



AD93-1
PDR

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

AUG 18 1992

Mr. Joseph Colvin
President & Chief Executive Officer
Nuclear Management and Resources Council
1776 Eye Street, N.W., Suite 300
Washington, D.C. 20006-3706

Dear Mr. Colvin:

I am responding to Mr. Lee's letter dated June 22, 1992, to Chairman Selin which expressed an industry concern that the proposed Appendix B to 10 CFR Part 100 is too prescriptive. It also forwarded your request that the changes recommended in the May 8, 1992 letter from Mr. William H. Rasin be considered for incorporation in the proposed Appendix B prior to its release for public comment. At issue is the specific phrase in Appendix B that "both deterministic and probabilistic evaluations must be conducted to determine site suitability and seismic design requirements for the site." The question is whether this is necessary or appropriate, and we think it is best to raise the issue, directly and specifically for public comment. In the way we are proposing we can be assured of receiving comments, both pro and con, on our proposed evaluation approach.

I also want to reemphasize a statement in my earlier letter to Mr. Rasin that your comments and other comments received during the public comment period will receive serious consideration during the development of the final regulation and supporting regulatory guides. When final regulations are submitted to review committees (i.e., ACRS and CRGR) and the Commissioners for their approval, the staff will provide a summary of the public comments and the staff's recommended resolution. By this means, the review committees and the Commissioners are aware of the public concerns, and in this case, will be able to independently review the issue, the public comments received, and the proposed resolution.

I want to acknowledge the interest of NUMARC and industry in this important rulemaking effort as reflected in several public meetings.

Sincerely,


Eric S. Beckjord, Director
Office of Nuclear Regulatory Research

cc: The Chairman
Commissioner Rogers
Commissioner Curtiss
Commissioner Remick
Commissioner de Planque
James M. Taylor, EDO
SECY
OGC

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Original Signed By:

C. J. Heltemes, Jr. *for*

Eric S. Beckjord, Director
Office of Nuclear Regulatory Research

cc: The Chairman
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Commissioner Curtiss
Commissioner Remick
Commissioner de Planque
James M. Taylor, EDO
SECY
OGC

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*See previous concurrences

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I want to assure you that the Commission has had the benefit of your views and prior to reaching its decision to publish, careful consideration will be given to your concerns. I also want to reemphasize a statement in my earlier letter to Mr. Rasin that your comments and other comments received during the public comment period will receive serious consideration during the development of the final regulation and supporting regulatory guides. When final regulations are submitted to review committees (i.e., ACRS and CRGR) and the Commissioners for their approval the staff is required to provide a summary of the public comments and the staff's recommended resolution. Thereby, the review committees and the Commissioners are aware of the public concerns.

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Mr. Byron Lee, Jr.
President & Chief Executive Officer
Nuclear Management and Resources Council
1776 Eye Street, N.W., Suite 300
Washington, D.C. 20006-3706

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

P. Kennedy
AD93 -1
PDR

SEP 8 1992

MEMORANDUM FOR: Lawrence C. Shao, Director
Division of Engineering, RES

FROM: Andrew J. Murphy, Chief
Structural & Seismic Engineering Branch
Division of Engineering, RES

SUBJECT: SUMMARY OF PUBLIC MEETING ON THE REVISION OF APPENDIX A,
"SEISMIC AND GEOLOGIC SITING CRITERIA FOR NUCLEAR POWER
PLANTS," TO 10 CFR PART 100

On June 17, 1992, the NRC staff met with the staff of the Nuclear Management and Resources Council (NUMARC) and other industry representatives to discuss the proposed revision of Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," to 10 CFR Part 100. A public meeting notice appeared in the Federal Register on June 4, 1992, Vol 57, page 23548. Enclosure 1 is a list of attendees.

The meeting, scheduled at the request of NUMARC staff, was a follow-up to a meeting held on April 23, 1992. On April 23, NUMARC staff and members of their Ad Hoc Advisory Committee on Appendix A Revision met with the staff to make sure they understood what the proposed regulations would require and the staff rational for the requirements. At this meeting (June 17) NUMARC staff and members of their Ad Hoc Advisory Committee on Appendix A Revision expressed their concerns about the proposed regulations and offered suggested modifications. The discussion focused on Proposed Appendix B, "Criteria for the Seismic and Geologic Siting of Nuclear Power Plants After [Effective Date]," to Part 100 and the supporting draft regulatory guide DG-1015.

