



Department of Energy
Office of Civilian Radioactive Waste Management
Office of Repository Development
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QA: N/A
Project No. WM-00011

JUN 29 2004

OVERNIGHT MAIL

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TRANSMITTAL OF REPORT *TECHNICAL BASIS DOCUMENT NO. 14:*
LOW PROBABILITY SEISMIC EVENTS, REVISION 1, ADDRESSING KEY TECHNICAL
ISSUE (KTI) AGREEMENTS RELATED TO EARTHQUAKE EFFECTS

This letter transmits *Technical Basis Document No. 14: Low Probability Seismic Events*, Revision 1 (enclosure 1) and a compact disk (CD) of the report (enclosure 2). The CD contains a pdf file, has 55,304 KB, and can be made publicly available. This Technical Basis Document contains a summary of the conceptual understanding of low probability seismic events that could affect the Yucca Mountain, Nevada, site. Appendices A through D provide direct responses to the following Structural Deformation and Seismicity (SDS), Container Life and Source Term (CLST), Total System Performance Assessment and Integration (TSPAI), Repository Design and Thermal-Mechanical Effects (RDTME) KTI agreements and related additional information needed (AIN) items:

Appendix A - Rockfall and Vibratory Loading Effects on the Mechanical Failure of Cladding and Methodology Used to Implement the Effects of Seismic Effects on Cladding (Response to CLST 3.10 and TSPAI 3.06)

Appendix B - Seismic Inputs for Preclosure Design and Analyses: Methodology and an Example (Response to RDTME 2.01, RDTME 2.02, RDTME 3.03, and SDS 2.02)

Appendix C - Expert Elicitation of Ground Motion Interpretations for the Yucca Mountain Probabilistic Seismic Hazard Analysis: Treatment of Uncertainty and Feedback (Response to SDS 2.01 AIN-1)

Appendix D - Documentation of Seismic Fragility Curves and Seismic Risk Analysis (Response to SDS 2.04 AIN-1)

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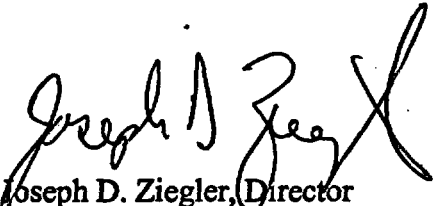
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Enclosure 1 is one in a series of Technical Basis Documents that are being prepared to describe the Yucca Mountain repository system components and processes that are important for estimating the likely postclosure performance of the repository. The information presented in these documents, along with the associated references, forms the basis of the postclosure safety analyses that are being developed for the License Application (LA). This information also responds to open KTI agreements made between the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE). Placing the DOE responses to individual KTI agreements in the context of the applicable repository system components and processes allows for a more direct discussion of the relevance of the agreements to the postclosure safety analyses that will be presented in the LA.

This Technical Basis Document and the associated references reflect the ongoing development of the postclosure safety analyses for seismic events that will be included in the LA. As the characteristics of low probability seismic events are also an input to preclosure safety analyses, the conceptual framework additionally supports the resolution of KTIs related to preclosure seismic design.

The DOE considers the KTI agreements covered in *Technical Basis Document No. 14: Low Probability Seismic Events* to be fully addressed, and pending review and acceptance by the NRC, they should be considered complete.

There are no new regulatory commitments in the body or the enclosures of this letter. Please direct any questions concerning this letter and its enclosures to Carol L. Hanlon at (702) 794-1324 or e-mail carol_hanlon@ymp.gov, or Jon P. Ake at (702) 794-5526 or e-mail jon_ake@ymp.gov.


Joseph D. Ziegler, Director
Office of License Application and Strategy

OLA&S:CLH-1210

Enclosures:

1. *Technical Basis Document No. 14:
Low Probability Seismic Events,
Revision 1*
2. CD of Enclosure 1

JUN 29 2004

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