

Sandia National Laboratories

Albuquerque, New Mexico 87185

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May 15, 1986

WM-RES
WM Record File
A1158
SNL

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

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

Distribution:
Coleman John-Dickett
3/11
(Return to WM, 623-SS) _____ 4

Dear Mr. Coleman:

Enclosed is the monthly report on FIN A-1158, Repository Site Definition and Technology Transfer for April 1986. 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

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
Health Siting & Waste Management Division
John Randall
Division of Radiation Programs and
Earth Sciences
6400 R. C. Cochrell
6430 N. R. Ortiz
6431 R. M. Cranwell
6431 C. P. Harlan
6431 G. F. Wilkinson

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PDR WMRES EXIBANL
A-1158 PDR

3128

PROGRAM: FIN: A-1158, Tasks I - V

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/85 -
9/86

NMSS PROGRAM MANAGER: N. M. Coleman

BUDGET AMOUNT: \$486K

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATORS: G. F. Wilkinson
C. P. Harlan

FTS PHONE: 844-0074
FTS PHONE: 844-8164

Administrative Issues Concerning FIN A-1158 for April 1986

As mentioned in the February monthly report, we are in the process of dividing case 0976.000 into five subcases to correspond with the five individual tasks involved in FIN A-1158. Revision to the SNLA accounting system to reflect this change has not yet been completed, but should appear within the next month or two. Consequently, costs for Tasks II - IV are included as one item for this month.

PROGRAM: Repository Site Definitions

FIN#: A-1158
Task I

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/85 -
9/86

NMSS PROGRAM MANAGER: N. M. Coleman

BUDGET AMOUNT: - 0 -

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATORS: G. F. Wilkinson
C. P. Harlan

FTS PHONE: 844-0074
FTS PHONE: 844-8164

PROJECT OBJECTIVE

To develop RSDs for candidate host media and provide data for use in developing and testing performance assessment methodologies for the various media.

ACTIVITIES DURING APRIL 1986

No activity.

ROGRAM: 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: \$115K

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATORS: G. F. Wilkinson
C. P. Harlan

FTS PHONE: 844-0074
FTS PHONE: 844-8164

PROJECT OBJECTIVE

To provide technical support for the transfer of the capability to use the information, analytical techniques, and tools developed for the NRC under the Performance Assessment Methodology program (FIN A-1266).

ACTIVITIES DURING APRIL 1986

SWIFT II Self-Teaching Curriculum (STC)

The SWIFT II STC is currently in SNLA administrative review. Although it is difficult to predict the length of time that this review will require, we are optimistic that a camera-ready copy should be available for transmittal to the NRC by June 1, 1986.

SWIFT II Seminar

In your letter dated April 28, 1986, you advise that given your staff's current schedule the SWIFT II seminar would need to be re-scheduled for the period of mid-July to August. Due to our staff's previously scheduled commitments, early August would be the most opportune time for re-scheduling the seminar. Ginger Wilkinson will contact you within the next few weeks to establish a firm date.

TOUGH Code Documentation

Dr. Pruess advises that SNLA's comments have been incorporated into the TOUGH code user's guide, and that a copy will be transmitted to SNLA during the week of May 12, 1986. At that time, we will transmit a copy of the document to you for NRC review. Upon receipt, please advise us as to when you anticipate completing the review.

A no-cost extension through August 1986 has been prepared for Dr. Pruess' contract in order to allow sufficient time for NRC review and comment incorporation.

PROGRAM: Maintenance of Computer Codes

FIN#: A-1158
Task III

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/85 -
9/86

NMSS PROGRAM MANAGER: N. M. Coleman BUDGET AMOUNT: \$245K

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

PRINCIPAL INVESTIGATORS: G. F. Wilkinson FTS PHONE: 844-0074
C. P. Harlan FTS PHONE: 844-8164

PROJECT OBJECTIVE

To implement a quality assurance program to maintain computer codes, detect and correct errors, document changes, and inform the NRC staff.

ACTIVITIES DURING APRIL 1986

A standardized version of the SWIFT II code and eight sample problems have been implemented on the INEL computing system. These files may be accessed in the user area CRH. Internal documentation, a list of the SWIFT II files and a listing of the interactive execution procedure may be obtained by accessing the file QUAHELP. Listings of QUAHELP and the files currently available in the user area CRH have been included as attachments to this letter. Similar information will be provided for each code implemented at INEL.