I opened the meeting by stating that the Committee to Review Generic Requirements (CRGR) had approved the proposed rulemaking to publish for public comment. The Executive Director for Operation (EDO) had submitted the rulemaking to the Commissions on June 12, 1992 to obtain their approval to publish for public comment. A Commission briefing is scheduled for June 24, 1992. It is anticipated that the rulemaking will be published in the Federal Register around the first of August.

The meeting was then turned over to Raymond Ng and John Butler, NUMARC, and Carl Stepp, EPRI, (member of the Ad Hoc Committee) to discuss industry comments on the seismic siting portion of the rulemaking. Their vugraphs are included as Enclosure 2.

The major industry concern with the regulation (Proposed Appendix B to Part 100), is the requirement to perform both deterministic and probabilistic evaluations. It was noted that this concern was also raised in a letter from William Rasin, NUMARC, to Eric Beckjord, NRC, which identified wording changes. NUMARC staff stated that these changes are needed now to provide assurance that the final rule is not fundamentally different from the public

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Lawrence C. Shao

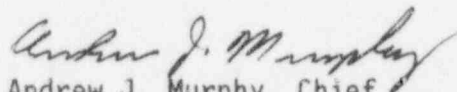
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comment version. There was a discussion about the need to notify the regulation and the potential for additional ACRS and CRGR meetings if the regulations were changed. It was also noted that some documents have been significantly changed as a result of public comments without adverse implementation problems.

A point not mentioned during the meeting but one that should be put on public record is that the final rulemaking package undergoes the same reviews and public meetings as the proposed rulemaking. When the final regulations are submitted to the review committees (i.e., ACRS, CRGR) and the Commissioners for their approval, the staff will provide a summary of the public comments and the staff's recommended resolution. By this means, the review committees and the Commissioners are aware of all public concerns, and in this case, will be able to independently review the issue, the comments received, and the proposed resolution.

The remainder of the meeting focused on the Draft Regulatory Guide DG-1015, "Identification and Characterization of Seismic Sources, Deterministic Source Earthquakes and Ground Motion," that contains staff guidance on the implementation of Proposed Appendix B to Part 100. An alternative approach is being proposed by industry. It was presented as an integration of the probabilistic and deterministic evaluations rather than explicit independent evaluations; thus their concern with the wording in the proposed regulation.

The staff indicated that their approach had merit and encouraged its development. Sample calculations performed in support of industry's position should be completed by the next scheduled public meeting on July 10, 1992 (FRN Vol. 57, June 17, 1992, page 27006). Attendees were informed that written documentation of their position would be required prior to obtaining formal staff comment.



Andrew J. Murphy, Chief
Structural & Seismic Engineering Branch
Division of Engineering, RES

Enclosures: As Stated

cc: R. Ng, NUMARC
R. Bosnak, RES
T. King, RES
C. Ader, RES
G. Bagchi, NRR
N. Chokshi, RES
R. Rothman, NRR
R. McMullen, RES
R. Kenneally, RES
P. Sobel, NRR
A. Ibrahim, NMSS
PDR

ATTENDEES

PUBLIC MEETING
 REVISION OF 10 CFR PART 100, APPENDIX A,
 SEISMIC AND GEOLOGIC SITING CRITERIA FOR NUCLEAR POWER PLANTS

June 17, 1992
 NRC Headquarters, OWFN, 1F7/9
 1:00 PM

NAME	AFFILIATION
Roger Kenneally	NRC / RES
Phyllis Sobel	NRC/NRR
Nilesh Chokshi	NRC / RES
Andy Murphy	NRC / RES
JOAN BUTLER	NUMARC
Ray Ng	NUMARC
MARTY McCANN	JBA
GOUTAM BAGCHI	NRC/NRR
CARL STEPP	EPRI
DOE HENSTER	NRC / ACAS Staff
Dier McMullen	NRC-RES
JIM YORK	WESTON
WILLIAM MCCAUGHEY	WESTON
THOMAS JENTZ	NUS
PANI WATKINS	NRC/NRR/ADAC/DOE
John W Craig	NRC/NRR/POLR
Joe Sanders	DNFSB Staff
Dermot Winters	DNFSB Staff
Jeff Kimball	DOE
ANN BIENIAWSKI	DOE
Francis Aleksiewicz	NRC/NRR
John Jacobs	Yankee
Donald P. Moore	Southern Company Services, Inc

PUBLIC MEETING
REVISION OF 10 CFR PART 100, APPENDIX A,
SEISMIC AND GEOLOGIC SITING CRITERIA FOR NUCLEAR POWER PLANTS

AFFILIATION

SOUTH CAROLINA ELEC. & GAS

TVA

SERCN Licensing Bechtel

Halliburton NUS

NRCC / NRN / OET

Seismic Siting Rulemaking
"10 CFR Part 100 Appendix A"

