

Sandia National Laboratories

Albuquerque, New Mexico 87185

WM DOCKET CONTROL CENTER

November 15, 1986

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Ms. Sandra Wastler
Repository Projects Branch
Division of Waste Management
U.S. Nuclear Regulatory Commission
7915 Eastern Avenue
Silver Spring, MD 20910

Dear Ms. Wastler:

Enclosed is the summary of activities during October 1986 for the following tasks for FIN# A1165: (I) Assisting in the development of the Licensing Assessment Methodology; (II) Monitor and review aspects of DOE programs; (III) Identifying techniques for probability assignments; and (IV) Short-term technical assistance. If you have any questions please feel free to contact me at (FTS) 844-8368 or Robert Guzowski at (FTS) 844-3583.

Sincerely,

Robert M. Cranwell

Robert M. Cranwell, Supervisor
Waste Management Systems
Division 6431

RMC:6431

Enclosure

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WM-RES
WM Record File
A1165
SNL

WM Project 10, 11, 16
Docket No. _____

PDR ✓
LPDR ✓ (B, N, S)

Distribution:

SWastler

SCoplan

Joanne - ticket

(Return to WM, 623-SS)

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PROGRAM: Licensing-Methodology Assistance

FIN#: A-1165
Task I

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/86 -
9/87

NMSS PROGRAM MANAGER: S. Wastler

BUDGET AMOUNT: - ? -

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATORS: R. M. Cranwell
R. V. Guzowski

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FTS PHONE: 844-3583

PROJECT OBJECTIVE

To assist in the overall development and integration of the licensing assessment methodology.

ACTIVITIES DURING NOVEMBER 1986

A preliminary breakdown of the preclosure activities was developed. These activities were divided into three categories: construction, transport, and handling of radioactive material. Because the construction activities and transport related to construction do not involve radioactive material, these activities were eliminated from consideration. The accompanying table (Table 1) lists the transport and handling activities that will be used to create a preclosure flow chart similar to the postclosure one developed during October. Reports by Harris and others (1985) and ONWI (1984) will be reviewed to check on the completeness and/or further breakdown of the activities in Table 1.

In addition, the components of the performance assessment (Figure 1) are being reviewed to determine the topics that need to be considered and which computer codes are presently available at SNLA and/or NRC. Table 2 indicates the components examined to date and the available codes.

The present activities in the integration task include the identification of the computer codes in the various components of the performance assessment. The codes include but are not limited to those developed by and for the NRC. When the entire performance assessment is reviewed in this way, the computer codes will be evaluated as to status, utility, and documentation.

In response to your comment received December 16 of the effect on task schedules of changes in principal investigators, the 189 for A1165 will be reviewed in light of this change and the new funding assumptions. A revised 189 will be submitted with the January monthly. One effect of the change in principal investigators is a

redirection of the effort in the integration project. This redirection will result in a delay in the submission of the interim report.

References Cited

Harris, P. A., Ligon, D. M., and Stametelatos, M. G., 1985, High-level waste preclosure systems safely analysis. Phase 1, final report: Sandia National Laboratories, Contractor Report SAND85-7192 (NUREG/CR-4303). variously paginated.

ONWI, 1984, Performance assessment plans and methods for the salt repository project: Battelle Memorial Institute, Rept. BMI/ONWI-545, 341 p.

