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NUCLEAR SYSTEMS SAFETY PROGRAM

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SUBJECT: MONTHLY MANAGEMENT LETTER REPORT NO. 7
Progress for the Month of October 1983
NRC FIN A0294
Technical Assistance in Seismo-Tectonic Impacts in Repositories

1. PROGRAM OBJECTIVES AND DESCRIPTION

The objective of this program is to provide technical assistance to the U.S. Nuclear Regulatory Commission (NRC) on waste repositories in the following areas:

a. Reviewing the uncertainties and limitations of the data and methods used in seismo-tectonic investigations completed by the U.S. Department of Energy (DOE).

b. Identifying and evaluating issues[1] in seismo-tectonics related to design and construction, long-term repository performance and ground-water flow.

c. Providing input to the technical basis for NRC technical positions in the area of seismo-tectonics.

Our approach to achieve this objective is to evaluate DOE's seismo-tectonic assessments through review of related DOE reports, including Site Characterization Plans (SCP); participation in workshops and site visits;

1 An issue is a question about a site that is critical to determination of site suitability at the construction authorization stage in terms of the performance objectives and requirements of 10 CFR 60, Subpart E.

and identification and evaluation of issues in seismo-tectonics related to design and construction, long term repository performance and groundwater flow. We will provide input to the technical basis for NRC technical positions in the area of seismo-tectonics.

Site characterization review plans for FY 83 and FY 84 include Hanford-BWIP site, NNWSI, and a salt site. In preparing our reviews, we will consider the guidelines found in Regulatory Guide 4.17, "Standard Format and Content of Site Characterization Reports for High-Level Waste Geologic Repositories," "Review Plan for Site Characterization," and 10 CFR 60 (draft), "Disposal of High-Level radioactive Wastes in Geologic Repositories: Technical Criteria."

Specifically, the NRC has requested LLNL to assist the NRC in meeting the needs described above by performing independent review and associated studies based upon LLNL's experience and expert knowledge.

Specific Work Requirements

There are two (2) tasks as follows:

Task 1: Review of the DOE Site Characterization Program in Seismo-Tectonics

1.1 Preparatory Site Characterization Program Review
1.2 Preparatory Site Characterization Analysis
1.3 Review of SCP and SCP Biannual Updates
1.4 Review of Public Comments

Task 2: General Technical Assistance to NRC

With these tasks and subtasks above, four sets of NRC needs are recognized.

First, there is the need to assemble existing data base and adequacy of methods used to collect and interpret the data. Second, there is the need to perform site-specific seismo-tectonic issues (in basalts at Hanford, tuff at the Nevada Test Site (NNWSI) and a salt site, yet to be determined). Third, there is the need to identify other additional information needed to perform quantitative assessments to determine if there is reasonable assurance that the site will meet the performance objectives of 10 CFR Part 60. The fourth need is to contribute to the technical basis for NRC technical positions or appendices to the Site Characterization Analysis (SCA) in the area of seismo-tectonics.

2. PROGRESS - OCTOBER 1983

Our major effort for the reporting period was placed upon Task 1.

The first NNWSI site geology/geophysics workshop was held in Golden, Colorado, on October 4-6, 1983. The workshop was followed by a one day field trip to Yucca Mountain in Nevada on October 7. Our report on the workshop was prepared and submitted to the NRC/PM during this reporting period.

We concluded from this workshop that although there was extensive data and information presented, many of the overviews were progress or data reports which did not reach conclusions or advance hypotheses. This is not uncommon in the early stages of an investigation. In addition, there appeared at times to be a lack of coordination and integration between various researchers and between the discipline groups.

Based on the workshop and field trip, we noted the following recommendations:

1. Future workshops should focus on fewer technical areas, but in more detail and with better integration of various studies.

2. Nuclear tests should be removed from the regional seismic picture.

3. A field trip be conducted to examine the trenches on the west side of Yucca Mountain and the more active faults in the vicinity of Bare Mountain.

4. More trenches should be excavated in order to better define direction of last movement and age of faults with surface expression.

5. The trenches be reviewed by experts in soil morphology.

Considerable efforts are being made in our preparation for an LLNL independent evaluation of the BWIP site, the NNWSI site and salt sites.

3. PLANS FOR NEXT MONTH

Continue our preparatory work for the BWIP site. Meet with the NRC/PM and staff for technical coordination.

4. ESTIMATED PROJECT FINANCIAL STATUS

See Attachment A

5. LIST OF CONSULTANTS/SUBCONTRACTORS

D. Burton Slemmons, Consulting Geologist

6. PROJECT CONCERNS

None.

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Project Title: Seismo-Tectonic Impacts in Repositories

ATTACHMENT A

Estimated Monthly Letter Financial Section

FIN No. A0294

A. PROJECT COSTS:

Funds Obligated to Date: (FY 83 and FY 84) $500K

FY 84 Budget: $350K

B. COST ANALYSIS*

	September	Cumulative ($K)	
Direct Lab Staff Effort	1.8	7.0	
Direct Salaries	12.3	60.7	
Materials & Services (excluding ADP)	0	1.0	
ADP Support	0	0	
Subcontracts	1.6	26.4	
Travel Expenses	3.7	11.2	
Indirect Labor Costs	12.8	60.4	
Other (TID)	0.1	0.3	
General & Admin.	4.9	24.9	
Total	32.3	181.8	(36)% of Funding Available
Liens (Slemmons)	5.6	5.6	
Total Obligations	37.9	187.4	

*Note: These figures are for cost analysis only and may differ slightly from final billing figures.