

**Sandia National Laboratories**

Albuquerque, New Mexico 87185

July 15, 1990


Mr. David H. Tiktinsky  
Office of Nuclear Material Safety  
and Safeguards  
Division of High-Level Waste Management  
U.S. Nuclear Regulatory Commission  
Mail Stop 6A-4  
Washington, DC 20555

Dear Mr. Tiktinsky:

Enclosed is the June 1990 monthly report for FIN A1165. If you have any questions or comments, please feel free to contact me at (FTS) 844-5303 or L. L. Price at (FTS) 844-6206.

Please note that L. L. Price is now the principal investigator.

Sincerely,

  
Evaristo J. Bohano, Supervisor  
Waste Management Systems  
Division 6416

EJB:6416

Enclosure

Copy to:

E. Davis  
Office of the Director, NMSS  
Attn: Program Support  
Robert Browning, Director  
Division of High-Level Waste Management  
Seth Coplan  
Division of High-Level Waste Management  
Pauline Brooks  
Division of High-Level Waste Management  
John Randall  
Division of Engineering

9007190395 900715  
PDR WMRES EXISANL  
A-1165 PDC

FULL TEXT ASCII SCAN

A-1165  
WM-11  
NH14

Tiktinsky

-2-

July 15, 1990

6410 D. A. Dahlgren  
6416 E. J. Bonano  
6416 L. L. Price  
6416 K. K. Wahi  
6416 D. A. Zimmerman  
6416 1183.000 File

SUMMARY SHEET

June 1990 Monthly Report for FIN A1165

<u>Task</u>	<u>Activity</u>	<u>Costs</u>
I	Licensing Methodology Assistance	\$ OK
II	Uncertainty Identification and Analysis	\$ OK
III	Probability Techniques	\$ OK
IV	Maintenance and Management of PA Codes	\$ OK
V	Technical Assistance for SCP Review	\$ OK
VI	Short Term Technical Assistance	\$ OK

PROGRAM: Licensing-Methodology Assistance FIN A1165  
Task I

CONTRACTOR: Sandia National Laboratories BUDGET PERIOD: 10/89 -  
9/90

NMSS PROGRAM MANAGER: P. Brooks BUDGET AMOUNT: \$1K

CONTRACT PROGRAM MANAGER: E. J. Bonano FTS PHONE: 844-5303

PRINCIPAL INVESTIGATOR: L. L. Price FTS PHONE: 844-6206

PROJECT OBJECTIVE

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

ACTIVITIES DURING JUNE 1990

Task I has been completed.

PROGRAM: Identification and Analysis of  
Uncertainties

FIN A1165  
Task II

CONTRACTOR: Sandia National  
Laboratories

BUDGET PERIOD: 10/89 -  
9/90

NMSS PROGRAM MANAGER: P. Brooks

BUDGET AMOUNT: \$37K

CONTRACT PROGRAM MANAGER: E. J. Bonano

FTS PHONE: 844-5303

PRINCIPAL INVESTIGATOR: L. L. Price

FTS PHONE: 844-6206

PROJECT OBJECTIVE

To identify, analyze, and recommend generic methodologies for treating uncertainties associated with performance assessments of HLW repositories.

ACTIVITIES DURING JUNE 1990

Subtask 2.1

I. Recommended techniques for assessing compliance with the EPA's HLW repository containment requirement (40 CFR 191.13)

A draft of this report was sent to the NRC on January 16, 1990. We received the NRC's comments on March 22, 1990. The NRC's comments have been addressed and this new draft has been proofread. Some changes have resulted from this proofreading and the final version should be completed by the end of July.

Subtask 2.2/2.6c

I. Identification, evaluation, quantification, and reduction of uncertainty in HLW repository performance assessments.

A draft of this report was sent to the NRC on April 2, 1990. We are waiting for NRC comments. Internal SNL reviews have been completed.

Subtask 2.3

I. Elicitation and use of expert judgement in dealing with uncertainty in HLW repository performance assessments.

Completed.

