

Sandia National Laboratories

Albuquerque, New Mexico 87185

December 15, 1987

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 November 1987 monthly report for FIN A1158. If you have any questions or comments, please feel free to contact me at (FTS) 844-8368 or Charlene Harlan at (FTS) 844-8164.

Sincerely,

Robert M. Cranwell 151
Robert M. Cranwell, Supervisor
Waste Management Systems
Division 6416

RMC:6416

Enclosure

Copy to:
Office of the Director, NMSS
Attn: Program Support
Robert Browning, Director
Division of Waste Management
Philip Justus
Division of Waste Management
Ronald L. Ballard, Branch Chief
Division of High-Waste Management
John Randall
Division of Radiation Programs and
Earth Sciences
6410 N. R. Ortiz
6416 R. M. Cranwell
6416 P. A. Davis
6416 C. P. Harlan
6416 G. F. Wilkinson

88147550

WM Project: WM-
PDR w/enc1

(Return to WM, 623-55)

WM Record File: A-1158
LPDR w/enc1

8803240174 871215
PDR WMRES EXISANL
A-1158 PDR

MANAGEMENT ISSUES

The current Statement of Work closed A1158 on September 30, 1987. Our approximate carryover into FY 88 is \$82K. It is our understanding per a letter from the A1158 Program Manager dated October 6, 1987, that a no-cost extension was requested in an NRC Form 173 September 29, 1987, to continue this project until December 31, 1987.

PROGRAM: Task I, Technology Transfer

FIN A1158

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/87 -
12/87

NMSS PROGRAM MANAGER: N. M. Coleman

BUDGET AMOUNT: \$ 0 K

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATOR: C. P. Harlan

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 NOVEMBER 1987

This task is complete.

FIN A1158, Task I, Technology Transfer
 Subcase 0976.020
 NOVEMBER 1987

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	1
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	1	1
Travel	0	0
Other (computer roundoff)	0	-1
G & A	1	1
	-----	-----
TOTAL COSTS	2	2

III. Funding Status

Prior FY Carryover -----	FY 88 Projected Funding Level -----	FY 88 Funds Received to Date -----	FY 88 Funding Balance Needed -----
\$ OK	\$ OK	\$ OK	\$ OK

PROGRAM: Task II, Maintenance of Computer Codes

FIN A1158

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/87 -
12/87

NMSS PROGRAM MANAGER: N. M. Coleman

BUDGET AMOUNT: \$ 46K

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATOR: C. P. Harlan

FTS PHONE: 844-8164

PROJECT OBJECTIVE

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

ACTIVITIES DURING NOVEMBER 1987

In a letter from the A1158 Program Manager dated November 10, 1987, a request was made to have our staff examine the current INEL file storage system to determine if storage costs could be reduced. In addition, a memo from Emily Robinson (NRC/ITSB) dated August 26, 1987, was included on the use of the reclaim system for tape backup. An evaluation of the current files shows that 1) all files needed by the QUALIB system manager but not needed by the user community are stored on a reclaim tape instead of disk, 2) all files needed by the user community are stored on disk as indirect access if possible (those approximately 780 PRUs and smaller in size), 3) only those files needed by the users and exceeding the size limitation are by necessity stored on disk as direct access, and 4) all procedures and on-line help information have been modified to reflect these changes. These procedures have been in effect since May of 1987 (see the May progress report dated June 15, 1987.) Since that time, special care has been taken to consider the storage costs to the NRC. The enclosure shows the current directory of files in the user area CRH (the QUALIB user's area.) The majority of these files are small in size and contain the sample problems for all of the existing software in the library. The eight direct access files are as follows:

- (1) SWICMP - SWIFT compile file, 2028 PRUs
- (2) SWIFTII - SWIFT II in UPDATE format, needed for re-dimensioning procedure, 1111 PRUs
- (3) SWIICMP - SWIFT II compile file, 3059 PRUs
- (4) SWIILGO - SWIFT II compiled binaries, 903 PRUs
- (5) NEFTCMP - NEFTRAN compile file, 902 PRUs
- (6) LHSCMP - LHS compile file, 782 PRUs
- (7) USGS - USGS in UPDATE format, required by procedures, 1450 PRUs
- (8) A42292 - small directory file of the backup reclaim tape files placed by the system as direct access

At the request of the A1158 Program Manager, a list is being compiled of all written products that were produced during the lifetime of Project A1158. Our documentation shows that this project began October

1, 1979, under the title "Reference Waste Repository." This list should be available for inclusion in the December progress report.

