UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Reply to:
301 East Stewart Ave., #203
Las Vegas, Nevada 89101
Tel: (702) 388-6125
FTS: 598-6125

TO: Joseph Holonich, Director, HLPD, M/S 4 H 3

FROM: Paul T. Prestholt and John W. Gilray
Sr. On-Site Licensing Representatives

DATE: April 9, 1992

SUBJECT: OFFICE OF GEOLOGIC DISPOSAL (OGD) WEEKLY HIGHLIGHTS FOR THE WEEK ENDING APRIL 3, 1992 and YUCCA MOUNTAIN SITE OFFICE (YMSO) FIELD ACTIVITY REPORT FOR THE WEEKS ENDING MARCH 27 AND APRIL 3, 1992

Please find enclosed the above-referenced reports.

There is nothing requiring specific management attention in the reports.

nan

cc w/encs.: Charlotte Abrams, M/S 4 H 3
Rosetta Virgilio, M/S 3 D 23
Dean Kunihiro, Region 5

NOTE TO CHARLOTTE: Also enclosed is the LLNL March 1992 Status Report

Department of Energy
Yucca Mountain Site Characterization
Project Office
P. O. Box 98608
Las Vegas, NV 89193-8608

WBS 1.2.9.2
QA: N/A

APR 0 8 1992

John W. Bartlett, Director, Civilian Radioactive Waste Management,
HQ (RW-1) FORS

OFFICE OF GEOLOGIC DISPOSAL (OGD) WEEKLY HIGHLIGHTS FOR THE WEEK ENDING APRIL 3, 1992

I. CRITICAL ITEM STATUS - YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT (YMP)

A. Site Characterization Planning

Regulatory Interactions

The Regulatory Interactions Branch staff participated in the U.S. Geological Survey (USGS) Climatology Program Review March 31 to April 2, 1992, in Denver, Colorado.

Request for Evaluation of Draft Proposal by Lawrence Berkeley Laboratory entitled, "Scope of Work: Study of the Origin of Secondary Silica/Carbonate Mineral Phases in the Yucca Mountain Region," was submitted to USGS on March 24, 1992.

Exploratory Studies Facility (ESF) Task Force Activities

The 50 percent ESF design review is comprised of 28 drawings, 12 analyses, and 74 specifications.

The Independent Technical Review for the 50 percent ESF design started one week ahead of schedule. All comments from the 50 percent Management Review have been resolved; however, documentation changes are still in process.

The 90 percent ESF review will be comprised of 79 additional drawings, 38 additional analyses, and an additional 44 specifications. This is in addition to those identified for the 50 percent design review. The status remains the same as last week.

Site Characterization Plan (SCP) Progress Report (PR)

Concurrence comments on PR 5 have been incorporated and the document has been submitted to the Secretary of Energy for concurrence.

SCP Study Plan (SP) Status

SP 8.3.1.17.4.3, "Quaternary faulting within 100 km of Yucca Mountain, including the Walker Lane," was submitted to the Yucca Mountain Site Characterization Project Office (YMPO) for review.

Administrative Procedure (AP) 1.10Q, "Preparation, Review and Approval of SCP Study Plans," Revision 5, was approved and the Civilian Radioactive Waste Management Systems Management and Operating Contractor (CRWMS M&O) Plans and Procedures Department (PPD) issued the revision. However, the effective date was changed from April 3 to April 15, 1992. The entire SP coordination is scheduled to be transferred to CRWMS M&O on April 15, 1992.

STUDY PLAN BREAKDOWN

In Screening Review	1
In YMP and Headquarters (HQ) Review	4
Awaiting Comment Resolution Meeting	6
Awaiting Author Revision	11
In YMP/HQ Verification Audit	6
Preparing to Submit or Awaiting YMP Approval	3
U.S. Nuclear Regulatory Commission (NRC) Phase 1 Review	17
NRC Acceptance	19
Total	67

SCP/SP Status:

Total SPs Assigned to Cover 106 Studies	103
Total SPs Submitted for Review Including Revision to SPs	67
Total SPs Not Yet Submitted for Review	43

State of Nevada Comments Status:

Received Comments from the State of Nevada	8
Responses Transmitted to the State of Nevada	5

NRC Comments Status:

Received Comments from NRC	9
Responses Transmitted from OGD to the U.S. Department of Energy (DOE) HQ	5
Responses Transmitted from DOE/HQ to NRC	4

Field Operations

The Site Manager and Field Operations Center (FOC) staff participated in and provided logistical support for two major tours this reporting period.

Due to several days of severe inclement weather, there has been very little field work. However, Reynolds Electrical & Engineering Co., Inc. (REECo), did finish neutron access boreholes UZN-15, depth 59.87 feet; UZN-16, depth 60 feet; and UZN-17, depth 59.86 feet, on Azreal Ridge.

REECo is progressing on the excavation and earth moving work for the access road and drill pad for NRG-1. The road has been bladed and the pad has been cut out.

The Site Manager and FOC staff are making tentative plans to support and participate in the forthcoming International High-Level Radioactive Waste Management site tour scheduled for April 17, 1992.

Sample Management Facility

Continued processing specimen of existing core, and received core and cuttings from UZN-16. In the process of preparing the core trailer to be moved onto the UZN-16 location.

B. Environmental Programs

Environmental Compliance and Permitting

No significant new items to report this week.