Subtask 2.4

**I. Methods for analyzing uncertainty in HLW repository performance assessment models.**

A draft of this report was sent to the NRC on February 7, 1990. We are waiting for NRC comments. Internal reviews of the report have been completed.

Subtask 2.5

Completed

Subtask 2.6

**I. Recommended methodologies for the analysis of data and parameter uncertainty in HLW repository performance assessment.**

Completed

**IV. Uncertainty and sensitivity analysis in ground-water flow modeling.**

A draft of this report was sent to the NRC on February 27, 1990, and we received NRC comments on May 23, 1990. Internal reviews of the report have been completed. Both the NRC comments and the comments resulting from internal review are being addressed.

PROGRAM: Probability Techniques

FIN A1165  
Task III

CONTRACTOR: Sandia National  
Laboratories

BUDGET PERIOD: 10/89 -  
9/90

NMSS PROGRAM MANAGER: P. Brooks

BUDGET AMOUNT: \$16K

CONTRACT PROGRAM MANAGER: E. J. Bonano

FTS PHONE: 844-5303

PRINCIPAL INVESTIGATOR: L. L. Price

FTS PHONE: 844-6206

#### PROJECT OBJECTIVE

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

#### ACTIVITIES DURING JUNE 1990

##### Subtask 3.2

I. Recommended techniques for estimating probabilities of events and processes affecting the performance of geologic repositories: assessing compliance with the EPA's containment requirements (40 CFR 191.13).

A draft of this report was sent to the NRC on February 21, 1990. We are currently waiting for NRC comments. Internal reviews of the report have been completed.

PROGRAM: Short-Term Technical Assistance

FIN A1165  
Task VI

BUDGET AMOUNT: \$3K

PROGRAM OBJECTIVE

To provide, on short notice, general technical assistance on HLW matters related to Tasks 1 through 5 that would not be provided in the normal course of the work in these tasks.

ACTIVITIES DURING JUNE 1990

No activity this month



FIN A1165  
 Total for Case 1183.000  
 June 1990

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 -----	2.8 -----
II. Direct Loaded Labor Costs	0	26
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	0	21
Travel	0	1
General and Administrative	0	6
Other (computer round-off)	0	-1
TOTAL COSTS	----- 0	----- 53

III. Funding Status

Prior FY Carryover -----	FY 90 Projected Funding Level -----	FY 90 Funds Received to Date -----	FY 90 Funding Balance Needed -----
\$57K	\$57K	\$0K	None

FIN A1165, Task I - Licensing Methodology Assistance  
 Subcase 1183.010  
 June 1990

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)	0.1 ---	0.6 ---
II. Direct Loaded Labor Costs	0	4
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	0	1
Travel	0	0
General and Administrative	0	1
Other (computer roundoff)	0	0
TOTAL COSTS	0 ---	6 ---

III. Funding Status

Prior FY Carryover -----	FY 90 Projected Funding Level -----	FY 90 Funds Received to Date -----	FY 90 Funding Balance Needed -----
\$1K	\$1K	None	None

FIN A1165, Task II - Identification and Analysis of Uncertainties

Subcase 1183.020  
June 1990

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 ---	1.3 ---
II. Direct Loaded Labor Costs	0	15
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	0	-1
Travel	0	0
General and Administrative	0	2
Other (computer round-off)	0	-1
TOTAL COSTS	0 ---	15 ---

III. Funding Status

Prior FY Carryover -----	FY 90 Projected Funding Level -----	FY 90 Funds Received to Date -----	FY 90 Funding Balance Needed -----
\$37K	\$37K	None	None

FIN A1165, Task III - Probability Techniques  
 Subcase 1183.030  
 June 1990

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 ---	0.9 ---
II. Direct Loaded Labor Costs	0	7
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	0	21
Travel	0	1
General and Administrative	0	3
Other (computer round-off)	0	0
TOTAL COSTS	0 ---	32 ---

III. Funding Status

Prior FY Carryover -----	FY 90 Projected Funding Level -----	FY 90 Funds Received to Date -----	FY 90 Funding Balance Needed -----
\$16K	\$16K	None	None

