

Sandia National Laboratories

Albuquerque, New Mexico 87185

November 15, 1985

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Neil M. Coleman
Hydrology Section
Geotechnical Branch
Division of Waste Management
U.S. Nuclear Regulatory Commission
7915 Eastern Avenue
Silver Spring, MD 20910

Dear Mr. Coleman:

Enclosed is the monthly report on FIN A-1158, Repository Site Description and Technology Transfer for October 1985. Please feel free to contact me if you have any questions or comments.

Sincerely,

Robert M. Cranwell

Robert M. Cranwell, Supervisor
Waste Management Systems
Division 6431

RMC:6431:jm

Enclosure

Copy to:

Office of the Director, NMSS
Attn: Program Support
Robert Browning, Director
Division of Waste Management
Malcolm R. Knapp
Division of Waste Management
Enrico Conti, Branch Chief
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6431 R. M. Cranwell
6431 G. F. Wilkinson

WM-RES
WM Record File
A-1158
SNL

WM Project 10,11,16
Docket No. _____

PDR _____

LPDR B.N.S.

Distribution: Coleman Jean Tinkler

STH

(Return to WM, 623-SS) 23

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PDR WMRES EXISANL
A-1158 PDR

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PROGRAM: Repository Site Definitions; FIN#: A-1158
Short-term Technical Assistance Tasks I, III

CONTRACTOR: Sandia National BUDGET PERIOD: 10/85 -
Laboratories 9/86

NMSS PROGRAM MANAGER: N. M. Coleman BUDGET AMOUNT: ?

CONTRACT PROGRAM MANAGER: R. M. Cranwell FTS PHONE: 844-8368

PRINCIPAL INVESTIGATOR: G. F. Wilkinson FTS PHONE: 844-0074

PROJECT OBJECTIVE

To develop reference repositories in media other than bedded salt (i.e., basalt, domed salt, welded tuff, and granite).

ACTIVITIES DURING OCTOBER 1985

No activity to report for October 1985.

PROGRAM: Technology Transfer

FIN#: A-1158
Task II

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/85 -
9/86

NMSS PROGRAM MANAGER: N. M. Coleman BUDGET AMOUNT: ?

CONTRACT PROGRAM MANAGER: R. M. Cranwell FTS PHONE: 844-8368

PRINCIPAL INVESTIGATOR: G. F. Wilkinson FTS PHONE: 844-0074

PROJECT OBJECTIVE

To insure through technical support, problem definition, and documentation the timely, thorough, and efficient transfer of the information, analysis techniques, and analysis tools developed for the U.S. Nuclear Regulatory Commission (NRC) by the methodology program.

ACTIVITIES DURING OCTOBER 1985

A revised proposal (189) was prepared in response to the revised statement of work (SOW) for FIN A-1158 which was transmitted by the NRC. The SOW was rewritten to incorporate the Computer Code Maintenance activities which were previously performed under FIN A-1166. The 189 is currently undergoing Sandia Management review, and an advance copy was transmitted to the NMSS Project Manager (PM) on October 24, 1985.

TOUGH

The calculations for six sample problems were completed, and the corresponding sections of the user's guide are being written.

Dr. Pruess spent considerable time on the remaining sample problem, namely, fluid and heat flow using a 2-D stratigraphy from a real site. His colleagues Drs. J. Rulon and G. S. Boverasson, working with Dr. P. Montazer of the USGS, have performed a number of TOUGH-simulations for fluid infiltration at Yucca Mountain. Dr. Pruess had hoped that one of their calculations, perhaps in simplified form, could provide an appropriate sample problem for the user's manual. At this point, however, he is strongly inclined not to include this case into the user's manual at all, for the following reasons. The hydrology of Yucca Mountain is extremely complex, and Rulon et al. have gone through rather involved considerations of applicable parameters and conditions. Even a very brief presentation of their model could easily double the length of

the section on sample problems in the user's guide, which is already rather long as it is. Furthermore, the work by Rulon et al. will be published shortly as a USGS Open File Report, to which anyone specifically interested in applying TOUGH to a "real" site could turn for guidance.

As Ginger Wilkinson mentioned to you per telephone call of 11/12/85, Dr. Pruess proposes to drop the "real 2-D stratigraphy" from the user's guide, and instead to include a reference to the work by Rulon et al. If this is agreeable to SNLA and NRC, he will be able to complete a draft user's guide and a tape with the TOUGH source code and input decks for sample problems by November 30.

Dr. Pruess has begun applications testing of TOUGH by users who had no previous experience with the code. This way he hopes to uncover hidden bugs in the program, and to obtain some suggestions for improving the presentation of material in the user's guide.

A-1158, Tasks I and III
0976.020
October 1985

THIS IS AN ESTIMATE ONLY AND MAY NOT MATCH THE INVOICES SENT TO
NRC BY SANDIA'S ACCOUNTING DEPARTMENT.

	Current Month	Year-to-Date
I. Direct Manpower (man-months of charged effort)	0.0	0.0
II. Direct Loaded Labor Costs	0.0	0.0
Materials and Services	0.0	0.0
ADP Support (computer)	0.0	0.0
Subcontracts	0.0	0.0
Travel	0.0	0.0
Other	0.0	0.0
TOTAL COSTS	0.0	0.0

Other = rounding approximation
by computer

III. Funding Status

Prior FY Carryover	FY85 Projected Funding Level	FY85 Funds Received to Date	FY85 Funding Balance Needed
43K	To be determined	None	To be determined

A-1158, Task II
0976.010
October 1985

THIS IS AN ESTIMATE ONLY AND MAY NOT MATCH THE INVOICES SENT TO
NRC BY SANDIA'S ACCOUNTING DEPARTMENT.

	Current Month	Year-to-Date
I. Direct Manpower (man-months of charged effort)	1.2	1.2
II. Direct Loaded Labor Costs	12.0	12.0
Materials and Services	0.0	0.0
ADP Support (computer)	0.0	0.0
Subcontracts	-8.0	-8.0
Travel	0.0	0.0
Other	<u>-1.0</u>	<u>-1.0</u>
TOTAL COSTS	3.0	3.0

Other = rounding approximation
by computer

III. Funding Status

Prior FY Carryover	FY85 Projected Funding Level	FY85 Funds Received to Date	FY85 Funding Balance Needed
107K	To be determined	None	To be determined

A-1158

TOTAL FOR 0976.010 and 0976.020

October 1985

THIS IS AN ESTIMATE ONLY AND MAY NOT MATCH THE INVOICES SENT TO NRC BY SANDIA'S ACCOUNTING DEPARTMENT.

	Current Month	Year-to-Date
I. Direct Manpower (man-months of charged effort)	1.2	1.2
II. Direct Loaded Labor Costs	12.0	12.0
Materials and Services	0.0	0.0
ADP Support (computer)	0.0	0.0
Subcontracts	-8.0	-8.0
Travel	0.0	0.0
Other	-1.0	-1.0
TOTAL COSTS	3.0	3.0

Other = rounding approximation
by computer

III. Funding Status

Prior FY Carryover	FY85 Projected Funding Level	FY85 Funds Received to Date	FY85 Funding Balance Needed
150K	To be determined	None	To be determined