C. Project Planning and Control

Produced and distributed the Planning and Control System (PACS) Planning and Scheduling and Summary Account documents for fiscal year (FY) 1993 through FY 2001 to CRWMS M&O. These documents were then reviewed and revised as necessary to scrub FY 1993 and out-year budgets. The revised data was then input into a PACS test database and new planning documents were produced to review the results of the FY 1993 scrub.

Produced and distributed the PACS Status Input Sheets (SIS-01s) for March 1992, to all participants. These reports will be used to report actual dollar expenditures and schedule status for March 1992.

Attended site visits held at USGS and Lawrence Livermore National Laboratory (LLNL) for the Independent Cost Estimate (ICE) Review.

D. Quality Assurance (QA) Implementation

USGS Audit 92-13 is in process. Technical activities will be audited at the USGS facilities at the Nevada Test Site and in Denver, Colorado. Criteria for USGS are QA Elements, 3, 5, 6, 17, 19, and 20. The NRC is sending four observers to Denver, Colorado. The audit is scheduled for March 30 through April 10, 1992.

Determination of Importance and Grading Enhancement (DIGE)

Continuation of Existing Process

The Quality Review Board and associated assessment team continue to provide support to YMPO while the DIGE effort develops a modified process.

Quality (Q) List and Q-List Procedure Development

The review of the Site Characterization Program Baseline and associated drawings continues. A meeting on April 1, 1992, with Sandia National Laboratories (SNL) included discussion on how to expedite subsequent activities in order to maintain the schedule. CRWMS M&O has provided review comments on SAND89-7024 and the effort to resolve and incorporate responses has started. CRWMS M&O has developed a draft licensing methodology. This methodology will be processed through the YMPO approval system.

A review of the items important to Waste Isolation process as applied to the alluvium with SNL on April 1, 1992, has concluded that additional required efforts can fit into the overall schedule without impacting the final product date. The process will be included in Revision 1 of the DIGE Management Plan. Trainers have been trained and now the training program for the new and/or revised procedures is being developed. Resolution continues to the QA concern that a new Quality Management Procedure 02-10 (Q-Grading Procedure) is not needed, as existing procedures contain or can be revised to contain the needed procedures.

Management Control (MC) List and Procedure Development

Resolution of comments to draft MC List Procedure, AP 5.40, is progressing toward a target April 10, 1992, completion date. The extraction and date entry example exercises continue. These will provide information for completion of the Requirements Plan. A

Management Control (MC) List and Procedure Development (Continued)

draft of the plan is in internal review. Training status stated above applies to this DIGE element also. The draft MC Grading Procedure, AP 5.41, continues to be on hold pending resolution of comments from AP-5.40 and the requirements exercises.

Implementation

As stated in previous status and initiation of procedure and list, development by participants will occur when procedures become effective and a new assessment team is in place.

Task Management

Revision 1 of the DIGE Management Plan continues in internal review prior to submittal for review and change control.

E. Public Outreach and Institutional Activities

An Open House tour to Yucca Mountain, Nevada, was conducted on Saturday, March 28, 1992, with 237 visitors.

The Yucca Mountain lecture series, "American Indian Cultural Presentation," was presented by Richard Arnold at the Yucca Mountain Information Office (YMIO) in Las Vegas, Nevada, on March 31, 1992.

A tour to Yucca Mountain was conducted on April 2, 1992, for five guests from the DOE Office of Hearings and Appeals, and for Mark Holt, Congressional Research Service. After the tour, the group was given a project overview presentation by A. C. Robison at the Las Vegas YMIO.

Congressional Interaction

At the request of Senator Bennett Johnston, Chairman of the Senate Committee on Energy and Natural Resources, Carl Gertz accompanied John Bartlett and offered testimony before the Committee on March 31, 1992.

F. Systems Management and Integration

Geochemistry

No significant new items to report this week.

II. ANALYSIS & VERIFICATION DIVISION

Participated in a meeting with the document hierarchy task force on March 30, 1992, in Washington, D.C. The level of detail and specificity of program-level documents remains ar open issue.

Participated in a meeting in Washington, D.C., on April 2, 1992, with the Office of External Relations to review the status of written materials being developed to support the May 7, 1992, Director's Forum.

Prepared draft text for Chapter 1 of Site Characterization Progress Report 6. The draft is due April 6, 1992.

Participated in the SNL and CRWMS M&O Technical Exchange meeting in Albuquerque, New Mexico, on April 1, 1992.

Participated in a briefing presented by CRWMS M&O on systems requirements for the Office of Civilian Radioactive Waste Management and Mined Geologic Disposal System requirements documents April 2-3, 1992, in Las Vegas, Nevada.

III. GENERAL INFORMATION ITEMS

CRWMS M&O

An effort was initiated to prepare a revised Yucca Mountain cost and schedule baseline to support an ICE evaluation. The update of the ESF Design Review for Title II was submitted to the PPD for coordination of the Technical Review.

LLNL

The flow-through spent-fuel dissolution tests at Pacific Northwest Laboratory indicate that dissolution of unoxidized spent fuel and spent fuel oxidized to U409 are similar. Similarly, unirradiated U02 and unirradiated U02 oxidized to U307 at 25 C in a dilute bicarbonate solution had approximately the same dissolution rates.