NUMARC/NRC Meeting
Washington, DC
June 17, 1992

AGENDA

- o Industry Perspectives on Appendix B and DG-1015
- o Description of Decision - Making Approach
- o Planned Analyses, Applications and Demonstrations
- o Staff Comments & Feedback

DRAFT APPENDIX B

- o Requires both probabilistic and deterministic evaluations
 - Language "locks-in" current seismic siting technology
- o Siting technology and methods are continually evolving
- o Inhibits introduction and application of new information, state-of-the-art technology, and analytical methods
- o Experience with Appendix A has shown prescriptive language to be a problem
- o To avoid these problems:
 - Identify required investigations and determinations, not methods.
 - Acceptable methods identified in regulatory guides

DRAFT APPENDIX B, CONT...

- o NUMARC's letter to Beckjord (dated May 8, 1992) identifies wording changes to:
 - Remove language which prescribes the methods
 - Maintain language which identifies necessary investigations and determinations
- o Changes are needed now to provide assurance that the final rule is not fundamentally different from the public comment version

Scope

- o General
 - Decision framework, issues
 - Decision guidelines
 - Area of applicability
 - Direction
 - Areas for potential improvement
- o Proposed decision-making approach
- o Planned analyses to demonstrate proposed decision-making approach

General

- o Decision Framework, Issues
 - Estimates of seismic hazard have large associated uncertainty
 - Decision approach must accomodate uncertainty
 - Past approach to siting lacks stability in implementation and is not robust with respect to new information

General

- o Decision Guidelines
 - Incorporate the uncertainty in interpretations of earthquake phenomena
 - Evaluate site-specific geologic and seismic information for all new sites
 - Provide information that facilitates evaluation and review of site-specific seismic hazard acceptability considering all new site-specific data
 - Must be generally accepted by regulated, regulator and technical/professional community
 - Must be reproducible
 - Should be robust with respect to evolving understanding of earthquake processes and phenomena

General

- o Areas of Application
 - Generally applicable to all tectonic environments
 - Assure applicability in tectonic environments having greatest uncertainty about earthquake processes and phenomena
- o Objective
 - Develop and evaluate decision approaches
 - Demonstrate recommended approach meets guidelines for stable regulatory decision-making

General

- o Direction
 - Build on foundation established by U.S. NRC Draft DG-1015
 - a. Recognize that a PSHA ensures that uncertainty has been included in SSE ground motion assessment
 - b. Acceptable SSE ground-motion for future sites should be consistent with that of current population of plants
 - c. Perform site-specific geological, seismological and geophysical investigations
 - d. De-aggregation of PSHA to provide an information base for evaluation and review of site-specific investigations before final determination of SSE ground motion
 - Make strong use of technical advances of past ten years

Areas Of Potential Improvement

- o Dual deterministic and probabilistic assessments
 - Deterministic seismic sources are only one realization of the uncertainty in scientific interpretations
 - Selection of deterministic source parameters introduces additional regulatory instability
 - Lacks site-to-site consistency --> likely disparate results at future sites
 - SSE ground-motion decision process is inherently probabilistic --> inappropriate to lay side-by-side probabilistic and deterministic evaluations

Areas of Potential Improvement

- o Regulatory decision-making stability can be better achieved with an integrated decision-making approach, which
 - Integrates assessment of SSE ground-motion, based on:
 - a) New site-specific geological, seismological and geophysical information
 - b) Existing seismic source interpretations

Decision-Making Approach

- o Approach involves determination of site-specific SSE ground motion based on an integrated assessment
 - Compile site-specific geological, seismological and geophysical information
 - Determine whether existing seismic source interpretations are robust with respect to new information
 - Assess site-specific SSE ground-motion using PSHA procedures, existing sources, and new ground-motion attenuation models
 - Determine \overline{M} , \overline{D} pairs at selected ground-motion frequencies for:
 - a) Composite seismic hazard
 - b) Seismic hazard source-by-source

Decision Making Approach

- Evaluate derived \bar{M} , \bar{D} information against new geological, seismological and geophysical data for the site
- If needed, perform separate seismic hazard analysis based on new information to verify that derived hazard is consistent with site's PSHA results

Hazard Assessments To Be Performed

- o Trial applications of alternative approaches for evaluating the SSE ground-motion will be performed at a number of sites
- o Evaluations will assess:
 - \bar{M} and \bar{D} for the total (all source) hazard
 - \bar{M} and \bar{D} for each seismic source
- o Sites - existing plant sites and sites located in proximity to high seismic regions