A paper titled "Quality Assurance and Maintenance of Waste Management Computer Software" has been accepted for presentation in the WASTE MANAGEMENT '88 SYMPOSIUM to be held in Tucson, Arizona, February 28 through March 3, 1988. The authors of this paper are C. P. Harlan and G. F. Wilkinson of Sandia Laboratories. Please advise Sandia as soon as possible of the authorization by the NRC for travel.

Work continued on SAND87-2254 being developed by C. P. Harlan and G. F. Wilkinson. This report, currently in peer review, discusses the implementation of the QA plan on the Sandia NOS system. In addition, it provides an overview of how the codes in QUALIB are related to a high-level waste performance assessment and gives a brief history and description of each code, along with references to all associated reports, a list of all associated data files, and example execution procedures. It is expected that this report will be useful to new and existing Sandia staff and contractors in providing them with a history of the codes related to high-level waste management, and also provide them with some usage independence in order to conserve the QA Coordinator's time. With minimal effort, a report describing the implementation of the software at INEL could be developed. A parallel NUREG/CR report for the INEL QUALIB system should be considered for use by the NRC and their contractors.

FIN A1158, Task II, Maintenance of Computer Codes
 Subcase 0976.030
 NOVEMBER 1987

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)	0.9 ---	1.5 ---
II. Direct Loaded Labor Costs	7	12
Materials and Services	0	0
ADP Support (computer)	0	1
Subcontracts	0	1
Travel	0	0
Other (computer roundoff)	0	1
G & A	1	1
	-----	-----
TOTAL COSTS	8	16

III. Funding Status

Prior FY Carryover -----	FY 88 Projected Funding Level -----	FY 88 Funds Received to Date -----	FY 88 Funding Balance Needed -----
\$ 46K	\$ 46K	\$ 0K	\$ 0K

PROGRAM: Task III, Code Validation and Verification FIN A1158

CONTRACTOR: Sandia National Laboratories BUDGET PERIOD: 10/87 -
12/87

NMSS PROGRAM MANAGER: N. M. Coleman BUDGET AMOUNT: \$ 0K

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

PRINCIPAL INVESTIGATOR: C. P. Harlan 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 NOVEMBER 1987

This task is complete.

FIN A1158, Task III, Code Validation and Verification
 Subcase 0976.040
 NOVEMBER 1987

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
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	0	0
Travel	0	0
Other (computer roundoff)	0	0
G & A	0	0
	-----	-----
TOTAL COSTS	0	0

III. Funding Status

Prior FY Carryover -----	FY 88 Projected Funding Level -----	FY 88 Funds Received to Date -----	FY 88 Funding Balance Needed -----
\$ OK	\$ OK	\$ OK	\$ OK

PROGRAM: Task IV, T. A. in Numerical Modeling

FIN A1158

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/87 -
12/87

NMSS PROGRAM MANAGER: N. M. Coleman

BUDGET AMOUNT: \$11K

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATOR: C. P. Harlan

FTS PHONE: 844-8164

PROJECT OBJECTIVE

Provide expert opinion input to NRC reviews of DOE site screening, site characterization, and technical development programs. Work includes numerical modeling assessments and participation in technical meetings, site visits and workshops.

ACTIVITIES DURING NOVEMBER 1987

No staff time was charged to this task during November. Costs incurred are from Tech Reps, a subcontractor developing the figures for the BWIP report.

During August, Paul Davis gave a presentation to the National Research Council Committee on Ground Water Modeling Assessment. In preparation for submitting a report of the presentation to the NRC A1158 Program Manager, a request for hardcopies of the viewgraphs has been sent to the appropriate Sandia organization. These figures will be used in developing the report. This task will fund the effort.

FIN A1158, Task IV, T. A. in Numerical Modeling
 Subcase 0976.060
 NOVEMBER 1987

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
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	5	5
Travel	0	1
Other (computer roundoff)	1	0
G & A	-1	0
	-----	-----
TOTAL COSTS	5	6

III. Funding Status

Prior FY Carryover -----	FY 88 Projected Funding Level -----	FY 88 Funds Received to Date -----	FY 88 Funding Balance Needed -----
\$ 11K	\$ 11K	\$ 0K	\$ 0K

PROGRAM: Task V, Short-term Technical Assistance

FIN A1158

CONTRACTOR: Sandia National Laboratories

BUDGET PERIOD: 10/87 -
12/87

NMSS PROGRAM MANAGER: N. M. Coleman

BUDGET AMOUNT: \$25K

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATOR: C. P. Harlan

FTS PHONE: 844-8164

PROJECT OBJECTIVE

To provide general technical assistance on waste management matters relating to Tasks I, II, III, and IV.