Samples of three glasses reacted at Argonne National Laboratory in water vapor (100 percent relative humidity) for three years at 75 C were removed from the reaction chamber and are being investigated using analytical electron microscopy. These samples are part of a suite of samples that are being tested to evaluate reaction under conditions likely to be present after containment breach. The questions to be answered are how much reaction will take place and what are the reaction products. The results from this suite of tests are being compared with the tests performed at higher temperature to evaluate temperature as a parameter to accelerate the reaction.

Los Alamos National Laboratory

The Test Planning Package and Job Packages were initiated for Fran Ridge.

IV. UPCOMING EVENTS CALENDAR

Please note that the usage of "(P)" in the calendar indicates that the event is open to the public. Educational presentations and State and Public Interactions are handled by the Speakers Bureau; contact Linda Artis at (702) 794-7896 or FTS 544-7896 for additional information. Exhibits are handled by Kevin Rohrer at (702) 794-7769 or FTS 544-7769, and tours are handled by Mindy Wadkins at (702) 794-7374 or FTS 544-7374.

Date	Event	Location	YMPO Contact
A. DOE/HQ Meetings			
Friday, April 10	TPO Meeting	Las Vegas, NV	C. Gertz
Friday, April 10	Planning and Budget Meeting	Las Vegas, NV	C. Gertz
Tuesday, April 28	Program Management Meeting	Washington, DC	C. Gertz
B. Internal and DOE/NV Meetings			
No significant meetings scheduled this week.			
C. NRC Interactions			
Tuesday-Wednesday, April 28-29	Complimentary Cumulative Distribution Function	Albuquerque, NM	T. Bjerstedt
Tueractrstedt May 19	Schedulings	MD	
Wednesday, May 27	DOE Licensing Topical Report on Erosion	Rockville, MD	T. Bjerstedt
Wednesday, June 3	Drafts on License Application	Rockville, MD	T. Bjerstedt

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C. NRC Interactions (Continued)

(TBD) July 1992	Topical Report Calcite-Silica	TBD	T. Bjerstedt
(TBD) August 1992	WIPP - Briefing and Tour	Carlsbad, NM	T. Bjerstedt
(TBD) September 1992	Total System Performance Assessment	TBD	T. Bjerstedt

Date	Event	Location	YMPO Contact

D. NWTRB Interactions (P)

Tuesday-April 7-8	NWTRB Full Board Meeting	Dallas, TX	A. Simmons
Monday, May 11	NWTRB Panel on EBS	Hanford, WA	A. Simmons
Wednesday, May 13	NWTRB Panel on EBS	Idaho Falls, ID	A. Simmons
Tuesday-Friday, July 7-10	NWTRB Full Board Meeting	Denver, CO	A. Simmons
Tuesday-Wednesday, October 13-14	NWTRB Full Board Meeting	Las Vegas, NV	A. Simmons
Thursday-Friday, October 15-16	NWTRB Panel on SG&G	Las Vegas, NV	A. Simmons

Date	Event	Location	Speaker

E. State and Public Interactions

Saturday, April 4	Girl Scouts Merit Badge Workshop	Las Vegas, NV	E. Harle
Monday-Tuesday, April 6-7	Jack Dailey Elementary School	Las Vegas, NV	E. Harle
Wednesday, April 8	W. E. Ferron Elementary School	Las Vegas, NV	E. Harle

Date	Event	Location	Speaker
E. State and Public Interactions (Continued)			
Wednesday-Thursday, April 8-9	Jack Dailey Elementary School	Las Vegas, NV	A. Gil
Thursday, April 9	University of Nevada School of Medicine	Las Vegas, NV	R. Arnold
Thursday, April 9	Derfelt Elementary School	Las Vegas, NV	E. Harle
Saturday April 11	American Power Dispatchers Assn.	Las Vegas, NV	C. Gertz
Tuesday, April 14	High-Level Radioactive Management Conference	Las Vegas, NV	C. Gertz
Monday, April 20	Elko County Library	Elko, NV	A. Robison P. Standish
Monday, April 20	Twin Lakes Elementary School	Las Vegas, NV	E. Harle
Monday, April 20	UNLV Freshman Forum	Las Vegas, NV	C. Gertz D. Harrison-Giesler
Wednesday, April 22	UNLV	Las Vegas, NV	R. Arnold
Thursday, April 23	Science Now	Las Vegas, NV	C. Gertz
Thursday, April 23	American Planning Association	Las Vegas, NV	TBD
Friday, April 24	Soroptimists International	Sacramento, CA	B. Reilly A. Gil E. Harle
Wednesday, April 28	Yucca Mountain Lecture Series	Las Vegas, NV	P. Standish
Thursday, April 30	Lions Club	Las Vegas, NV	G. Fasano

Date	Event	Location	Speaker
E. State and Public Interactions (Continued)			
Monday, May 4	ASQC Third International Waste Management Conference	Las Vegas, NV	C. Gertz
Thursday, May 7	Nevada Water Savers	Las Vegas, NV	R. Arnold
Thursday, May 7	Yucca Mountain Lecture Series	Pahrump, NV	P. Standish
Wednesday, May 20	Fallon Board of Realtors	Fallon, NV	C. Binzer
Saturday, May 30	Boy Scouts Geology Merit Badge Workshop	Las Vegas, NV	E. Harle

