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March 11, 1985

Dr. D. J. Brooks
Geotechnical Branch
Office of Nuclear Material
Safety and Safeguards
U.S. Nuclear Regulatory Commission
623-SS
Washington, D.C. 20555

WM-RES
WM Record File
B0287
ORNL

WM Project 10,11,16
Docket No. _____
PDR
LPDR (B,N,S)

Distribution:

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_____ CZ

Dear Dave:

Enclosed is the progress report for the month of February 1985 for B0287,
"Technical Assistance in Geochemistry."

Sincerely,

Susan K. Whatley, Manager
Repository Licensing Analysis
and Support
Chemical Technology Division

SKW:arc

Enclosure

cc: Office of the Director, NMSS (Attn: Program Support Branch)
Division Director, NMSS Division of Waste Management (2)
M. R. Knapp, Chief, Geotechnical Branch
R. J. Starmer, Geochemistry Section, Geotechnical Branch
Branch Chief, Waste Management Branch, RES
W. D. Arnold
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R. E. Meyer
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MONTHLY PROGRESS REPORT FOR FEBRUARY 1985

PROJECT TITLE: Technical Assistance in Geochemistry

PROJECT MANAGER: S. K. Whatley

ACTIVITY NUMBER: ORNL #41 37 54 92 4 (FIN No. B0287)/NRC #50 19 03 01

TECHNICAL HIGHLIGHTS:

Task 1 - BWIP Geochemical Technical Assistance

Internal peer review of the topical report, "Review and Assessment of Information on Geochemical Conditions at the Hanford, Washington, Candidate HLW Repository Site," was completed and appropriate revisions made to the report. The report is currently being edited; the final draft should be completed by early April.

Task 2 - NNWSI Geochemical Technical Assistance

Work was initiated on incorporating the technical comments received on the topical report, "Matrix Diffusion of Radionuclides in Rock/Groundwater Systems." As soon as the NRC review of the subject report is complete, the report will be prepared for publication.

The technical staff has been reviewing the published geochemical information (i.e., batch sorption methodology, sorption, and solubility) for the Yucca Mountain site to provide input to the B0290 staff on their laboratory program with the recently acquired tuff samples. This review will also result in an update of the topical reports on geochemical conditions, sorption, and solubility. Numerous reports have been published by DOE since these topical reports were drafted and the latest experimental results should be included in the reports.

Task 3 - Salt Geochemical Technical Assistance

No activity this month.

Task 4 - Short-Term Geochemical Technical Assistance

No activity this month.

Task 5 - Project Management

A subcontract was placed with Dr. Douglas Brookins, University of New Mexico, to catalog and summarize the natural analogs applicable to problems of radioactive waste disposal in geomedias, in particular those geomedias being proposed as candidate sites for the first high-level

waste repository - basalt, tuff, and bedded salt. The materials to be cataloged will come from the open literature and technical reports, and possibly in part from unpublished sources (i.e., theses or dissertations). The materials will include igneous intrusive contact zone occurrences, ore deposits and their hydrothermal aureoles, effects of hydrothermal systems on waters, and related items. As many well documented occurrences as possible will be included in the catalog.

The catalog will be used in a subsequent workshop to examine the role of natural analogs in terms of their potential application for radwaste problems in natural settings. It is anticipated that the catalog and results from the workshop will be used as input by NRC to prepare a technical position paper on natural analogs.

MEETINGS AND TRIPS: None

REPORTS AND PUBLICATIONS: None

PROBLEM AREAS: None

COST/BUDGET REPORT:

Expenditures were \$32.8K for February 1985 and \$160.4K for FY 1985. A detailed cost/budget report will be sent under separate cover.