ACTIVITIES DURING NOVEMBER 1987

No activity.

FIN A1158, Task V, Short-term Technical Assistance
 Subcase 0976.050
 NOVEMBER 1987

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
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	0	0
Travel	0	0
Other (computer roundoff)	0	0
G & A	0	0
	-----	-----
TOTAL COSTS	0	0

III. Funding Status

Prior FY Carryover -----	FY 88 Projected Funding Level -----	FY 88 Funds Received to Date -----	FY 88 Funding Balance Needed -----
\$ 25K	\$ 25K	\$ 0K	\$ 0K

FIN A1158
 Total for Case 0976.000
 NOVEMBER 1987

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)	0.9 ---	1.5 ---
II. Direct Loaded Labor Costs	7	13
Materials and Services	0	0
ADP Support (computer)	0	1
Subcontracts	6	7
Travel	0	1
Other (computer roundoff)	1	0
G & A	1	2
	-----	-----
TOTAL COSTS	15	24

III. Funding Status

Prior FY Carryover -----	FY 88 Projected Funding Level -----	FY 88 Funds Received to Date -----	FY 88 Funding Balance Needed -----
\$ 82K	\$ 82K	\$ 0K	\$0K

/DIR
UN=CRH

UI=3114 FAMILY=INEL 87/11/02. 10.37.31.

*A42292	DNETCMP	DNETDOC	DNETLGO	DNET01	DNET02	DNET03
DNET04	DNET05	FLECSLG	GENCMP	GENDOC	GENLGO	GEN01
GEN02	GEN03	GEN04	*LHSCMP	LHSDOC	LHSLGO	LHS01
LHS02	*NEFTCMP	NEFTDOC	NEFTLGO	NEFT01	NEFT02	NEFT03
NEFT04	NEFT05	NEFT06	NEFT07	NEFT08	NWFTCMP	NWFTDOC
NWFTLGO	NWFT01	NWFT02	NWFT03	NWFT04	PATHCMP	PATHDOC
PATHLGO	PATH01	PATH02	PATH03	PATH04	PATH05	PATH06
QUAHEL B	QUAHELP	QUAHEL S	STEPCMP	STEPDOC	STEPLGO	STEP01
*SWICMP	SWIDOC	*SWIFTII	*SWIICMP	SWIIDIB	SWIIDIM	SWIIDOC
*SWIILGO	SWII01	SWII02	SWII03	SWII04	SWII05	SWII06
SWII07	SWII08	SWILGO	SWI01	SWI02	SWI03	SWI04
SWI05	SWI06	SWI07	SWI08	SWI09	SWI10	SWI11
SWI12	SWI13	SWI14	SWI15	SWI16	SWI17	SWI18
SWI19	SWI20	SWI21	SWI22	SWI23	SWI24	SWI25
SWI26	SWI27	SWI28	SWI29	SWI30	SWI31	SWI32
SWI33	SWI34	SWI35	SWI36	SWI37	SWI38	SWI39
SWI40	SWI41	SWI42	SWI43	SWI44	SWI45	SWI46
SWI47	SWI48	SWI49	SWI50	SWI51	SWI52	SWI53
SWI54	SWI55	SWI56	SWI57	SWI58	SWI59	TOUGDOC
TOUGH	TOUGH B	TOUGH01	TOUGH02	TOUGH03	TOUGH04	TOUGH05
TOUGH06	*USGS	USGSDOC	USGSLGO	USGSUPD	USGS01	USGS02
USGS03	USGS04	OBIN				

142 IND. 7741 PRUS. 7741 ALLOCATED. \$4.71+/DAY.
8 (*)DIR. 10252 PRUS. 13440 ALLOCATED. \$8.67+/DAY.

WM DOCKET CONTROL
CENTER

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WM-RES
WM Record File
11158
SNL

WM Project 10, 11, 16
Docket No.
PDR
X LPDR (B, N.S.)

Distribution:
Coleman Joan-ticket

(Return to WM, 623-SS) *af*