

April 15, 1990

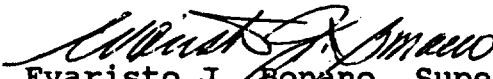
Mr. David H. Tiktinsky  
Office of Nuclear Material Safety  
and Safeguards  
Division of High-Level Waste Management  
U.S. Nuclear Regulatory Commission  
Mail Stop 6A-4  
Washington, DC 20555

Dear Mr. Tiktinsky:

Enclosed is the March 1990 monthly report for FIN A1165. As of the end of March, reports for all but one of the subtasks, Subtask 2.2/2.6c, had been sent to the NRC. The report under this subtask will be sent to the NRC in early April. We believe that our obligations under FIN A1165 will have been met as soon as the NRC receives a draft of the Subtask 2.2/2.6c report. We are committed to addressing NRC comments on all draft reports and going through the necessary procedures to publish all reports under FIN A1165 as NUREG/CR reports. However, it is not possible to set due dates for the delivery of the final reports under Subtasks 2.1, 2.2/2.6c, 2.4a, 2.6d, and 3.2 because the personnel responsible for these reports had to be assigned to other projects. We could not keep these individuals assigned to FIN A1165 waiting for NRC review comments that we did not receive within 10 working days, as promised by the NRC. This also means that we will not be able to publish all reports by the end of May. However, as stated above, all remaining reports will be published as NUREG/CR reports.

If you have any questions or comments, please feel free to contact me at (FTS) 844-5303, P. A. Davis at (FTS) 846-5421, or L. L. Price at (FTS) 844-6206.

Sincerely,

  
Evaristo J. Bonano, Supervisor  
Waste Management Systems  
Division 6416

EJB:6416

Enclosure

Copy to:

E. Davis  
Office of the Director, NMSS  
Attn: Program Support

9004170220 900415  
PDR WMRES EXISANL  
A-1165 PDC

1165  
A-H65  
WM-11  
NH14

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

SUMMARY SHEET

March 1990 Monthly Report for FIN A1165

<u>Task</u>	<u>Activity</u>	<u>Costs</u>
I	Licensing Methodology Assistance	\$ 1K
II	Uncertainty Identification and Analysis	\$ 1K
III	Probability Techniques	\$ -2K
IV	Maintenance and Management of PA Codes	\$ 0K
V	Technical Assistance for SCP Review	\$ 0K
VI	Short Term Technical Assistance	\$ 0K

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 INVESTIGATORS: P. A. Davis  
L. L. Price

FTS PHONE: 846-5421  
FTS PHONE: 844-6206

PROJECT OBJECTIVE

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

ACTIVITIES DURING MARCH 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 INVESTIGATORS: P. A. Davis  
L. L. Price

FTS PHONE: 846-5421  
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 MARCH 1990

##### Subtask 2.1

I. Recommended techniques for assessing compliance with the EPA's HLW repository containment requirement (40CFR191.13)

A draft of this report was sent to the NRC on January 16, 1990. We received the NRC's comments on March 22, 1990. Internal reviews of the report have been completed, and we have begun to address the NRC's comments.

##### Subtask 2.2/2.6c

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

Because of comments made by the internal reviewers, the report has been somewhat revised. A draft of the report will be sent to the NRC in early April.

##### Subtask 2.3

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

The report is in SNL management sign-off. It will be sent to the NRC as soon as this procedure is 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

The final camera-ready original of this report was sent to the NRC for publication on March 26, 1990. In addition, a copy of this original was sent to Pauline Brooks on March 26, 1990. SNL's obligation with respect to Subtask 2.5 has been fulfilled.

#### 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. We are currently waiting for NRC comments and are having the report reviewed internally.

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 INVESTIGATORS: P. A. Davis  
L. L. Price

FTS PHONE: 846-5421  
FTS PHONE: 844-6206

#### PROJECT OBJECTIVE

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

#### ACTIVITIES DURING MARCH 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 and are having the report reviewed.

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 MARCH 1990

No activity this month



FIN A1165  
 Total for Case 1183.000  
 March 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)	0.3 -----	2.7 -----
II. Direct Loaded Labor Costs	4	26
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	-5	21
Travel	0	1
General and Administrative	0	5
Other (computer round-off)	1	0
TOTAL COSTS	----- 5	----- 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  
 March 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 ---	0.5 ---
II. Direct Loaded Labor Costs	0	4
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	0	2
Travel	0	0
General and Administrative	0	1
Other (computer roundoff)	1	0
TOTAL COSTS	----- 1	----- 7

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  
 March 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)	0.2 ---	1.3 ---
II. Direct Loaded Labor Costs	4	15
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	-3	-2
Travel	0	0
General and Administrative	0	1
Other (computer round-off)	0	0
TOTAL COSTS	1 ---	14 ---

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  
 March 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	-2	21
Travel	0	1
General and Administrative	0	3
Other (computer round-off)	0	0
TOTAL COSTS	----- -2	----- 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  
 March 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

**Deliverables and Due Dates**  
**FIN A1165**

Task 1

**Subtask 1.1 - Components of an Overall Performance Assessment Methodology**

Submitted - 1/31/90      Status - Completed

**Subtask 1.3e - Technical Basis for Review of HLW Modeling Programs (Includes Subtasks 1.3b, 1.3c, and 1.3d)**

Submitted - 2/8/90      Status - Completed

Task 2

**Subtask 2.1 - Recommended Techniques for Assessing Compliance with the EPA's HLW Repository Containment Requirement**

Submitted - 1/16/90      Key Individuals - E. Bonano, K. Wahi  
Estimated Cost - \$1K      Status - Addressing NRC comments.

**Subtask 2.2/2.6c - Uncertainties Associated with Performance Assessment of High-Level Radioactive Waste Repositories: A Summary Report**

Due Date - 3/15/90      Key Individuals - E. Bonano and  
P. Davis  
Estimated Cost - \$14K      Status - Draft in internal SNL review

**Subtask 2.3 - Elicitation and Use of Expert Judgment in HLW PA (Includes a portion of subtask 2.6e)**

Due Date - 3/23/90      Key Individuals - E. Bonano, R. Keeney,  
D. von Winterfeldt,  
and S. Hora  
Estimated Cost - \$1K      Status - In SNL management sign-off

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

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

\* - All costs are as of January 1, 1990

\*\* - Lead individual for a given report is in bold letters



**DELIVERABLES SUBMITTED DURING THE CURRENT REPORTING PERIOD**

<u>SUBTASK NUMBER</u>	<u>DELIVERABLE TITLE</u>	<u>DATE</u>	<u>STATUS</u>
2.5	Risk Methodology for Disposal of Radioactive Waste: Scenario Selection Procedure	3/26/90	Final



**SCHEDULE OF MILESTONES AND DELIVERABLES**

<u>SUBTASK NUMBER</u>	<u>DELIVRABLE 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 Containmnet Requirement	Submitted Jan. 16, 1990	No due date.	Addressing NRC comments.
2.2/2.6c	Uncertainties Associated with Performance Assessment of High-level Radioactive Waste Repositories: A Summary Report	Mar. 15, 1990	No due date.	Draft in SNL review.
2.3	Elicitation and Use of Expert Judgment in Performance Assessments for HLW Repositories	Submitted July 26, 1989	Mar. 23, 1990	In SNL management sign-off.
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.	Waiting for 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.