Date	Event	Location
F. Exhibits Scheduled		
Saturday, April 11	American Power Dispatchers Assn.	Las Vegas, NV
Sunday-Wednesday, April 12-15	International High-Level Radioactive Waste Management Conference	Las Vegas, NV
Monday, April 20	UNLV Freshman Forum	Las Vegas, NV
Friday, April 24	Soroptimists International	Sacramento, CA
Saturday, April 25	Public Open House (P)	Las Vegas, NV
Monday, May 11	Public Update Meeting (P)	Pahrump, NV
Tuesday, May 12	Public Update Meeting (P)	Henderson, NV
Thursday, May 14	Public Update Meeting (P)	Carson City, NV

Date	Event	Location
F. Exhibits Scheduled (Continued)		
Thursday, May 28	Public Open House (P)	Las Vegas, NV
Saturday, June 27	Public Open House (P)	Las Vegas, NV

Date	Event	Escorts
G. Tours Scheduled		
April 10		
Monday, April 13	Troop 281	TBD
Tuesday, April 14	Beatty High School	S. Tarr
Wednesday, April 15	Mescalero Apache	C. Gertz
Wednesday, April 15	Western Interstate	TBD
Thursday, April 16	International High-Level Waste Management Wives	TBD
Friday, April 17	International High-Level Waste Management Conference	K. Beall
Tuesday, April 21	Chaparral High School	T. Pysto
Wednesday, April 22	Chaparral High School Env. Congress	TBD
Saturday, April 25	Public Open House (P)	Various Escorts
Tuesday, April 28	Las Vegas High School	TBD

Date	Event	Escorts
G. Tours Scheduled (Continued)		
Thursday, April 30	Mineral County	C. Binzer
Wednesday, May 6	USGS Management	R. Craig
Thursday, May 7	Clark High School	TBD
Monday May 11	Institute of Shaft Drilling Technology	TBD
Friday, May 22	American Nuclear Society President	C. Gertz
Thursday, May 28	Public Open House (P)	Various Escorts
Saturday, June 27	Public Open House (P)	Various Escorts

for Carl P. Gertz
Project Manager

YMP:DLH-2804

Department of Energy
Yucca Mountain Site Characterization
Project Office
P. O. Box 98608
Las Vegas, NV 89193-8608

APR 08 1992

WBS 1.2.7.4
QA: N/A

Carl P. Gertz, Project Manager, YMP, NV

YUCCA MOUNTAIN SITE OFFICE (YMSO) FIELD ACTIVITY REPORT

The following are the significant field activities for the weeks ending March 27, 1992 and April 3, 1992:

1. Field Operations Center, (YMSO)

A. Management and Administration

a. The Site Manager and FOC staff participated in and provided operational and logistical support to several tours conducted during this period. These were: Los Angeles Times; YMP New Employees; Energy Fuels; General Public Open House; Nevada Research Council; and Mark Holt, Congressional Research Service and DOE, Office of Hearing and Appeals.

b. Certain personnel of the FOC staff are involved in revising and updating some of our Field Operation Instructions (FOIs).

c. The Second Floor, West Wing Conference Room will be enhanced to serve as the FOC's second main Conference Room. Maps, aerial photographs, status board of on-going field activities will be displayed and utilized in this area that will be designated as the "War Room."

d. The Site Manager has reprogrammed funds within WBS 1.2.7.4.1 for the procurement of the software package for implementation of the Geographic Information System (GIS) at the Field Operations Center.

e. The Site Manager and certain members of the FOC staff are finalizing the White Paper for the General Support Facilities Siting Options, Area 25, for the YMP. This White Paper will be distributed to the Project Manager and the Division Directors and the TRW Nevada Site Manager for their review and opinions by the end of the month.

f. Provided operations support for field site characterization activities.

g. Completed revisions to AP 2.9 will be in the QMP 06-04 Review process prior to end of next week.

B. Project Safety and Health, (DOE/SAIC)

a. Met with Paul Reeverts, DOE 5-year safety and health plan program manager, on YMP 5-year plan. Finished SHCD portion and calculated costs.

b. Reviewed Emergency preparedness Plan draft and sent comments to Ken Beall.

c. Developed language for job packages on drillholes and sent to Steve Smith.

d. Developed a safety and health WBS outline that matches the 5 year plan.

e. Completed revisions to AP 5.7.

f. Completed revision comments on YMP SHP to RW-30; drafted letter for signature of Russell Baumeister.

g. Sent comments on Emergency Preparedness Plan training section to Training Department.

h. Met with SMF and agreed to file a formal request for borehole samples for IH baseline data. Filed first request.

i. Conducted noise survey during drilling operations N-15.

j. Attended 1-day meeting on 5 year safety and health plan.

k. Attended monthly meeting of Yucca Mountain Site Characterization Project Safety and Health Advisory Committee.

l. Completed response to RW-30 comments on YMP Safety & Health Plan.

m. Completed new draft of AP 5.7.

n. Commenced development of a tracking system for non-compliance.

o. Wrote paper on emergency eye wash and shower stations.

p. Made inspections of UZ-1, UZ-16, and Midway Valley.

q. Completed update of PEARL directory.

r. Drafted WBS third level descriptions for WBS Dictionary.

s. Requested SAIC Library, MCLean VA, to commence literature search on erionite and mordonite.

t. Wrote Memorandum of Agreement on SHCD involvement in job package reviews.

C. Work Request/Photographic Services Coordination

a. Met with Steve Beeson on photographic requirements for FY 93/94.

b. Received ten replies to photographic services survey.

c. Continued to provide photographic support for ongoing field activities.

