



Department of Energy
Washington, DC 20585

MAR 29 1993

Mr. Joseph J. Holonich, Director
Repository Licensing & Quality Assurance
Project Directorate
Division of High-Level Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Holonich:

Enclosed with this letter is a controlled copy of Revision 2 of Study Plan 8.3.1.8.1.1, "Probability of Magmatic Disruption of the Repository." Although Revision 2 is not considered a major revision, the study plan received a limited technical review under current Yucca Mountain Site Characterization Project Office quality assurance procedures because of the extent of changes to its technical content.

Two concerns expressed by the U.S. Nuclear Regulatory Commission (NRC) in Site Characterization Analysis Comment 45 are addressed by Revision 2 of Study Plan 8.3.1.8.1.1. First, in NRC's evaluation of the U.S. Department of Energy's (DOE) response to Comment 45, NRC expressed concern that alternative tectonic models for the Yucca Mountain, Nevada, region should be incorporated into calculations of the probability of future volcanic events. The DOE fully intends to consider all structural/tectonic models and to calculate the disruption parameter iteratively as new information becomes available. Section 3.2.2.2 has been revised to clarify this position. Ambiguous examples of disruption parameter calculations have been deleted and a summary paragraph has been added clarifying that all structural/tectonic models will be considered along with new information as obtained.

The second NRC concern is that the stochastic approach to probability calculations is not necessarily conservative and that alternative methods of calculating the volcanic recurrence rate should be considered. The DOE believes that a stochastic approach to probability calculations is conservative for the Yucca Mountain region based on several lines of evidence pointing to a decrease in magma production with time. However, DOE fully intends to incorporate all methods (e.g., stochastic, poisson, weibull) for probability calculations. Section 3.4.2.1 has been completely revised to replace incorrect examples of probability calculations with more accurate example calculations and an

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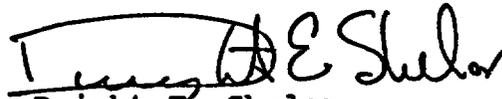
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updated explanation of the strategy for their use. In addition to the above two major revisions, several sections of Study Plan 8.3.1.8.1.1 (Sections 1.1, 1.2, 3.4.2.2., and 4.0) have been revised to clarify that both the intrusion and eruption scenarios will be considered in the calculation of the probability of future volcanic activity in the Yucca Mountain region.

The Document Transmittal/Acknowledgement Record for your controlled copy of the study plan should be signed and dated and returned to the Document Control Center in Las Vegas, Nevada.

If you have any questions, please contact Mr. Chris Einberg of my office at 202-586-8869.

Sincerely,



Dwight E. Shelor
Associate Director for
Systems and Compliance
Office of Civilian Radioactive
Waste Management

Enclosure:
Study Plan 8.3.1.8.1.1,
Revision 2

cc: w\enclosure
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cc:
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