

Sandia National Laboratories

Albuquerque, New Mexico 87185

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August 15, 1984

Dr. Richard Codell  
Geotechnical Branch  
Division of Waste Management  
U.S. Nuclear Regulatory Commission  
7915 Eastern Avenue  
Silver Spring, MD 20910

WM-RES

WM Record File

A1166  
SNL

WM Project           

Docket No.           

PDR           

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CODELL

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Ticket

Dear Dr. Codell:

Enclosed is the monthly report for FIN A-1166, Maintenance of Computer Programs, for July 1984. Please call or write 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  
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PDR WMRES EXISANL  
A-1166 PDR

PROGRAM: Maintenance and Validation of Computer Programs FIN#: A-1166

CONTRACTOR: Sandia National Laboratories BUDGET PERIOD: 10/83-9/84

NMSS PROGRAM MANAGER: R. Codell BUDGET AMOUNT: \$130K

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

PRINCIPAL INVESTIGATORS: P. A. Davis FTS PHONE: 846-5421

#### PROJECT OBJECTIVES

The objective is a maintenance task that will ensure that the Sandia computer programs remain consistent with current operating systems, are as error-free as possible, and have up-to-date documentation for NRC. There is also a validation assessment task to identify real physical situations which could provide data for validation of the Sandia computer program.

#### ACTIVITIES DURING JULY 1984

##### TOUGH Verification and Validation

A meeting was held with Karsten Pruess of Lawrence Berkeley Laboratory on July 23, 1984 to discuss the development of a self-contained document for the TOUGH computer code under FIN A-1158 (Technology Transfer). In addition to this documentation effort, it is proposed that some validation be performed with the TOUGH code to substantiate the results from the code with experimental data. Limited data on heater tests are available from the Nevada Test Site and several other sources that may be helpful in validating the heat calculations performed by TOUGH. Since an extensive literature review for data to support the unsaturated groundwater transport and heat calculations of TOUGH has not been performed, this would be a primary effort of a validation and field comparison program.

Additional funds for the validation and verification of TOUGH are needed and will be requested in the 189 for FIN A-1166 that is currently being prepared for FY 85. This 189 will expand on the proposed validation effort.

##### QA Program

The new version of the Latin Hypercube Sampling Program (LHS77) that is documented in NUREG/CR-3624, has been added to the QUALIB library being maintained for Division 6431. This new version of the code has the same capabilities as the older LHS version, but has been updated into Fortran 77. The new code is more portable and user friendly.