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28 October 1986

Ref. No. 1148-07-03

Project Letter No. 082

WM-RES  
WM Record File  
D1004  
EI

WM Project 10, 11, 16  
Docket No. \_\_\_\_\_  
PDR ✓  
LPDR B, J, S

Waste Management Engineering Branch  
Division of Waste Management  
U.S. Nuclear Regulatory Commission  
7915 Eastern Avenue  
Silver Spring, MD 20910

Distribution:

Buckley  
Still

Team Ticket  
JH

Attention: Mr. John T. Buckley, Project Officer, Mail Stop 623-SS

Subject: Contract No. NRC-02-84-002  
"Technical Assistance for In Situ Testing"  
EI Project No. 1148  
Monthly Progress Report Covering the Period of  
01 August through 31 August 1986

Dear Mr. Buckley:

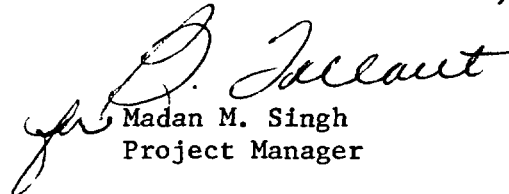
Enclosed is one copy of the subject report as required by the contract.  
As required, the following persons are being sent copies:

- Office of the Director, NMSS
- Director, Division of Waste Management
- Contracting Officer
- Chief, High-Level Waste Technical Development Branch.

Should you have any questions, please do not hesitate to contact us.

Sincerely,

ENGINEERS INTERNATIONAL, INC.

  
Madan M. Singh  
Project Manager

MMS/PJH/bt

Enclosure

cc: Office of the Director, NMSS (Attn: Program Support Branch) - 1  
Director, Division of Waste Management - 2  
Contracting Officer - 1  
High-Level Waste Technical Dev. Branch (Attn: Branch Chief) - 1

17-A

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PDR WMRES EECENGI  
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3442

# ENGINEERS INTERNATIONAL, INC.

EI Project No. 1148

NRC Contract No. NRC-02-84-002

## TECHNICAL ASSISTANCE FOR IN SITU TESTING

Monthly Report - 01 August through 31 August 1986

### 1.0 INTRODUCTION

This report covers the activities of Engineers International, Inc. (EI) during the period of 01 August through 31 August 1986. Professional personnel involved are Messers. Peter J. Huck, Swapan Bhattacharya, Amitabha Mukherjee, Anthony W. Laurito, and Dr. Madan M. Singh.

By mutual agreement of the NRC Project Officer and the EI Project Engineer, reports are not submitted on a monthly basis during periods when no Task Orders are active.

### 2.0 PROJECT OBJECTIVE

This contract is intended to provide technical assistance to the NRC in reviewing plans and procedures for in situ testing that may be carried out in support of siting and design of a geologic HLW repository. Assistance is to be focused on underground stress, geotechnical instrumentation of test areas, rock mass strength, hydrological instrumentation of test areas, thermomechanical effects, excavation methods, and quality assurance for bulk measurements of geologic properties, as these relate to in situ testing.

Ultimately, these efforts are to aid the NRC in its responsibility for ensuring the proper siting, design, construction, operating, and decommissioning of geologic HLW disposal facilities such that the EPA limits for radionuclide release will not be exceeded.

### 3.0 ACTIVITIES DURING THE REPORTING PERIOD

#### 3.1 Summary of Activities

Task Order 001. Task Order 001 has been completed.

Task Order 002. Task Order 002 has been completed.

Task order 003. Task Order 003 has been completed.

Task Order 004. Task Order 004 has been completed.

Task Order 005. Task Order 005 has been completed.

Task Order 006. Task Order 006 has been completed.

Task Order 007

Mr. Peter J. Huck attended a BWIP data review meeting on August 18-20, 1986, that included a trip to the Lucky Friday Mine in Idaho and the U.S. Bureau of Mines Spokane Research Center in Spokane, Washington. A trip report and expense report will follow.

Other efforts in Task Order 007 included review of NNWSI documents. The status of document reviews for all three projects is attached.

Task Order 008

Work commenced on this task order upon receipt of work authorization. The task order is divided into three subtasks:

Subtask 01. Work was initiated to put together a list of mines in the vicinity of the Yucca Mountain site in Nevada. For this purpose, several state and federal agencies were contacted including the State of Nevada Division of Mine Inspection, the California Department of Mines and Geology, the Mine Safety and Health Administration offices, and various U.S. Bureau of Mines offices.

Subtask 02. A kickoff meeting was initiated among different project staff including Messrs. Bhattacharya, Mukherjee, Laurito, and Huck. A project plan was put together to coordinate the effort between staff with different expertise. It was decided that under the overall guidance of Mr. Bhattacharya, Mr. Laurito will perform the computer operations and Mr. Huck will provide input on the heat flow aspects.

All pertinent information available on the proposed ventilation system at NNWSI was collected. The baseline schematic on the basis of which the computer model will be developed was obtained from the Parson Brinckerhoff document on "Subsurface Design Concepts for the NNWSI Project" by Richard Harig. Also, pertinent literature on the proposed thermal loadings at NNWSI were obtained.

Subtask 03. Work was initiated on gathering relevant information on the sealing aspects at BWIP, primarily from EI files. An outline for internal use was put together.

4.0 DIFFICULTIES

No difficulties are presently identified.

5.0 ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Task Order 007

Document reviews will continue for the NNWSI project. A data review meeting is planned for the SRPO project in Columbus, Ohio and Irvine, California. Mr. Robert A. Cummings will attend this meeting.