FIN A1165, Task VI - Short Term Technical Assistance  
 Subcase 1183.060  
 June 1990

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
General and Administrative	0	0
Other (computer round-off)	0	0
TOTAL COSTS	0 ---	0 ---

III. Funding Status

Prior FY Carryover -----	FY 90 Projected Funding Level -----	FY 90 Funds Received to Date -----	FY 90 Funding Balance Needed -----
\$3K	\$3K	None	None



**Subtask 2.4a - Treating Uncertainties in PA Models**

Submitted - 2/7/90                      Key Individuals - M. Goodrich  
Estimated Cost - \$2K                      Status - Waiting for NRC comments

**Subtask 2.5a - Scenario Development Methodology**

Submitted - 3/26/90                      Status - Completed

**Subtask 2.6a - Methodologies for Data and Parameter Uncertainty**

Submitted - 2/15/90                      Status - Completed

**Subtask 2.6d - Comparison of Uncertainty and Sensitivity Analysis  
Techniques (Includes Subtask 2.6e)**

Submitted - 2/27/90                      Key Individuals - T. Zimmerman  
Estimated Cost - \$2K                      Status - Addressing NRC comments

**Task 3**

**Subtask 3.2 - Estimating Probabilities for Initiating Events and  
Processes**

Submitted - 2/21/90                      Key Individuals - G. Apostolakis,  
R. Bras, L. Price,  
K. Wahi  
Estimated Cost - \$3K                      Status - Waiting for NRC comments

**Task 6**

**Short Term Technical Assistance**

Funds Remaining - \$3K

**DELIVERABLES SUBMITTED DURING THE CURRENT REPORTING PERIOD**

<u>SUBTASK NUMBER</u>	<u>DELIVERABLE TITLE</u>	<u>DATE</u>	<u>STATUS</u>
-----------------------	--------------------------	-------------	---------------

None			
------	--	--	--



**SCHEDULE OF MILESTONES AND DELIVERABLES**

<u>SUBTASK NUMBER</u>	<u>DELIVERABLE TITLE</u>	<u>DRAFT DUE</u>	<u>FINAL DUE</u>	<u>STATUS</u>
1.1	Components of an Overall Performance Assessment Methodology	Submitted Dec. 1, 1988	Submitted Jan. 31, 1990	Completed
1.3e	Technical Basis for NRC Review of HLW Repository Modeling	Submitted June 14, 1989	Submitted Feb. 8, 1990	Completed
2.1	Techniques for Assessing Compliance with the EPA's HLW Repository Containment Requirement	Submitted Jan. 16, 1990	No due date.	Preparation of final report.
2.2/2.6c	Uncertainties Associated with Performance Assessment of High-level Radioactive Waste Repositories: A Summary Report	Submitted April 2, 1990	No due date.	Waiting for NRC comments.
2.3	Elicitation and Use of Expert Judgment in Performance Assessments for HLW Repositories	Submitted July 26, 1990	Submitted Apr. 23, 1990	Completed.
2.4a	Guidelines for Judging the Validity of Models for Performance Assessment of HLW Repositories	Submitted Feb. 7, 1990	No due date.	Waiting for NRC comments.

2.5	Risk Methodology for Geologic Disposal of Radioactive Waste: Scenario Selection Procedure	Submitted June 27, 1989	Submitted Mar. 26, 1990	Completed.
2.6a	A Review of Techniques for Propagating Data and Parameter Uncertainty in High-Level Radioactive Waste Repository Performance Assessment Models	Submitted May 31, 1989	Submitted Feb. 15, 1990	Completed.
2.6d	A Comparison of Parameter Estimation and Sensitivity Analysis Techniques for Ground-Water Flow Models and Their Impact on the Uncertainty in Model Performance Predictions	Submitted Feb. 27, 1990	No due date.	Addressing NRC comments.
3.2	Techniques for Determining Probabilities of Events and Processes Affecting the Performance of Geologic Repositories: Volume II --Suggested Approaches	Submitted Feb. 21, 1990	No due date.	Waiting for NRC comments.