In your letter dated April 28, 1986, you identified three codes which should receive priority for transfer to INEL and requested an estimated schedule for implementation. Assuming that we encounter no problems from a QA standpoint, the NWFT/DVM and generalized DVM codes should be available at INEL by June 1, 1986. We are in the process of obtaining a standard version of the USGS-3D code (Posson version). Once the code has been implemented on the SNLA computing system, it will be necessary to perform verification runs to ensure a degree of quality assurance. At that point, the USGS-3D code can be transferred to the INEL system and once again be subjected to a quality assurance check.

Since there are many unknowns in implementing this code, which was developed by another agency entirely independent of SNLA's QA program, a conservative estimate for completion is September 1, 1986. We will keep you informed of progress in this area, and revise this date to an earlier one if the situation becomes more optimistic.

PROGRAM: Code Validation and Verification

FIN#: A-1158
Task IV

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/85 -
9/86

NMSS PROGRAM MANAGER: N. M. Coleman

BUDGET AMOUNT: \$87K

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATORS: G. F. Wilkinson
C. P. Harlan

FTS PHONE: 844-0074
FTS PHONE: 844-8164

PROJECT OBJECTIVE

To assemble the various tests that have been performed to help validate and verify various portions of relevant codes and recommend any additional feasible tests.

ACTIVITIES DURING APRIL 1986

We have begun researching verification exercises which have been performed on the SWIFT II computer code. Results of these tests, SNLA's judgment as to how well the code performed and recommendations for additional testing will be published in a NUREG/CR report, as specified in the current Form 189.

PROGRAM: Short-term Technical Assistance

FIN#: A-1158
Task V

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/85 -
9/86

NMSS PROGRAM MANAGER: N. M. Coleman

BUDGET AMOUNT: \$39K

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATORS: G. F. Wilkinson
C. P. Harlan

FTS PHONE: 844-0074

FTS PHONE: 844-8164

PROJECT OBJECTIVE

To provide general technical assistance on waste management matters relating to Tasks I-IV.

ACTIVITIES DURING APRIL 1986

No activity.

SWIFT II INTERNAL DOCUMENTATION:

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*****
*
* CODE NAME - SWIFT II
*
* VERSION - RELEASE 4.84
*
* DESCRIPTION - SWIFT II (SANDIA WASTE-ISOLATION, FLOW
* AND TRANSPORT MODEL) IS A DUAL POROSITY
* FULLY TRANSIENT 3D MODEL WHICH SOLVES
* THE COUPLED EQUATIONS FOR FLUID FLOW,
* HEAT TRANSPORT, BRINE TRANSPORT, AND
* RADIONUCLIDE TRANSPORT. THE FIRST THREE
* PROCESSES ARE COUPLED VIA FLUID DENSITY
* AND VISCOSITY. TOGETHER THEY PROVIDE
* THE VELOCITY FIELD ON WHICH THE FOURTH
* PROCESS DEPENDS.
*
* LANGUAGE - ANSI STANDARD FORTRAN, VERSION 66
*
* HARDWARE - CDC CYBER 76 SERIES MACHINES
*
* LIBRARIES - NONE USED
*
* EVOLUTION - INTERA TECHNOLOGIES, INC. 1975-1982
* GEOTRANS, INC. 1982-1984
*
* DOCUMENTATION - (1) THEORY AND IMPLEMENTATION
* NUREG/CR-3328, SAND83-1159
* (2) DATA INPUT GUIDE
* NUREG/CR-3162, SAND83-0242
* (3) SELF-TEACHING CURRICULUM
* NUREG/CR-3925, SAND84-1586
*
* SANDIA CONTACTS - PAUL A. DAVIS, DIVISION 6431
* CHARLENE L. HARLAN, DIVISION 6431
* GINGER F. WILKINSON, DIVISION 6431
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SWIFT II FILES:

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SWIFTII - SWIFT II (VERSION 4.84) UPDATE FORMAT
SWIISRC - SWIFT II SOURCE TO UPDATE PROCESSOR
SWIICMP - SWIFT II COMPILE FILE
SWIILGO - SWIFT II COMPILED BINARIES
STC1 - SWIFT II SELF TEACHING CURRICULUM PROBLEM 1
STC2 - SWIFT II SELF TEACHING CURRICULUM PROBLEM 2
STC3 - SWIFT II SELF TEACHING CURRICULUM PROBLEM 3
STC4 - SWIFT II SELF TEACHING CURRICULUM PROBLEM 4
STC5 - SWIFT II SELF TEACHING CURRICULUM PROBLEM 5
STC6 - SWIFT II SELF TEACHING CURRICULUM PROBLEM 6
STC7 - SWIFT II SELF TEACHING CURRICULUM PROBLEM 7
STC8 - SWIFT II SELF TEACHING CURRICULUM PROBLEM 8

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SWIFT II EXECUTION PROCEDURE

