UNITED STATES
NUCLEAR REGULATORY COMMISSION
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M E M O R A N D U M

DATE: March 15, 1989

FOR: John J. Linehan, Director, Repository Licensing and Quality Assurance Project Directorate (HLPD), Division of High-Level Waste Management

FROM: Paul T. Prestholt, Sr. OR - NNWSI PTP

SUBJECT: NNWSI Site Report for the month of February, 1989

I. INTRODUCTION

The February TPO meeting was held on March 10, 1989, therefore this monthly report includes the first ten days of March.

II. DOE FIELD OPERATIONS PLANNING

A. In planning for efficient management of field activities at Yucca Mountain during site characterization, the following are the major deliverables:

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1. Action Plan - approved on January 23 and forwarded with the January monthly report.

2. Field Operations Management Plan (FOMP) - described in the action plan.

3. Assign Site Office Manager

4. Matrix Assignments (those indviduals from the YMPO office who will work with the Site Office Manager).

5. Identify additional slots and institute long range planning activities.

6. "Scientific Decision" study, from the Action Plan: "Investigate the feasibility of performing a study to determine the best "decision process" that can be developed in rendering scientific evaluative judgements in the field".

7. Complete renovation of the existing administration and engineering (A&E) building in Area 25 of the NTS.

B. The A&E building:

This facility is one of eight facilities in Area 25 that will be used for the establishment of a Yucca Mountain Project Technical Support Base at the Nevada Test Site.

- A&E Building houses primarily the administrative operations, engineering and field operations control center.

- Provides office and work space for the project participants, Federal and State agencies.

- 1 1/2 story structure, 61,100 s.f.

- Cost of renovation work which is presently in progress is $2.3M

- Anticipated date of completion is in the September time-frame.

C. The general objectives of the Yucca Mountain Site Office are:

- Smooth integration of NTS/YMPO activities.
- Ensure operational compatability between YMPO and weapons program.
- Best utilization of existing people and physical assets.
- Establish effective coordination avenues.
- Establish mechanism for early problem identification and resolution.

D. The proposed field operations procedures are:

AP#	TITLE
1.11	Field Communications
1.12	Visits to the site
1.13	Emergencies
1.14	Signs in the field
1.15	Transportation and traffic management
2.9	Reporting of unusual occurrences
4.1	Major equipment and supply
6.1	Environment, safety and health protection
10.1	Government property
10.2	Use of common property and supply
10.3	Field facilities and personnel
__	Engineering, construction and support services

III. GEOLOGY

A. Midway Valley Trenching Study (SCP study plan 8.3.1.17.4.2 Location and Recency of Faulting Near Prospective Surface Facilities).

The responsible individuals for the Midway Valley trenching study are: Duane Gibson, SNL; Les Shephard, SNL; and Chris Rautman, SNL.

In the enclosed handout is a map of Midway Valley showing the "Reference Conceptual Site" for the surface facilities. The trenching program is designed to show whether or not there is Quaternary faulting between Exile Hill and Alice Ridge.

The trenching is designed to expose the 200,000 year horizon and may be as much as 20 feet deep. The lines drawn on the map (Fig.1-2) represent the maximum trenching program contemplated at this time.

The schedule presented in the handout shows the "Gold Star" audit for this activity in August of 89 with start of exploratory trenching at this time. The time line continues into 1990. Study plan 8.3.1.17.4.2 is scheduled to be submitted the NRC for review in March of 1989.

We will keep track of this activity as it develops.

B. Unsaturated Zone (UZ) Drilling:

The unsaturated zone is:

- Up to 2,500 feet thick at Yucca Mountain
- Will be drilled/cored dry within the controlled area
  - Data to represent natural conditions (to the extent possible).

- Minimize potential impacts to site performance.

The prototype drilling program has high visibility:

- Is transitioning from planning to operating mode.
- The prototype drilling program is the first field test of the dual-wall drilling and coring technique.
- Those interested in the capabilities of the new technology include:
  - The YMP
  - NRC - State of Nevada
  - Industry - lost circulation problems and environmental monitoring studies
- Will provide familiarization for: drillers, PIs, QA, and management

The objectives of the prototype drilling program are to establish:

- A basis for schedule durations
- Methods and procedures
- Readiness for Site Characterization drilling

and to evaluate:

- Feasibility of the combined application of the dual-wall drilling method for both drilling and coring
- two core sizes:
  8" with HQ (2.4") core
  12" with PQ (3.5") core
- Borehole and sample quality
- Drilling durations:
  - Penitration rates - drilling and coring
  - Tripping times (length of time to pull the drill string and then go back in hole)
  - Tool life (drill bit, etc.)