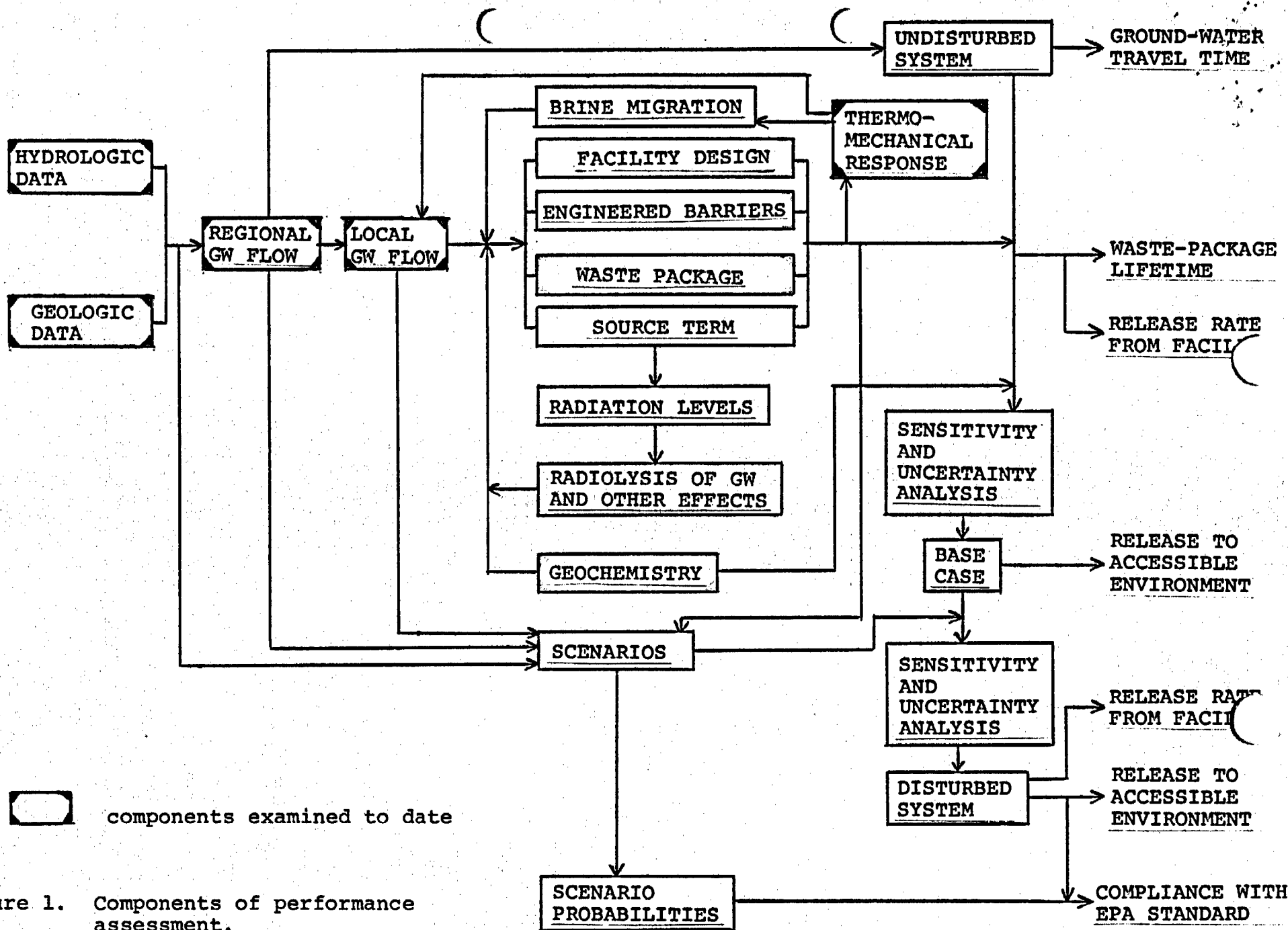


Figure 1. Components of performance assessment.

Table 1. Preliminary breakdown of preclosure activities.

TRANSPORT

transport from reactor to plant

(transport to intermediate location)

transport to site

transport to hole

HANDLING

loading material at reactor

unloading at plant

[reprocessing]

[loading waste form into canisters]

loading fuel rods into canisters

loading canisters onto truck, train, or barge

(transfer to truck from train or barge)

unload at site

lower down shaft

load onto vehicle

unload at hole

placement into hole

()-possible intermediate steps

[-additional steps for HLW

Table 2. Components of performance assessment and available codes- preliminary results.

Regional Ground-Water Flow

SWIFT I, SWIFT II, USGS, LHS, AKRIP

Local Ground-Water Flow

SWIFT I, SWIFT II, NEFTRAN, LHS, USGS, AKRIP

Unsaturated-Flow Codes Reviewed

TRUST, FLUMP, UNFLOW, VERGE, SEGOL, TRANSTWO, FECTRA,
UNSAT2, WHC, VS2D, SUPERMOCK, MLTRAN, TRACR3D, FECWATER,
FECWASTE, SHAFT 79, SAGUARO, TOUGH, NORIAH, PETROS, WAFE

Thermomechanical Response

DNET, STEALTH, SWIFT

Family of codes: SANCHO, COYOTE, MERLIN, QMESH

Small PC Codes:

Thermal, composite-VSRC3D, NTRAN, NTPLT

Stress-BOYELM, HEFF

Stress due to cavity-CAVITY, EXCAV, EXCAVC

Thermal stresses-THERST, THCYLB1

PROGRAM: Monitor/Review Aspects of DOE and
Other National and International
Waste Management Programs

FIN#: A-1165
Task II

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/86 -
9/87

NMSS PROGRAM MANAGER: S. Wastler

BUDGET AMOUNT: -?-

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATORS: R. M. Cranwell
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PROJECT OBJECTIVE

To monitor and review the performance-assessment aspects of DOE and other national and international management programs.

ACTIVITIES DURING NOVEMBER 1986

No activity. Some charges for the course on performance assessment were made to this case number instead of 1183.040. Corrections for these charges will be made.

The activities under this task are relatively short term and at the request of the NRC. No problems with schedules are expected because of the change in principal investigators.

PROGRAM: Probability Techniques

FIN#: A-1165
Task III

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/86 -
9/87

NMSS PROGRAM MANAGER: S, Wastler

BUDGET AMOUNT: -?-

CONTRACT PROGRAM MANAGER: R. M. Cranwell

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PROJECT OBJECTIVE

To identify techniques for assigning probabilities to geologic processes and events.