2. Raytheon Services Nevada, (RSN)

A. Field Support

a. Survey crew continued work on Area 25 control net.

b. Survey crew continued establishment of control at existing drill hole sites.

c. Survey group continued supporting construction at UZ-16, NRG-1, Midway Valley Trenches, and Soil and Rock Properties Trenches and Pits.

d. Field engineering group making daily checks of Trench 14 walls to determine their suitability for operations.

e. Field engineering group supporting the construction activities for UZ-16, NRG-1, and Midway Valley and Soil Rock Properties Trenches and Pits.

B. Quality Control

a. No report submitted.

3. Sample Management Facility, (SMF/SAIC)

a. Logged core and processed samples from UZN-15. Reached total depth on 3-24-92.

b. Began processing 186 borehole specimens.

c. Began core logging cutting collection on UZN-16.

d. Continued processing specimens of existing core.

e. Received core and cuttings from UZN-16. Completed hole total depth.

f. Began preparation of core trailer for movement on UZ-16 location.

4. YMP Hydrologic Research Facility, (USGS)

a. Conducted neutron logging in the field.

b. James Watson and Ed Gutentag in Pahrump Valley 22-28 March to perform QA activities and to collect samples from playas.

c. The Saturated Zone Group performed normal data retrieval from instrumented holes on Yucca Mountain.

d. Meteorological Project continued collecting satellite data, precipitation holes on Yucca Mountain.

e. Mike Chornack will be at NTS 22-28 March and will join Alan Flint in conducting UZ Section activities; will also assist with 3-38-92 open house tour.

f. John Wesling and Mike Angel, Geometrics, Golden CO, working in Midway Valley with John Witney's group.

g. Bureau of Reclamation continued excavations on test pits in Area 25.

h. Bill Steinkampf will be in the field 25-27 March to collect samples for 13-c and 14-c determinations at JF-3.

5. Reynolds Electric and Engineering Co., Inc., (REECo)

Activities conducted during week ending March 27, 1992:

A. Drilling

a. JP 91-9 neutron access boreholes. UZN-17 finished driving Odex casing to 59.81'; rig down; move to UZN-15, core to 59.81'; drove casing to 55.21', 5 1/2" casing stopped. Appeared shoe joint was off; approval by Alan Flint to move to UZN-16. Cored to 16.37', casing 6.30'. Lost 8 hours due to rain.

b. JP 92-1 JF-3 Water Monitoring Hole: no activity due to site maintenance electricians working on weapons water wells. Pumping possible 4-6-92.

c. Crews working in Area 25 Subdock.

B. Logistics

a. Requisitioned needed supplies and materials for continued operation of the Field Operations Center.

b. Made final arrangements for 28 March Open House Tour of YMP facilities.

c. Completed the move of the FOC Logistics Department from third to first floor of the FOC Building.

C. Construction

a. JP 92-2, NRG-1....Excavated six test pits and shored 3 additional test pit areas. Removed top soil from drill pad and began cut and fill work on access road.

b. JP 92-5, Midway Valley....During this week REECo shored 4 test pits and 6 trenches.

Activities conducted during week ending April 3, 1992:

A. Drilling

a. JP 91-1 neutron access boreholes. UZ-N16 cored and drove 5 1/2" Odex casing from 16' to 60'. Rig down, ready to move to next location. Roads and locations too wet and muddy for movement. Crew preparing Longyear 44 rig for UZ-N27.

b. JP 92-1 JF-3 Water Monitoring Hole: No activity. If maintenance electricians available, may pull pump on 4/13. Crews working in subdock, tools and lower derrick on LM 300, ready to move to UZ-N16.

B. Logistics

a. Requisitioned needed supplies and materials for continued operation of the Field Operations Center.

b. Made feeding arrangements and assisted in the conduct of two tours held during the reporting period.

C. Construction

a. JP 92-2 NRG-1....Excavated eight test pits. Completed cut and fill to subgrade for the access road. Placed selected fill material on pad and road.

b. JP 92-4, UZ-16 Drill Pad....Rework the pad drainage in accordance with FCR-92-072. RSN QA and survey concurred with field results.

c. JP 92-5, Midway Valley....Installed balance of available shoring and secured test pits covers.

6. Los Alamos National Laboratory, (LANL)

a. No report submitted.

7. Document and Records Center, (SAIC)

Activities during week ending March 27, 1992:

a. Received and issued for controlled distribution:
JP 92-2, Rev. 1.
FCR 92/070, Change to add RSN FVP, JP 92-2.
FCR 92/071, Change the Thickness of Topsoil Removed for Construction, JP 92-2.

b. YMP Staff Support: copied 7244 pages; issued 9 requested controlled documents; reproduced 33 engineering copies; issued 7 uncontrolled documents.

c. General Activities:
Attended FOC Staff Meeting.
Met with RMD Division Manager to provide status on DRC activities.
Fire Department installed an alarm bell in the DRC.
Began revising WI-REC-001, YMSO-DRC Operations: Local Records Center, for internal review.
Continued training 2 new DRC personnel (Roberta Manning and Norma Abrahamson.)

Activities during week ending April 3, 1992:

a. Received and issued for controlled distribution:
FCR 92/072, Modification of RSN Drawing YMP-025-9-CIVL-PL01, Rev. O, SHT 1 of 1.

b. YMP Staff Support: copied 1214 pages; reproduced 35 engineering copies; issued 5 uncontrolled documents.

c. General Activities:
Attended FOC Staff Meeting.
Met with RMD Division Manager to provide status on DRC activities.
Attended FCCB/RMD meeting regarding the Field Change Request (FCR) processing to the DRC at the Valley Bank Center.