The drilling methods that have been used on the project so far include:

- Traditional drilling - wet
  - water, mud, foan, mist, etc. (G-series)
- Dry drilling methods:
  - Reverse vacuum (UZ-1, UZ-6) - no coring
- Odex (UZ-6S), depth limitation

The Dual-Wall technique has been used by the mineral industry, however, only cuttings have been recovered so the coring technique must be developed.

Drilling requirement for deep dry holes:

- DH-1 (LM-90) by Lang Exploratory Drilling. The LM-90 has a draw work capacity of 90,000 lbs.

- LM-120, draw work capacity of 1200 lbs. Largest available rig by subcontract (truck mounted). Will be used for prototype holes USW UZP-1,2. The LM-90 is backup.

- LM-250, draw work capacity 250,000 lbs. To be built to meet diameter and depth requirements for site characterization. This will be a truck mounted drill. DOE Hq has approved procurement of first large rig with procurement of additional rigs pending successful prototype drilling and coring.

- The Multipurpose Boreholes (MPBH) - one will be drilled using an LM-120 rig and the other using the LM-250 (if available in time) with the LM-90 as a backup.

We will keep track of this activity.

IV. HYDROLOGY

Due to the stop work order imposed on the USGS, only the maintenance of ongoing activities is being done at this time.

V. GEOCHEMISTRY

A. Dr. Richard Herbst announced that Dr. Donald Oakley will not be returning as LANL TPO. Dr. Herbst is now the permanent TPO. Dr. Herbst stressed that this change is not caused by Dr. Oakley's health.

B. The chlorine 36 analysis being conducted in "G" tunnel is complete.

VI. REPOSITORY ENGINEERING - ESF

A. Dr. Jerry King gave a presentation on the ESF Title I Design Acceptability Analysis (DAA) and a comparative evaluation of alternative ESF locations. The handout is attached.

Dr. King described the purpose of the Technical Assessment Review (TAR), the scope of the TAR, the procedure under which the TAR was conducted, the technical approach employed by the TAR team and the results of the review.

The results were:

- Title I design found to be an acceptable basis for Title II design.

- A number of recommendations resulted from the TAR for work to be accomplished as part of or in association with Title II design.

The recommendations from the DAA or ESF Title I Design TAR part 1, Element 3 (Design Adequacy Assessment). From the handout:

Table 2.5-1 of the TAR suggests timing for response to the recommendations.

Categories:

Title II Design
Early Title II Design
Before testing
Early in construction
Title II SDRD

A plan is under development that correlates the specific recommendations to the phased design packages currently planned for the Title II Design.

Six of the recommendations relate to the SDRD or could be relevant to the start of Title II Design.

The recommendations that are relevant to the SDRD are:

1. Integrate the MPBH requirements into the ESF design.

   - MPBH requirements included in SDRD (Benchmark 4)

2. Monitor and document underground boreholes from ESF.

   - Construction phase requirement

3. Maintain the capability to extend ES-1 into Calico Hills (waste isolation and ability to characterize).

4. Interpret drift-borehole stand off criterion for MPBH and USW G-4.

   - To be examined in ESF Title II Design

The recommendation relevant to start of Title II design is

- Develop/implement procedures for identifying items important to waste isolation

  - Procedures were developed prior to start of Title II design

  - Procedures will be implemented as part of Title II design

Recommendations from the DAA of ESF Title I design TAR part 1, element 4 (Data Reasonableness Reviews)

1. Specific analyses, including treatment of uncertainty, recommended for Title II evaluations

2. Clarify or correct inappropriate citations in SCP

3. Recommendations for SDRD and RIB development

Results of the comparative evaluation are:

For currently expected conditions, differences in waste isolation potential are not significant because the conditions at all locations would meet postclosure performance requirements by a wide margin.

Surrogate conditions suggest that the current shaft location may have a lower potential for isolating waste than other locations and may, therefore be the most suited for acquisition of data that will allow a conservative representation of overall site properties.

Shaft sinking at any alternative location would not be expected to significantly affect the waste isolation capability of an associated repository.

Consideration of waste isolation potential in the shaft location selection process would not have changed the choice of the current location and may have strengthened the scientific basis for choosing the current location.

DAA implementation includes:

The TAR plan is being revised to specify a process for resolving the comments resulting from the TAR.

Specific recommendations for Title II design will be correlated to the phased design packages currently planned.

B. During the TPO meeting held on March 10, John Robson, DOE-YMPO gave an overview and update on the Exploratory Shaft Facility (ESF).