ACTIVITIES DURING NOVEMBER 1986

A scoping report entitled Techniques For Determining Probabilities Of Disruptive Events And Processes At And Near High-Level Radioactive Waste Repositories was completed. The purpose of this report is to delineate the specific areas where techniques need to be established by the NRC to determine the probabilities of events and processes important to performance assessment. A copy of the report accompanies this monthly.

Status of the chapters of the Probability Techniques Report:

Drafts of Chapter 3 (Thermomechanical Effects) and Chapter 8 (Seismic Hazard Assessment) were received in September and are included with this monthly. Chapter 10 (Geochemistry) is expected to be completed in December.

A misunderstanding as to which chapter remained to be completed resulted in the erroneous report of continued work on Chapter 3.

Additional information on reduced probability spaces and the normalization process will be included with the January monthly.

In response to your comment received December 16 on the effect on task schedules of changes in principal investigators, the 189 for A1165 will be reviewed in light of this change and the new funding assumptions. A revised 189 will be submitted with the January monthly.

PROGRAM: Short-Term Technical Assistance

FIN#: A-1165
Task IV

CONTRACTOR: Sandia National
Laboratories

BUDGET PERIOD: 10/86 -
9/87

NMSS PROGRAM MANAGER: S. Wastler

BUDGET AMOUNT: -?-

CONTRACT PROGRAM MANAGER: R. M. Cranwell

FTS PHONE: 844-8368

PRINCIPAL INVESTIGATORS: R. M. Cranwell
R. V. Guzowski

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PROJECT OBJECTIVE

To provide general technical assistance on waste-management matters on the request of the NMSS PM.

ACTIVITIES DURING NOVEMBER 1986

R. Cranwell and E. Bonano prepared for and presented a course on performance assessment to NRC personnel. The course was presented in Silver Springs on November 13 through 15.

The re-review comments on the Y. Kim report will be included with the January monthly.

The activities under this task are relatively short term and at the request of the NRC. No problems with schedules are expected because of the change in principal investigators.

A-1165

Total for 1183.010, 1183.020, 1183.030, and 1183.040.

November 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)	0.9	2.0
II. Direct Loaded Labor Costs	8	20
Materials and Services	1	4
ADP Support (computer)	0	0
Subcontracts	11	18
Travel	1	2
Other (computer roundoff)	0	1
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TOTAL COSTS	21	45

III. Funding Status

Prior FY Carryover -----	FY 87 Projected Funding Level -----	FY 87 Funds Received to Date -----	FY 87 Funding Balance Needed -----
\$138K	\$513K	-0-	\$375K

A-1165, Task I
 1183.010
 November 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)	0.8	1.3
II. Direct Loaded Labor Costs	6	11
Materials and Services	1	4
ADP Support (computer)	0	0
Subcontracts	8	12
Travel	0	0
Other (computer roundoff)	0	0
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TOTAL COSTS	15	27

III. Funding Status

<u>Prior FY Carryover</u>	<u>FY 87 Projected Funding Level</u>	<u>FY 87 Funds Received to Date</u>	<u>FY 87 Funding Balance Needed</u>
4K	*-	-0-	*-

* information on funding for FY87 not available.

A-1165, Task II
 1183.020
 November 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 ---	0.2 ---
II. Direct Loaded Labor Costs	1	4
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	1	1
Travel	1	1
Other (computer roundoff)	0	0
	-----	-----
TOTAL COSTS	3	6

III. Funding Status

Prior FY Carryover -----	FY 87 Projected Funding Level -----	FY 87 Funds Received to Date -----	FY 87 Funding Balance Needed -----
51	*-	-0-	*-

* information on funding for FY87 not available.

A-1165, Task III
 1183.030
 November 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)	0.0	0.3
II. Direct Loaded Labor Costs	0	3
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	2	5
Travel	0	1
Other (computer roundoff)	0	0
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TOTAL COSTS	2	9

III. Funding Status

<u>Prior FY Carryover</u>	<u>FY 87 Projected Funding Level</u>	<u>FY 87 Funds Received to Date</u>	<u>FY 87 Funding Balance Needed</u>
-0-	*-	-0-	*-

* information on funding for FY87 not available

A-1165, Task IV
 1183.040
 November 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)	0.1	0.1
II. Direct Loaded Labor Costs	1	2
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	0	0
Travel	0	0
Other (computer roundoff)	0	1
TOTAL COSTS	1	3

III. Funding Status

<u>Prior FY Carryover</u>	<u>FY 87 Projected Funding Level</u>	<u>FY 87 Funds Received to Date</u>	<u>FY 87 Funding Balance Needed</u>
8K	*-	-0-	*-

* information on funding for FY87 not available.