



Department of Energy
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Yucca Mountain Site Characterization Office
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FINAL VOLCANISM STATUS REPORT (SCPB: 8.3.1.8.1.1)

Reference: Ltr, Shelor to Holonich, dtd 3/9/93

For your information, enclosed is the final Los Alamos National Laboratory (Los Alamos) technical report (LA-12908) on the status of volcanism studies for the Yucca Mountain Site Characterization Project (YMP). Numerous comments were received on the draft report from the U.S. Nuclear Regulatory Commission (NRC), Nuclear Waste Technical Review Board, and the scientific community (reference). These comments, as well as information exchanged during discussions at the June 9, 1993, NRC/U.S. Department of Energy (DOE) technical exchange, were considered in the preparation of the final report.

The volcanism status report describes over a decade of research conducted by Los Alamos to assess the impact of potential volcanism on the proposed repository at Yucca Mountain, Nevada. The report will form the basis for YMP regulatory documents such as technical basis reports, the topical report planned for fiscal year 1996, and the License Application Annotated Outline. Based on the results presented in this report, DOE has made the following conclusions about volcanism at Yucca Mountain:

1. The recurrence probability of silicic volcanism is so low that it is not a significant issue for the potential repository at Yucca Mountain.
2. The current estimates of the annual probability of future volcanic disruption of the repository are so low (approximately 10^{-8} events per year or about 1 chance in 10,000 during the 10,000-year period of required waste isolation) that volcanic hazard by itself does not disqualify the Yucca Mountain site.

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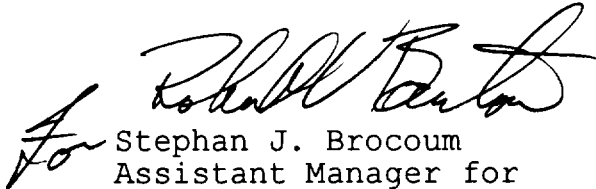
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3. The uncertainty in probability estimates is sufficiently great that no classes of volcanic scenarios can be excluded from consideration with respect to their contribution to the cumulative releases from the waste isolation system.

Consistent with the conclusions presented above and with the needs of the YMP performance assessment group, the focus of Los Alamos volcanism investigations has shifted away from the probability aspect to a concentration on the study of volcanic effects (Study Plan 8.3.1.8.1.2, Physical Processes of Magmatism and Effects on the Potential Repository).

A complementary Los Alamos technical report is currently being prepared that references field and laboratory notebooks which describe and document field studies, identifies aerial photographs and topographic maps used in field studies, and identifies samples and locations for data collected by the Los Alamos principal investigators and reported in the volcanism status report. We expect this technical report to be available in late fiscal year 1995.

If you have any questions, please contact Jeanne C. Nesbit at (702) 794-7930.


For Stephan J. Brocoum

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AMSL:JCN-2809

Enclosure:
Los Alamos Volcanism Status
Report

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