- Mr. Robson reported that the project is currently preparing to start Title II Design.
  - A management review was given to DOE Hq personnel on March 6, 1989.
  - DOE Hq conducted a surveillance at the YMP on March 8, 9, and 10.

- The Project anticipates a phased, controlled start for the main pad package.

- The ESF networking effort is maturing:
  - Network establishes benchmark for future planning.
  - Expanding testing/construction/test support network integration.

- The Project Office will make a presentation to the Energy System Acquisition Advisory Board (ESAAP) on March 30, 1989.

- Readiness Review for the start of ESF construction:
  - Notice issued.
  - Readiness review team formed.
  - Working on draft readiness review check list.

- Responding to the Nuclear Waste Technical Review Board (NWTRB) questions.
  - Why not raise bore ES-2?
  - Why not excavate repository perimeter drift as part of the ES testing program?
  - Why not use bentonite packing around the waste package?

- Integrating Management Plans for work on the site:
  - Field Operations Management Plan (FOMP)
  - ESF Management Plan
  - Testing Management Plans

- Work order for REECo to begin equipment procurement.

VII. LICENSING AND DOE-NRC INTERACTIONS

A. DOE held a briefing for the Nuclear Waste Technical Review Board (NWTRB) in March. Admiral Watkins, the new Secretary of Energy spoke to the Board. Eight board members were present.

The NWTRB will be in Las Vegas on April 11-12, 1989 to discuss the ESF. Topics will include the perimeter drift, raise boring ES-II and packing material.

B. Project update meetings were held in Beatty, Las Vegas, Caliente and Reno in February. The Beatty and Caliente meetings generally kept to issues such as water, transportation, accident mitigation and cleanup, jobs and impact on the local community infrastructure. The Las Vegas and Reno meetings were characterized more by anti-nuclear statements.

C. Public SCP hearings will be held in Amargosa Valley on March 20, Las Vegas on March 21 and Reno on March 23. These meetings will be covered.

D. DOE Hq announced that, in response to Acting Governor Miller's request, the SCP comment period is extended from April 15 to June 1, 1989.

E. Dr. Tom Hunter has resumed his duties as Sandia TPO.

F. DOE-Hq will be responsible for producing the six month SCP updates. Weston will do the work.

G. Larry Hayes, USGS-TPO forwarded letters from Dallas Peck, USGS-Director, Philip Cohen, USGS Chief Hydrologist and Benjamin Morgan, USGS-Chief Geologist stating complete support of the DOE High Level Waste Repository Program. Copies are attached.

H. The YMPO has received 6.8 million in additional funds for QA. The money will be distributed to all participants. Additional funds were also allocated for telecommunications, G-tunnel prototype testing and for the LM-250 drill rig.

VIII. NRC-STATE OF NEVADA INTERACTIONS - None

IX. GENERAL

Meetings attended:

February 1	Meeting with Ted Petrie, Anthony Baca, Mary Lou Brown, Nancy Voltura - on fully qualified QA program and ESF construction start.
February 2	Meeting with Mary Lou Brown on ESF design control open items.
February 7	Meeting with Ted Petrie et al on ESF construction start.
	Meeting with Don Helton on data base access.
February 13	Meeting with Ed Wilmot.
February 14	Meeting with Ted Petrie et al, ESF construction start.

February 16 Tour of Test site with Wes Patrick and John Russell, Center.

February 17 Patrick and Russell met with Wilmot, Gertz, Dixon, Helton, Iorii, Fiore and McNabb.

February 27 Meeting with Ed Wilmot.

February 28 Meeting with T. Petrie et al.

March 7 Meeting with T. Petrie et al.
Meeting with Ed Wilmot.

March 8 Meeting with Dobson, Pendleton and Mary Lou Brown concerning study plans.

March 10 TPO meeting.

There are no new issues that this office has identified that have not been brought to management's attention.

cc: With enclosures: K. Stablein, R. E. Adler, J. E. Latz
Without enclosures: C. P. Gertz, R. R. Loux, M. Glora, D. M. Kunihiro, R. E. Browning, G. Cook, L. Kovach, S. Gagner, K. Turner, H. Thompson, H. Denton, R. Benero

Enclosures: NNWSI TPO Meeting Agenda, Status Report (SCP Study Plan 8.3.1.17.4.2), UZ Drilling - 3/10/89, TPO Presentation by Jerry L. King - 3/10/89, TPO Presentation by Carl Gertz - 3/10/89, Exploratory Shaft Facility Overview and Status by John Robson, Plans and Preparation for Field Deployment by Winn Wilson, 3/9/89, Interactions with the Swedish effort (SKB), Letters from USGS re: Yucca Mountain Project (3)

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