



United States Department of the Interior

BUREAU OF MINES
2401 E STREET, NW.
WASHINGTON, D.C. 20241

April 23, 1984

U.S. Nuclear Regulatory Commission
Division of Contracts
Washington, D.C. 20555

ATTN: Cindy Fleenor
Technical Assistance Contracts Branch

Subject: Monthly Progress Report - March 1984 Interagency Agreement Number
NRC-02-80-075, "State-of-the-Art Assessment for Large Diameter
Horizontal Nuclear Waste Emplacement Holes"

Dear Mrs. Fleenor:

Enclosed is our seventh monthly progress report on the subject interagency
agreement for March 1984. This is in accordance with Article I, Number 3.1-
Reporting Requirements.

Earle B. Amey

Earle B. Amey
Staff Engineer, Division of Health
and Safety Technology

Enclosures

WM Record File
B6934

WM Project 10,11,16
Docket No. _____

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March 1984 Monthly
STATE-OF-THE-ART
OF
LARGE DIAMETER HORIZONTAL
NUCLEAR WASTE EMPLACEMENT HOLES

1.0 Drilling of Emplacement Holes

Principal Investigator - Gerald L. Finfinger

Work Completed During Reporting Period

Research has been completed on borehole surveying techniques. A preliminary draft has been written and submitted for typing. A review of DOE nuclear waste repository reports is being conducted.

Work Completed to Date

All computer literature searches on drilling, tunnelling, and surveying have been completed. Leading manufacturers have been contacted and product information has been received. The preliminary draft reports on drilling, tunnelling, and surveying have been completed.

2.0 Maintaining Integrity of Emplacement Holes

Principal Investigator - Daniel R. Babich

Work Completed During Reporting Period

The technical review of draft reports for sections 2.1 - Rock Mechanics, 2.2 - Methods of Casing, 2.3 - Methods of Grouting, and 2.5 - Satisfying Retrieval Requirements of 10 CFR 60 continues. A preliminary draft report of section 2.4 - Review of DOE Nuclear Waste Repository Reports has been completed and is also being technically reviewed.

Work Completed to Date

Literature searches on rock mechanics, hole casing, and grouting were completed. Preliminary draft reports containing the findings of sections 2.1, 2.2, 2.3, 2.4, and 2.5 were prepared, and reviews begun.

3.0 Backfilling of Emplacement Holes

Principal Investigator - Robert Evans

Work Completed During Reporting Period

During this reporting period revisions were made to drafts for all sections of the paper. Figures to be included in the paper were forwarded for drafting. No significant findings for this period are presented.

During the next reporting period all written drafts will be submitted for final typing. The completed paper with figures will be assembled.

4.0 Retrieving Waste Canisters from Emplacement Holes

Principal Investigator - Gerald L. Finfinger

Work Completed During Reporting Period

The preliminary report on retrieval is currently being prepared based upon available published information and personal contacts with knowledgeable individuals in related fields. A review of DOE nuclear waste repository reports is being conducted.

Work Completed to Date

A computer implemented literature search has been conducted. Overcoming technology has been explored and equipment has been investigated.

Man-Effort

<u>Task</u>	<u>Man-Hours This Period</u>	<u>Total Man- Hours to Date</u>	<u>Percent of Avail. Hours</u>
1.0	220	1006	88%
2.0	96	1124	95%
3.0	80	546	87%
4.0	50	259	75%

Edward D. Thimons
Edward D. Thimons

With respect to NRC's question on the January 1984 monthly report the answer is that to the best knowledge of the Bureau of Mines, no tunneling system exists for drilling 2-ft. diameter tunnels. Based on available information the smallest tunnel boring machines are about 4-ft. in diameter.

Edward D. Thimons

Edward D. Thimons

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