8. Field Training

a. Conducted GET 1.2, 1.3, 1.4 training.

b. Conducted GET 1.5 examinations for two personnel.

c. Continued work of revising field radio communications training.

d. In the process include update of all information in the text and lesson plan.

e. Driving safety training still in review. The first draft is expected to be ready within 2-3 weeks.

f. Sandra Lloyd was named to fill a position within the field training office and reported for her new assignment.

g. Completed preparation of Field Radio Training Course. First class will commence on April 7. Anticipated training time is 2.5 hours.

Winfred A. Wilson
Site Manager

YMP:WAW-268

Charlotte

Lawrence Livermore National Laboratory

LLYMP9204087
April 9, 1992

WBS 1.2.9
"QA: N/A"

Carl Gertz, Project Manager
Department of Energy
Yucca Mountain Project Office
P.O. Box 98518
Las Vegas, Nevada 89193-8518

SUBJECT: Yucca Mountain Project Status Report - March 1992

Attached is the March Project Status Report for LLNL's participation in the Yucca Mountain Project.

If further information is required, please contact Elizabeth Campbell of my staff at FTS 532-7854.

Sincerely,

W. L. Clarke
LLNL Technical Project Officer
for YMP

WC/EC

cc:
Distribution

DISCLAIMER

The LLNL Yucca Mountain Project cautions that any information is preliminary and subject to change as further analyses are performed or as an enlarged and perhaps more representative data base is accumulated. These data and interpretations should be used accordingly.

LAWRENCE LIVERMORE NATIONAL LABORATORY YUCCA MOUNTAIN PROJECT

MARCH 1992 TECHNICAL HIGHLIGHTS AND STATUS REPORT

TABLE OF CONTENTS

LAWRENCE LIVERMORE NATIONAL LABORATORY
(LLNL)
YUCCA MOUNTAIN PROJECT (YMP) STATUS REPORT

FEBRUARY 1992

EXECUTIVE SUMMARY
(Items Proposed for Reporting in YMPO or OGD Reports)

1) **WBS 1.2.1.3** Major restructuring of the sets of basis and auxiliary aqueous species used in EQ3/6 calculations was initiated. This restructuring will result in significantly improved flexibility with regard to the range of geochemical problems that can be addressed using the EQ3/6 modeling package.

2) **WBS 1.2.2.4** LLNL began a study of the internal temperatures of a large drift-emplaced waste package for a variety of thermal loadings and spent fuel ages.

3) **WBS 1.2.2.3** Samples of the fluids from the UO_2 leaching experiments were analyzed for colloids using the photon correlation spectrometer (PCS), and large (~1 - 10 μm) particles were observed. The nature of these particles will be examined using electron diffraction and imaging, and energy dispersive elemental analysis.

4) **WBS 1.2.2.2** R. Dyer visited LLNL on March 19 to discuss future workscope possibilities in WBS 1.2.3. These activities will characterize the impact of the waste package on the site (the altered zone). Waste Package Environment (WBS 1.2.2) activities will continue to assess the impact of the near field environment on the waste package.

5) **WBS 1.2.2.2** Hydrothermal calculations were conducted to determine the bulk permeability at which convection can dominate far-field heat flow. A transition to convection dominate behavior was observed in the bulk permeability range typical of the TSw2 unit. Substantial boiling and rock dry-out benefits were evident for both conduction dominated and convection dominated cases. Future calculations will investigate the influence of the permeability distribution on repository dry-out; the distribution among the rock matrix, small fractures and large fractures, is expected to be much more important than the bulk value of the permeability.

6) **WBS 1.2.2.2** In situ heater tests have been proposed to evaluate the critical hypothesis that convection may dominate far-field heat flow in rock similar to the repository horizon. Calculations show that, ten years after emplacement, a 114 kW/acre repository with 60-yr-old fuel has a 25 m thick region with temperatures at or above boiling. If convection is strong (because permeability is increased in the calculation), the region shifts upward 7 m. These calculations are encouraging since they indicate that in situ heater tests will have an easily measurable result to determine if convection dominates far-field heat flow.

1.2.1 SYSTEMS

1.2.1.1 Management and Integration

LLNL staff provided input to the M&O for the 2001 budget and scheduling exercise.

The LLNL-YMP Software Quality Manager and the Lead Software Engineers and/or Principal Investigators conducted informal walkthroughs of the Individual Software Plans and Software Configuration Management Systems for the EQ3/6 geochemistry code family, GEMBOCHS geochemistry database control software, and PANDORA performance assessment code.

1.2.1.2 Systems Engineering

1.2.1.2.4 Systems Engineering Implementation

T. Buscheck and J. Blink participated in the kickoff meeting in Las Vegas on March 20 for the thermal loading study being led by P. Gottlieb of M&O-Vienna. LLNL will be supporting M&O by conducting repository-heat-driven hydrothermal calculations and assisting in drafting a Phase I report on thermal strategies by the end of June. LLNL will also be conducting calculations and assisting in drafting Phase II of the thermal strategies report.

The February 1992 Interface Status Log Report was reviewed and the open Interface Memorandums of Understanding with LLNL were identified. These items are being evaluated with the responsible Technical Area Leader/Task Leader to determine the appropriate course of action to reach closure.

1.2.1.2.6 YMP Support to Management Systems Improvement Strategy

No significant activities.

