

1. Deterministic evaluations are necessary to support a regulatory determination of appropriate site characterization, and
2. The absence of a specific acknowledgement of probabilistic evaluations in the regulations will impede the use of such information.

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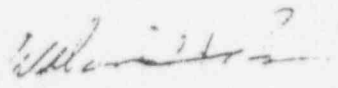
Mr. Eric S. Beckjord
May 8, 1992
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We believe that requiring the use of both probabilistic and deterministic evaluations is too prescriptive for a rule which will be applied to all geographical regions in the United States. The proposed rule language, in effect, requires that two evaluations be performed for all sites and "locks in" a dual analysis methodology. The science and engineering of seismic siting for nuclear power plants is rapidly evolving and we believe that it is unwise to tie the regulation to a prescriptive method that could prevent use of new state-of-the-art technology. The regulation should be flexible to allow for regional differences in seismologic/geologic knowledge (e.g., Eastern U.S. vs. Western U.S.) and should not prevent the introduction and application of new information and state-of-the-art technology.

Enclosed with this letter are recommended changes (in a line-in, line-out, format) to the draft Appendix B language which we believe provide the desired flexibility and also address NRC staff concerns identified in the April 23, 1992 meeting. These proposed changes are consistent with ACRS comments on the draft rulemaking package and thus do not represent a major change which would require additional ACRS review prior to release for public comment.

We acknowledge and support the NRC staff efforts to revise 10 CFR Part 100 seismic siting regulations and look forward to future interactions with NRC staff on this subject. We are willing to discuss with NRC staff the specific comments forwarded in this letter and should you have any questions, feel free to call Ray Ng or John Butler of the NUMARC staff.

Sincerely,



William H. Rasin

JCB/acf
Enclosure

cc: L. C. Shao, RES
R. J. Bosnak, RES
A. J. Murphy, RES
T. E. Murley, NRR
J. E. Richardson, NRR

Proposed Modifications
10 CFR Part 100 Appendix B (Draft, dated January 21, 1992)

1. Page App B-2, line 18

Remove:

~~"Both deterministic and probabilistic evaluations shall be conducted."~~

2. Page App B-4, line 25

Modify:

"These criteria cover both deterministic and probabilistic procedures for assessing design parameters. The degree of reliance that the Commission will place on probabilistic or deterministic procedures will depend on the type of tectonic region within which the site is located. The geological, seismological and engineering characteristics of a site and its environs shall be investigated in sufficient scope and detail to permit an adequate evaluation of the proposed site, and to provide sufficient information to support both probabilistic and deterministic determinations required by these criteria and to permit adequate engineering solutions to actual or potential geologic and seismic effects at the proposed site."

3. Page App B-6, line 9

Modify:

"The uncertainty in determining the expected maximum earthquakes shall be taken into account ~~accounted for in the probabilistic analysis.~~"

4. Page App B-6, line 12

Modify:

"The ground motion at the site shall be ~~estimated from all earthquakes up to and including the expected maximum earthquake associated with each source which could potentially affect the site using both probabilistic and deterministic approaches~~ assessed taking into account all seismic sources that could reasonably affect determination of the site SSE ground motion. Methods for assessing the ground motion at the site may include, as appropriate, probabilistic evaluations, deterministic evaluations or combined probabilistic/deterministic evaluations."

5. Page App B-6, line 23

Modify:

"These spectra are developed from ~~or compared to the envelope of the composite of the ground motions determined in Paragraph V(b).~~ Deterministic and, probabilistic seismic hazard analyses or deterministic/probabilistic combination approaches shall be used as appropriate to assess the adequacy of the Safe Shutdown Earthquake Ground Motion."



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 29 1992

Mr. William H. Rasin
Vice President and Director
Technical Division
Nuclear Management and Resources Council
Suite 300, 1776 Eye Street, N.W.
Washington, DC 20006-2496

Dear Mr. Rasin:

This letter is in response to your letter of May 8, 1992, pertaining to the proposed revision of Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," to 10 CFR Part 100, "Reactor Site Criteria." Specifically, your letter provided early industry comments on the proposed regulation, designated Appendix B to 10 CFR Part 100, that had been placed in the NRC Public Document Room on January 21, 1992 and focused on the use of both probabilistic and deterministic evaluations in seismic and geologic siting of nuclear power plants.

There are divergent views on the role probabilistic seismic hazard analysis should play in the licensing arena. For example, the NRC Advisory Committee on Reactor Safeguards (ACRS) in their February 14, 1992 letter states that the need for a probabilistic approach was successfully argued by the staff but not for the use of a dual approach. Your letter also acknowledges that the ACRS is not convinced that the proposed dual approach is either necessary or desirable.

There is a general consensus within the NRC staff that the revised seismic and geological siting criteria should allow considerations for a probabilistic hazard analysis. There is also a general belief that the probabilistic analysis should be calibrated against the past practices for siting and licensing the current generation of nuclear power plants. There is a general consensus that ground motions should be calculated using deterministic methods once the controlling earthquakes are determined. With regard to the role of the probabilistic analysis, views range from an advocacy of a predominantly probabilistic analysis to the probabilistic/deterministic procedure used in the regulation and supporting regulatory guide (DG-1015, "Identification and Characterization of Seismic Sources, Expected Maximum Earthquakes and Ground Motion") to a predominantly deterministic approach as used currently.

The staff within the Office of Nuclear Regulatory Research has reviewed your comments and is in general agreement with some of the clarifying language suggested in your letter. In particular, it is our intent that the degree of reliance that should be placed on probabilistic or deterministic procedures will depend on the type of tectonic region within which the site is located.

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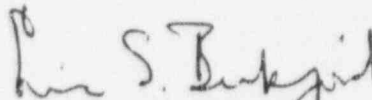
In draft Regulatory Guide DG-1015, the staff has attempted to achieve this intent by providing separate discussions on eastern and western U.S. sites.

As discussed in the February 5 and 7 ACRS meetings, the staff is planning to include, within the Supplemental Information portion of the Federal Register notice, specific questions regarding the use of probabilistic seismic hazard analysis and the balance between the deterministic and probabilistic evaluations. These questions address issues very closely related to the issues raised in your letter.

It is the staff's intent to seek comments from a variety of sources prior to finalizing its position on this issue. Be assured that your comments received to date, future comments that you may provide, and other comments received during the public comment period will receive serious consideration during the development of the final regulation and supporting regulatory guides.

I want to acknowledge the interest of NUMARC staff and the Ad Hoc Advisory Committee on the Appendix A Revision formed by NUMARC. I urge you to continue your active participation in this rulemaking activity. I appreciate your support.

Sincerely,



Eric S. Beckjord, Director
Office of Nuclear Regulatory Research

cc: L. C. Shao
R. J. Bosnak
A. J. Murphy
T. E. Murley
J. E. Richardson