

NATIONAL RESEARCH COUNCIL
COMMISSION ON ENGINEERING AND TECHNICAL SYSTEMS

2101 Constitution Avenue Washington, D.C. 20418

U.S. NATIONAL COMMITTEE
FOR ROCK MECHANICS

WM DOCKET CONTROL
CENTER

OFFICE LOCATION:
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(202) 334-3137

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August 28, 1986

Dr. David H. Dahlem
Basalt Waste Isolation Project Office
Richland Operations Office
U.S. Dept. of Energy
825 Jadwin Ave.
Richland, Washington 99352

WM-RES
WM Record File
B6934
BOM

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

Distribution:
Jaganath _____

(Return to WM, 623-SS)
FRM: EADE Arney AK

Dear Dr. Dahlem:

This is to advise you that the Governing Board of the National Research Council met this morning and approved the proposed study on the Technical Review of Rock Mechanics Issues for the Basalt Waste Isolation Project. Enclosed is the final prospectus for your information.

We look forward to working with you to accomplish the goals of the study as set forth in the prospectus. As I understand it, you are proceeding with the necessary paperwork at your end.

Sincerely,

Virginia Lyman
Lynne Fitzpatrick
Lynne Fitzpatrick, P.E.
Director

8610300292 860828
PDR WMRES. EUSDOIMI
B-6934 PDR

Bu. Mines rep. from Spokane
needed. NRC/DOE/BOM panel
decide if this is generic - if
so SRC will assign non-NRC
designated person on the review
committee.

3413

August 28, 1986

For Action
New Project

COMMISSION ON ENGINEERING AND TECHNICAL SYSTEMS

Technical Review of Rock Mechanics Issues for the Basalt Waste Isolation Project

U.S. National Committee for Rock Mechanics

SUMMARY: The Geosciences and Technology Division of the Basalt Waste Isolation Project Office (BWIP), U.S. Department of Energy (DOE), has informally requested that the U.S. National Committee for Rock Mechanics (USNC/RM) review its geotechnical site investigation program for a nuclear waste repository in basalt. The review will address two kinds of issues: (1) are the appropriate geotechnical questions being addressed by the program, and (2) is the geotechnical program properly configured to answer those questions? The BWIP considers this review essential for it to continue with an effective site characterization plan. The committee, however, will address only the technical program and not the merits of basalt for radioactive waste storage or disposal. This activity is being fully coordinated with the Board on Radioactive Waste Management and should be completed in four months for an estimated cost of \$40,000.

BACKGROUND: Plans to build a nuclear waste repository in basalt near Richland, Washington have been ongoing since the late 1970's. Start-up for an exploratory shaft was under way when the Nuclear Waste Policy Act of 1982 was passed by the Congress. The procedures required by this law put shaft construction in basalt on hold while a number of sites throughout the United States were reviewed for possible use as a nuclear waste repository. In June 1986, the Department of Energy announced the selection of three candidate sites which will now be explored using shafts and adits. The selection included the basalt site near Richland. BWIP, with its consultants, has prepared a plan of in-situ and laboratory testing from the exploratory shaft intended to aid in characterizing the site for design and construction purposes. Such issues as in-situ stress, rock strength, rock permeability, and rock mass characterization will be addressed. This plan and these activities are specifically responsive to information determined to be necessary in addressing site issues.

PLAN OF ACTION: The USNC/RM proposes to respond to the request by performing a four-month technical review of the geotechnical site characterization program for BWIP. The review will study the program of exploration and testing which is planned to take place in the next

three to five years, looking at current plans, suggesting alternatives to current thinking, and making recommendations which might enhance the planned program. The review will be carried out by a special task group which includes underground designers, as well as specialists in in-situ stress, geotechnical field testing, instrumentation, laboratory testing, numerical modeling and testing methodologies in rock mechanics. The group will meet at the project office in Richland, Washington for briefings, interviews, and laboratory tours. Additional meetings for deliberations and report writing would follow.

ANTICIPATED RESULTS: On completion of the study, and in accordance with NRC review procedures, the report will be transmitted to the Geosciences and Technology Division, of the Richland project office of the U.S. Department of Energy, for their use in defining and planning the rock mechanics program for site characterization in basalt for a nuclear waste repository.

EXPENDITURES AND SOURCE OF FUNDS: The costs of this study will be borne by the Basalt Waste Isolation Project Office, Richland Operations Office, U.S. Department of Energy. Estimated costs are:

<u>Salaries and Wages</u>		
Professional		
(1 @ 10%)	\$4,368	
Administrative Assistant		
(1 @ 10%)	<u>2,680</u>	\$ 7,048
<u>Fringe Benefits</u>		1,550
<u>Overhead</u>		5,503
<u>Travel Expenses</u>		20,880
<u>Other Direct Costs</u>		733
<u>General and Administrative</u>		<u>4,286</u>
	Total	\$40,000

COMMISSION ACTION: The Commission on Engineering and Technical Systems approved this study by mail ballot and conference call on August 15, 1986. The total funds required for this study are estimated at \$40,000, which will be expended in FY 87.

REQUESTED EXECUTIVE COMMITTEE OF THE GOVERNING BOARD ACTION: To approve the "Technical Review of Rock Mechanics Issues for the Basalt Waste Isolation Project," and permit the acceptance of funds up to \$40,000 in support of this four-month study.

RESPONSIBLE STAFF OFFICER: Lynne Fitzpatrick, Director, U.S. National Committee for Rock Mechanics, JH 712, (202) 334-3137.