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ATTACH,SWIILGO/UN=CRH (EXAMPLE USING STC1):
GET,TAPES=STC1/UN=CRH (ATTACH THE EXECUTABLE BINARIES)
RFL,0.472 (EQUIVALENCE THE INPUT FILE TO TAPES)
LDSET,PRESET=0 (REQUEST EXTENDED MEMORY)
SWIILGO,TAPES,TAPE6 (INVOKE THE LOADER AND PRESET CORE)
. (PROVIDE LOADER WITH NAME OF BINARIES)
. (EXECUTION IN PROGRESS)
RFL,0 (RELEASE EXTENDED MEMORY WHEN COMPLETED)

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/CATLIST
CATALOG OF CRH

FM/INEL

B6/04/17. 11.09.37.

INDIRECT ACCESS FILES

QUAHELP
STC1

STC2
STC3

STC4
STC5

STC6

STC7

STC8

OBIN

DIRECT ACCESS FILES

SWIFTII

SWIICMP

SWIILGO

SWIISRC

10 INDIRECT ACCESS FILES,
4 DIRECT ACCESS FILES.

TOTAL PRUS =
TOTAL PRUS =

111.
6010.

-1158

Total for 0976.010, 0976.020, 0976.030, 0976.040 and 0976.050
April 1986

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

	<u>Current Month</u>	<u>Year -to- Date</u>
I. Direct Manpower (man-months of charged effort)	1.8	11.4
II. Direct Loaded Labor Costs	14.0	95.0
Materials and Services	0.0	0.0
ADP Support (computer)	1.0	5.0
Subcontracts	-1.0	-17.0
Travel	0.0	1.0
Other (computer roundoff)	0.0	-2.0
TOTAL COSTS	14.0	82.0

III. Funding Status

<u>Prior FY Carryover</u>	<u>FY 86 Projected Funding Level</u>	<u>FY 86 Funds Received to Date</u>	<u>FY 86 Funding Balance Needed</u>
\$150K	\$486K	\$336K	- 0 -

-1158, Task I
 976.010
 April 1986

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 (computer roundoff)	0.0	0.0
	-----	-----
TOTAL COSTS	0.0	0.0

III. Funding Status

Prior FY Carryover -----	FY 86 Projected Funding Level -----	FY 86 Funds Received to Date -----	FY 86 Funding Balance Needed -----
None	None	None	None

-1158, Tasks II-IV
 Total for 0976.020, 0976.030 and 0976.040
 April 1986

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

	<u>Current Month</u>	<u>Year -to- Date</u>
I. Direct Manpower (man-months of charged effort)	1.8	10.8
II. Direct Loaded Labor Costs	14.0	90.0
Materials and Services	0.0	0.0
ADP Support (computer)	1.0	5.0
Subcontracts	-1.0	-17.0
Travel	0.0	1.0
Other (computer roundoff)	0.0	-2.0
	<hr/>	<hr/>
TOTAL COSTS	14.0	77.0

III. Funding Status

<u>Prior FY Carryover</u>	<u>FY 86 Projected Funding Level</u>	<u>FY 86 Funds Received to Date</u>	<u>FY 86 Funding Balance Needed</u>
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\$447K

.-1158, Task V
 0976.050
 April 1986

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 ---	0.6 ---
II. Direct Loaded Labor Costs	0.0	5.0
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 (computer roundoff)	0.0	0.0
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TOTAL COSTS	0.0	5.0

III. Funding Status

Prior FY Carryover -----	FY 86 Projected Funding Level -----	FY 86 Funds Received to Date -----	FY 86 Funding Balance Needed -----
None	\$39K	None	None

FROM <i>WM</i> Sandia National Laboratory Robert M. Cranwell		DATE OF DOCUMENT 5/15/86	DATE RECEIVED 6/13/86	NO WM86-535
TO Neil M. Coleman		LTR XX	MEMO	REPORT XX
CLASSIF		ORIG.	CC XXX	OTHER
POST OFFICE		ACTION NECESSARY <input checked="" type="checkbox"/>	CONCURRENCE <input type="checkbox"/>	DATE ANSWERED 6/30/86
REG. NO.		NO ACTION NECESSARY <input type="checkbox"/>	COMMENT <input type="checkbox"/>	BY
DESCRIPTION (Must Be Unclassified) Apr 11 1986 monthly report for FINA-1158		FILE CODE: 426.1	REFERRED TO B. Justus, NMGT	DATE 6/13
ENCLOSURES			RECEIVED BY <i>[Signature]</i>	DATE 6/13
REMARKS CLOSED OUT BY LTR TO CRANWELL DATED 86/06/05 <i>Submitted in 6500.4M+</i>				