1.2.1.3 Technical Data Base Management

1.2.1.3.5 Technical Data Base Input

Major restructuring of the sets of basis and auxiliary aqueous species used in EQ3/6 calculations was initiated. This restructuring will result in significantly improved flexibility with regard to the range of geochemical problems that can be addressed using the EQ3/6 modeling package.

Restoration was completed of GEMBOCHS and its software library to their pre-crash state. (This crash occurred during the President's weekend).

LLNL staff discussed a draft agenda and preparations for the Technical Data Workshop with representatives from the M&O and YMPO. Tentatively scheduled for April 30, the workshop will cover an overview of the YMP Technical Database and the evolution of its components, data tracking and the Data Dictionary.

1.2.1.4.2 Waste Package Performance Assessment

The merging of the PANDORA prototype and mainline versions was carried out and quantitative testing is in progress.

The Yucca Mountain Integrating Model (YMIM) is being extended to evaluate extended dry repository concept issues.

W. Halsey, W. O'Connell, J. Gansemer, R. Stout, and J. Blink attended a YMPO EBS Performance Assessment meeting in Las Vegas March 10-11. Presentations were given as follows:

1) "EBS-PA on a Budget: Models, Iterations, and Statistics" - W. Halsey
2) "What Does the Program Need from EBS-PA?" - W. Halsey
3) "PANDORA and Diffusion Model Status and Verification" - W. O'Connell
4) "Use of Probabilistic Distributions in Source Term Modeling" - W. O'Connell
5) "Achievements of SF Modeling in 1991 and SF Issues Affecting EBS/PA - R. Stout
6) "Implications of the Modeling Program e.g., on Using Cladding, etc. as Additional Barriers" - R. Stout

The report entitled "Diffusion Releases Through One and Two Finite Planar Zones" by T. Ueng and W. O'Connell was expanded due to the technical reviewer's comments and is back in the technical review process.

W. O'Connell attended an EBS performance assessment meeting in Las Vegas on March 18.

W. Halsey participated in a National Academy of Sciences Partitioning and Transmutation meeting in Washington, D.C. on March 19-20.

1.2.1.4.5 Geochemical Modeling and Data Base Development

Effort is now focused on the technical review of the four EQ/6 user manuals recently completed and reported. The documents are also being reviewed from a software QA standpoint. Present plans call for completion of these reviews, final revision and publication by the end of FY92.

The EQ3/6 qualification activity is currently underway. This is being conducted independently of the code author. The code author is available for consultation.

Time was spent this month planning for the resumption of EQ3/6 code development. A memorandum concerning this subject is being prepared.

1.2.1.4.7 Supporting Calculations for Postclosure Performance Analyses

This WBS element has not been funded in FY92.

1.2.2 WASTE PACKAGE

1.2.2.1 Management and Integration

LLNL staff provided input to the M&O for the 2001 budget and scheduling exercise.

The LLNL-YMP Software Quality Manager and the Lead Software Engineer conducted an informal walkthrough of the Individual Software Plan and Software Configuration Management System for the V-TOUGH hydrology code.

W. Lin attended the Sample Overview Committee meeting on March 3 in the Sample Management Facility at NTS.

1.2.2.2 Waste Package Environment

R. Dyer visited LLNL on March 19 to discuss future workscope possibilities in WBS 1.2.3. These activities will characterize the impact of the waste package on the site (the altered zone). Waste Package Environment (WBS 1.2.2) activities will continue to assess the impact of the near field environment on the waste package.

The Preliminary Near Field Environment Report is completing internal review and resolution of comments in preparation for submittal to YMPO in mid-April.

T. Buscheck and A. Meike attended a meeting on March 25 which summarized the DOE-sponsored review of the natural barrier system and engineered barrier system work conducted during the Stripa Project.

1.2.2.2.1 Chemical and Mineralogical Properties of the Waste Package Environment

B. Viani participated in the geochemistry core-team teleconference on March 23. A revised agenda for the hydrology-geochemistry meeting was discussed.

B. Glassley met with YMP staff in Las Vegas on March 27 to discuss plans for geochemistry and mineralogy modeling activities.

Work continued on planning for model validation activities.

1.2.2.2.2 Hydrologic Properties of the Waste Package Environment

The feasibility study of using resonant cavity to measure relative humidity in rock samples continued. A prototype resonant cavity of about 1.0 cm in diameter and 2.29 cm in length was fabricated. This is the smallest size currently possible due to the frequency limitation of the network analyzer on hand. Testing and calibration measurements on the prototype resonant cavity will commence as soon as the network analyzer is calibrated.

The modification of the constant humidity chamber was completed so that feed-throughs can be installed. The feed-throughs are necessary for the calibration of the chamber itself and for measurements within the chamber, such as the calibration of

resonant cavity. The chamber will be calibrated when the humidity sensor of the LLNL calibration shop is calibrated and certified.

Eight discs of Topopah Spring Tuff sample from U3hg-1 hole, at a depth of 1312 feet, were prepared. These discs are 2.54 cm in diameter and about 0.6 cm thick. These discs will be used to measure the characteristic curves. Imbibition studies have been done on this rock before. The characteristic curve information will be added to the results of the previous imbibition study for the estimation of relative permeability of this rock. Although the sample is not from Yucca Mountain, the relative permeability and other hydrologic properties of this rock can be used for scoping model calibration and validation.