Task Order 008

Subtask 01. A preliminary screening of mines will be done and phone calls to mine operators initiated.

Subtask 02. The computer programs -- VNETPC and CLIMSIM -- will be installed in the EI computer. A test run will be performed using known data.

Subtask 03. Work will continue in developing a point paper on sealing.

6.0 MEETINGS/TRIPS DURING THE REPORTING PERIOD

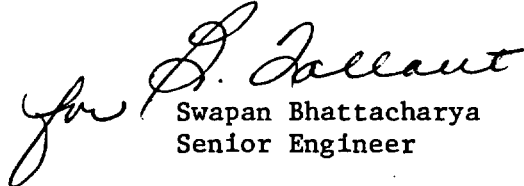
Mr. Peter J. Huck traveled to the Lucky Friday Mine in Idaho and the Spokane Research Center for the data review meeting during August 18-20, 1986.

7.0 SCHEDULE AND COST PROJECTIONS

The cost summaries to 31 August 1986, broken down by Task Order, are attached. The costs to date, and the cost projections for the next month, are also attached.

Respectfully submitted,

ENGINEERS INTERNATIONAL, INC.

  
Swapan Bhattacharya  
Senior Engineer

SB/bt

Attachments

18-A

CONTRACT NO. NRC-02-84-002

PROJECT COSTS THROUGH AUGUST 1986

<u>Task</u>	<u>Current Month</u>	<u>Cumulative to Date</u>			<u>Total To Date</u>	<u>Cost Projection for September 1986</u>	<u>Total Contract Limit</u>
		<u>FY 1984</u>	<u>FY 1985</u>	<u>FY 1986</u>			
003	- 0 -	\$88,050.59	\$8,505.23	- 0 -	\$96,555.82	- 0 -	\$100,274.00
004	- 0 -	\$65,896.26	\$3,275.74	- 0 -	\$69,172.00	- 0 -	\$109,702.00
005	- 0 -	\$58,486.72	- 0 -	- 0 -	\$58,486.72	- 0 -	\$ 64,952.00
007	\$4,078.53	- 0 -	\$3,436.74	\$58,298.06	\$61,734.80	\$ 5,000.00	\$240,658.00
008	\$3,451.79	- 0 -	- 0 -	\$ 3,451.79	\$ 3,451.79	\$10,000.00	\$ 51,710.00

ENGINEERS INTERNATIONAL, INC.

STATUS - 1148 TASK 007

<u>Assign- ment</u>	<u>Subtask</u>	<u>Project</u>	<u>Description</u>	<u>Date Assigned</u>	<u>Date Sent to NRC</u>
01	02	SPRO	Draft EA review		4/07/86
01	02	SPRO	FEA & SCP Planning Meeting		4/10/86
02	01	NNWSI	Binnall et al 1985 - Crit Param		5/09/86
02	01	NNWSI	Langkopf & Gnirk - Rock Mass Class		5/09/86
03	01	SPRO	Bechtel - WIPP Prelim Design	4/20/86	6/19/86
03	01	SPRO	USDOE - Summary WIPP Site/Validation	4/20/86	
03	01	BWIP	FEA Doc Review - Chap 1 - 4	4/20/86	6/18/86
03	01	BWIP	FEA Doc Review - Chap 5 - 7	4/20/86	6/18/86
03	01	NNWSI	FEA Doc Review - Chap 1 - 4	4/20/86	6/16/86
03	01	NNWSI	FEA Doc Review - Chap 5 - 7	4/20/86	6/16/86
03	01	SPRO	FEA Doc Review - Chap 1 - 4	4/20/86	6/27/86
03	01	SPRO	FEA Doc Review - Chap 5 - 6	4/20/86	6/27/86
03	01	SPRO	FEA Doc Review - Chap 7	4/20/86	6/27/86
03	03	BWIP	FEA Doc Review Meeting	4/20/86	6/17/86
03	03	NNWSI	FEA Doc Review - Chap 1 - 4	4/20/86	6/11/86
03	03	NNWSI	FEA Doc Review - Chap 5 - 7	4/20/86	6/16/86
03	03	SPRO	FEA Doc Review - Chap 1 - 6	4/20/86	6/27/86
03	03	SPRO	FEA Doc Review - Chap 7	4/20/86	6/27/86
04	01	BWIP	SD-BWI-TI-274	5/13/86	8/25/86 (Projected)
04	01	BWIP	SD-BWI-ER-012 Rev. 2	5/13/86	6/17/86
04	01	BWIP	SD-BWI-DP-011 Rev. 2	5/13/86	8/25/86 (Projected)
04	01	BWIP	SD-BWI-ER-006	5/13/86	8/25/86 (Projected)
04	01	BWIP	RHO-BWI-SA-123	5/13/86	8/25/86 (Projected)
04	01	BWIP	S.J. Mitchell - Eval DRZ	5/13/86	8/25/86 (Projected)
04	01	BWIP	SD-BWI-DP-041 - Rock Data	5/13/86	8/25/86 (Projected)
04	01	BWIP	J. Vasey - Design/Support Excav	5/13/86	8/25/86 (Projected)
05	01	NNWSI	Keystone 6310-85-1	4/29/86	6/27/86
06	01	BWIP	SD-BWI-TI-299	6/10/86	8/25/86 (Projected)
06	01	BWIP	RHO-BW-ST-73P	6/10/86	
06	01	NNWSI	SAND-84-2620	6/10/86	10/30/86 (Projected)