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Sandia National Laboratories

Albuquerque, New Mexico 87185

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10, 11, 16

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Coleman

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Neil Coleman
Geotechnical Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
7915 Eastern Avenue
Silver Spring, MD 20910

Dear Mr. Coleman:

Enclosed you will find the final camera-ready copy of NUREG/CR-4110, SAND84-2668, "Repository Site Data Report for Unsaturated Tuff," by Pei-lin Tien and others. I am also enclosing two photocopies and the responses to NRC's comments, as you requested.

Sincerely,

Regina Hunter

Regina L. Hunter
Waste Management Systems
Division 6431

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2444

**Responses to Comments on the Draft
Repository Site Data Report for Unsaturated Tuff**

Some of the review comments appear to be based on the premise that the authors of the RSD did original field work for use in its preparation. All the RSDs, including this one on unsaturated tuff, are compilations of data from the publicly available literature.

A. Seismology.

1. This comment has been added to Chapter 8, Recommendations.
2. To the best of our knowledge, capable faults and the associated magnitudes of movement and earthquakes are not identified in the literature, nor are sufficient data available for independent interpretation.
3. The examination of the effects, if any, of microearthquakes on a repository site is outside the scope of the RSD.
4. The RSD is not a field study; no geophysical data were gathered for this report. Readers interested in the techniques used to gather the the data reproduced in the RSD are referred to the original reports.
5. We reexamined Figured 1-13 and 1-14, and we believe that they do show similar patterns. Both the north-trending zone of earthquakes to the west of NTS and the east-west zone of earthquakes to the north of NTS are visible in the two figures. Three clusters of earthquakes in southern California are also clearly visible on both figures. Neither figure shows major zones of earthquakes that are missing from the other. We have left the figures and the text unchanged.
6. The original Figure 1-15 has been deleted.
7. The material referred to in this comment has been addressed in Chapter 4.
8. We believe that this comment has been addressed in the last paragraph of Section 1.6 to the extent necessary for the scope of the RSD.

B. Rock mechanics.

1. As explained above, the RSD project is not a field program, and no data were gathered except from the literature.
2. As explained in the Introduction, data from other unsaturated tuffs have been included in this report whenever the necessary data have not been collected at Yucca Mountain.

C. Hydrology.

1. The suggested change has been made.
2. The statement referred to has been deleted.
3. The report by Green and Evans is now cited in the RSD.
4. The section referred to has been clarified.
5. Several references have been added to this section.
6. This typo has been corrected.
7. "Discover" has been changed to "evaluate."
8. The RSD is not a field study; no hydrologic data were gathered for this report. Readers interested in the techniques used to gather the the data reproduced in the RSD are referred to the original reports.
9. The error in the table has been corrected.
10. "K_T" is now used in the table heading.
11. The heading now reads "...Rock Properties."