

Sandia National Laboratories

Albuquerque, New Mexico 87185

February 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 January 1990 monthly report for FIN A1165. 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
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

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SUMMARY SHEET

January 1990 Monthly Report for FIN A1165

<u>Task</u>	<u>Activity</u>	<u>Costs</u>
I	Licensing Methodology Assistance	\$ 2K
II	Uncertainty Identification and Analysis	\$-14K
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 FTS PHONE: 846-5421
L. L. Price FTS PHONE: 844-6206

PROJECT OBJECTIVE

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

ACTIVITIES DURING JANUARY 1990

Subtask 1.1

I. Formal report: compilation of parameters and components of an overall performance assessment methodology.

The final camera-ready original of this report was sent to the NRC for publication. In addition, a copy of this original was sent to Pauline Brooks on January 31, 1990. SNL's obligation under this contract with respect to Subtask 1.1 has been fulfilled.

Subtask 1.3

V. A technical basis for NRC review of HLW repository modeling programs

A final copy of the report is currently in SNL management sign-off. All NRC comments have been addressed and all SNL reviews have been completed. A camera-ready original should be sent to the NRC by February 15, 1990.

**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 JANUARY 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 are currently awaiting NRC comments.

Subtask 2.2/2.6c

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

A draft of this report is in progress. It will be reviewed internally before being sent to the NRC for comments. The due date is March 15, 1990.

Subtask 2.3

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

The authors of this report met January 23, 1990 to discuss the NRC comments on the report. These comments are currently being addressed and the report is being prepared for SNL management sign-off. It will be sent to the NRC by March 23, 1990.

Subtask 2.4

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

A draft of this report has been reviewed and should be received by the NRC by February 9, 1990.

Subtask 2.5

The report is in final preparation for SNL management sign-off. It should be sent to the NRC by March 15, 1990.

Subtask 2.6

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

The final draft of this report is currently in SNL management sign-off. A camera-ready original should be received by the NRC by February 15, 1990.

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

A draft of this report is currently being reviewed internally at SNL. It should be sent to the NRC by February 28, 1990.

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 JANUARY 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 is currently being reviewed internally at SNL. It should be received by the NRC by February 28, 1990.

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 JANUARY 1990

No activity this month

FIN A1165
 Total for Case 1183.000
 January 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 -----	2.1 -----
II. Direct Loaded Labor Costs	3	21
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	-12	22
Travel	0	1
General and Administrative	-1	5
Other (computer round-off)	0	-1
TOTAL COSTS	----- -10	----- 48

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
 January 1990

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 NRC BY SANDIA'S ACCOUNTING DEPARTMENT.

	Current Month -----	Year -to- Date -----
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	2
Travel	0	0
General and Administrative	0	0
Other (computer roundoff)	0	0
TOTAL COSTS	----- 2	----- 5

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
 January 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 ---	0.9 ---
II. Direct Loaded Labor Costs	3	11
Materials and Services	0	0
ADP Support (computer)	0	0
Subcontracts	-16	0
Travel	0	0
General and Administrative	-1	1
Other (computer round-off)	0	0
TOTAL COSTS	----- -14	----- 12

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
 January 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	20
Travel	0	1
General and Administrative	0	3
Other (computer round-off)	0	0
TOTAL COSTS	----- 2	----- 31

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
 January 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 SUBMITTED DURING THE CURRENT REPORTING PERIOD

<u>SUBTASK NUMBER</u>	<u>DELIVERABLE TITLE</u>	<u>DATE</u>	<u>STATUS</u>
1.1	Components of an Overall Performance Assessment Methodology, NUREG/CR-5256 SAND88-3020	1/31/90	Final
2.1	Role of Performance Assessment in Assessing Compliance with the Containment Requirements in 40 CFR Part 191, NUREG/CR-5521 SAND90-0127	1/16/90	Draft

SCHEDULE OF MILESTONES AND DELIVERABLES

SUBTASK NUMBER	DELIVERABLE TITLE	DRAFT DUE	FINAL DUE	STATUS
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	Feb. 15, 1990	In SNL management sign-off.
2.1	Techniques for Assessing Compliance with the EPA's HLW Repository Containment Requirement	Submitted Jan. 16, 1990	45 days after receipt of NRC comments	Waiting for NRC comments.
2.2/2.6c	Identification, Evaluation, Quantification, and Reduction of Uncertainty in HLW Repository Performance Assessments: A Preliminary Report	Mar. 15, 1990	45 days after receipt of NRC comments	In progress
2.3	Elicitation and Use of Expert Judgment in Performance Assessment for HLW Repositories	Submitted July 26, 1989	Mar. 23, 1990	Final preparation for SNL management sign-off.
2.4a	Criteria for Judging the Validity of Models	Feb. 9, 1990	45 days after receipt of NRC comments	In progress

<u>SUBTASK NUMBER</u>	<u>DELIVERABLE TITLE</u>	<u>DRAFT DUE</u>	<u>FINAL DUE</u>	<u>STATUS</u>
2.5	Risk Methodology for Geologic Disposal of Radioactive Waste: Scenario Selection Procedure	Submitted June 27, 1989	Mar. 15, 1990	Final preparation for SNL management sign-off
2.6a	Methodologies for Analyzing Data and Parameter Uncertainty	Submitted May 31, 1989	Feb. 15, 1990	In SNL management sign-off.
2.6d	Comparison of Uncertainty and Sensitivity Analysis Techniques for Saturated Ground Water Flow and Transport Models	Feb. 28, 1990	45 days after receipt of NRC comments	In progress
3.2	Techniques for Determining Probabilities of Events Affecting the Performance of Geologic Repositories: Volume 2 -- Demonstration of Techniques	Feb. 28, 1990	45 days after receipt of NRC comments	In progress