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Mr. Lindsay Mundell
U.S. Bureau of Mines
Denver Research Center
Building 20
Denver Federal Center
Denver, CO 80225

Dear Mr. Mundell:

Under the interagency agreement between the U.S. Bureau of Mines (BOM) and the Nuclear Regulatory Commission (NRC-02-80-075), you are requested to review the document "Nuclear Waste Simulation Experiments, Asse Salt Mine, Federal Republic of Germany, Annual Report, 1983," ONWI-539. The review of the report should consist of the following; 1) a brief summary of the report, 2) significance to NRC Waste Management Program, and 3) problems, deficiencies or limitations of report (an example is attached). The review should be submitted by April 30, 1985.

The action taken by this letter is considered to be within the scope of the current interagency agreement (NRC-02-80-075). No changes to costs or delivery of contracted products are authorized. Please notify me immediately if you believe this letter would result in changes to costs or delivery of contracted products. I can be reached on (301) 427-4649.

Sincerely,

/s/

David Tiktinsky
Engineering Branch
Division of Waste Management, NMSS

Attachment:
As stated

cc: E. Amey, BOM, Wash., D.C.
D. Forshe, BOM, Wash., D.C.
M. Demarco, BOM, Denver, CO

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WMEG AND WMGT DOCUMENT TECHNICAL REVIEW

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DOCUMENT: S. Sinnock, T. Lin, and Joseph P. Brannen, "Preliminary Bounds on the Expected Postclosure Performance of the Yucca Mountain Repository Site, Southern Nevada", SAND 84-1492, December 1984

REVIEWER: Naiem S. Tanious NST 4/3/85 DATE REVIEW COMPLETED: April 2, 1985

DATE APPROVED: DCG 4/4/85

BRIEF SUMMARY OF DOCUMENTS

This is a performance assessment report and mostly deals with geohydrology, flow in the unsaturated zone, geochemistry and radionuclide retardation. It contains one very small section (Chapter 3; Site Conditions) on rock characteristics and how it affects performance assessment. This reviewer concentrated on this section.

The authors limited the discussion to thermal and mechanical properties of the Topopah Spring, and how they control the induced rock changes caused by repository construction and heat from the emplaced waste. For the thermal load of 50-60 kw/acre; an estimated range for emplacement density, the authors stated the host rock will transmit the heat without causing significant changes in the medium. Further, thermal stresses will cause little additional fracturing. Rocks with high zeolite content (at 50 meter or more below the repository horizon) would not exhibit significant mineral shrinkage if the temperature changes were kept below 85°C. The authors thinking on this is that even if fracturing does take place, it will not play a significant role in water movement, since the latter is controlled by the flux, the hydraulic conductivity, the partioning of water between the fractures and the matrix.

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

The report is important because it deals with the postclosure performance of the repository at Yucca Mountain.

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

None

ACTION TAKEN:

None

ACTION RECOMMENDED:

This report should receive more rigorous reviews by geochemistry, hydrology, and performance assessment.