

MEMORANDUM FOR: Ronald L. Ballard, Chief
 Geosciences & Systems Performance Branch, HLWM

FROM: Joseph O. Bunting, Chief
 Engineering Branch, HLWM

SUBJECT: NRC TECHNICAL POSITION: SEISMIC HAZARD EVALUATION FOR
 A GEOLOGIC REPOSITORY

Reference your memo, subject as above, dated March 31, 1989.

Review of the internal draft of the subject technical position has been completed by Dr. Jerome R. Pearring of the HLEN staff. The following general comments are presented:

1. The HLEN staff continues to basically agree that appropriate requirements of 10CFR100 Appendix A, augmented by appropriate probabilistic techniques, would be acceptable to demonstrate compliance with 10CFR60 requirements. As presently revised the draft technical position acceptably supports the HLEN staff position.
2. The "bottom line" of this technical position is that 10CFR60 requires a seismic hazard evaluation be made and that the methodology of 10CFR100 Appendix A for evaluating seismic hazard and establishing engineering design bases is both available and acceptable. This "bottom line" could also be expressed in a rulemaking of equal clarity and with greater regulatory significance. The HLGP staff may wish to consider this in light of the expected additional staff effort yet to be expended in establishing this technical position.
3. Other specific comments resulting from this review are presented in the attached comment sheet and annotated copy of the draft technical position for your consideration.

Should you have any questions regarding our comments, please contact Dr. Jerome Pearring (X20508).

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Joseph O. Bunting, Chief
 Engineering Branch, HLEN

Enclosure: As stated

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ENGINEERING BRANCH COMMENTS ON DRAFT TECHNICAL POSITION ON "SEISMIC HAZARD EVALUATION FOR A GEOLOGIC REPOSITORY"

1. The title of the technical position (TP) should be consistent with that identified in the FY 1989 OPERATING PLAN, or the OPERATING PLAN should be amended to be consistent with the proposed technical position. The April 18, 1989 update of the FY1989 OPERATING PLAN identifies this technical position as "PRE-CLOSURE EARTHQUAKE HAZARD".
2. The table of contents (page iii) Section 4 is inconsistent with the body of the text. Specifically the subsection identified in the text as 4.3.4 "Issues Related to Appendix A and Its Possible Revision" does not appear in the table of contents. As the information presented in this subsection in the text is tabular in form and lacks sufficient substance to clearly delineate the relevance of the issues presented to the geologic repository program, it is recommended that this subsection be dropped from the text and the table of contents remain as is.
3. Recommend the term "underground facilities" (page 1, line 8) be used in its singular form here, and throughout the text, to be consistent with its definition in 10CRF60.2.
4. Recommend the first sentence of subsection 2.4 be deleted from this subsection as it presents a conclusion. The appropriateness of considering 10CFR100 Appendix A can be addressed in Section 4 of the TP.
5. Suggest that Section 3 - Technical Position be expanded to contain a statement that it is the opinion of the NRC staff that the provisions of 10CFR100 Appendix A satisfy the regulatory requirements of 10CFR60.
6. Suggest that the last full sentence on page 12 be deleted as it is not clear that all the components of a geologic repository should be able to withstand faulting at significantly closer proximities than is the case for nuclear power plants. Regardless, the requirement to consider the need for design for surface faulting, as expressed in the next sentence makes this sentence superfluous to an otherwise well written section.
7. Suggest consideration be given to expanding subsection 4.3.3 to address the requirement to design against possible seismic effects on facility foundations by ground disruption such as fissuring, differential settlement, cratering, liquefaction, and landsliding in addition to faulting.
8. Suggest the last five words of the second sentence of Subsection 4.1 be deleted and replaced with the following "...and the option to retrieve the nuclear material must be preserved." In addition, suggest consideration be given to making the several other proposed editing revisions indicated on the attached annotated copy of the draft technical position.(ATTACHMENT 1)

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9. Suggest consideration be given to deleting the entire Glossary as, with the exception of the terms "Anticipated Operational Occurrences", "Quaternary", and "Seismo-Tectonic Province", all of the terms are defined in 10CFR60 or 10CFR100 Appendix A. The above identified remaining three terms can be defined in the body of the text when first used.