T. Buscheck continued repository-scale and drift-scale hydrothermal model calculations of repository-heat-driven hydrothermal flow with an emphasis on looking at conditions which may lead to heat convection-dominated far field heat flow. As noted last month, boiling and rock dry-out occur because the thermal loading conditions and heat conductance of the dry-out zone can carry heat to the boiling front faster than the far field can dissipate it. Therefore, heat convection-dominated heat flow in the far field tends to reduce boiling and dry-out benefits. In past analyses for 57 kW/acre and 30-yr-old fuel, it was found that for $k_b < 10^{-11}$ m^2 (where k_b is the bulk permeability of the fractured rock mass), far-field heat flow is dominated by heat conduction. Recently, calculations were conducted for a range of k_b for 114 kW/acre and 60-yr-old fuel. For k_b between 10^{-11} and 10^{-10} m^2, there is a transition from heat conduction-dominated to heat convection-dominated far field heatflow. Substantial boiling and rock dry-out benefits were evident even in the presence of significant far-field heat convection effects. Reduction of repository temperatures due to far-field heat convection was no stronger at the edge of the repository than at the center. The bulk permeability range studies is typical of that for TSw2. However, the distribution of permeability among the matrix, small fractures and larger fractures is far more important than the bulk permeability value: these issues will be investigated in future months.

S. Daveler translated a Fortran boundary element code into C. She also worked on the V-TOUGH User Manual and is in the process of collecting sample problems. She sent out the requirements and design document for the prototype V-TOUGH time-history generator for internal review. She added additional variable options to the prototype V-TOUGH time-history generator and she also added a color bar to color images produced by EXTOOL.EXVIEW.2.5.

W. Lin, T. Buscheck, J. Nitao and D. Wilder participated in the USGS tour of NTS on March 6 and 13. Discussions were held with USGS personnel on recent laboratory and field work at the Hydrological Laboratory Facility at Area 25.

1.2.2.2.3 Mechanical Attributes of the Waste Package Environment

Study Plan 8.3.4.2.4.3, "Characterization of the Geomechanical Attributes of the Waste Package Environment", is at T&MSS. It is expected to be returned to the reviewers for comment resolution verification in mid-April.

S. Daveler continued to assist S. Blair in debugging a prototype geomechanical code.

1.2.2.2.4 Engineered Barrier System (EBS) Field Tests

W. Lin, D. Wilder and J. Blink attended the prototype test planning meeting at Busted Butte, NTS, on March 13. J. Blink attended a follow-up meeting in Las Vegas on March 17. Test planning information for LLNL prototype tests was submitted to LANL.

Analysis of potential prototype EBS field tests began. In order to investigate whether in situ heater testing (in rock which is similar to that in the repository horizon) is useful in evaluating the critical hypothesis that heat convection may dominant far-field repository heat flow, focus was centered on the temperature and saturation distributions during the first 10 years of the repository-scale calculations. Repository-scale calculations are used to investigate the impact of far-field heat convection because drift-scale calculations used periodic boundary conditions that constrain the size of convection cells. It was found that there were very striking differences in both the temperature and saturation distribution between cases with heat conduction-dominated and heat convection-dominated far-field heat flow.

When heat conduction dominates far-field heat flow, vapor flow is driven both vertically upwards and downwards from the boiling zone. Local boiling pressure gradients (which drive water vapor away from the boiling zone) tend to be more dominant than the buoyancy-driven pressure gradients which drive convection cells on the scale of the unsaturated zone (UZ). The result is that roughly equal quantities of water vapor are driven above and below the dry-out zone, resulting in roughly equal quantities of condensate above and below the dry-out zone.

When far-field heat convection dominates far field heatflow, the UZ-scale buoyancy-driven pressure gradients are more dominant than the local boiling pressure gradients. Therefore, although local boiling pressure gradients below the dry-out zone tend to drive vapor downwards, UZ-scale convection cells dominate vapor flow, resulting in water vapor being driven upwards. Consequently, nearly all of the water vapor is driven upwards where it condenses above the dry-out zone. Therefore, if far-field heat flow is dominated by heat convection, it would be expected that nearly all of the condensation would occur above the dry out-zone and that there would be a modest reduction in drift-wall temperatures. More notably, it would be expected that a reduction in the vertical extent of the boiling front would be reduced. For example, ten years after emplacement, a 114 kW/acre repository with 60-yr-old fuel has a 25 m thick region with temperatures at or above boiling. If convection is weak, the region extends from 12 m below to 13 m above the repository horizon. If convection is strong (because permeability is increased in the calculation), the region extends to 5 m below to 20 m above the repository horizon. These calculations are encouraging since they indicate that in situ heater tests will have an easily measurable result to determine if convection dominates far-field heat flow.

W. Lin completed GET training. He is certified to do YMP field work.

1.2.2.2.5 Characterization of the Effects of Man-Made Materials on Chemical & Mineralogical Changes in the Post-Environment

A proposed change to the Site Characterization Baseline was submitted for YMPO review. This change will split the Man-Made Materials part of Study Plan 8.3.4.2.4.1 (Characterize the Chemical and Mineralogical Changes in the Post-Environment) into a new Study Plan (8.3.4.2.4.5).

AP-5.28Q-QA grading was completed and submitted to the QRB for the Fundamental Materials Investigation Task of the USDOE/AECL Subsidiary Agreement (SA-2).

1.2.2.3 Waste Form and Materials Testing

1.2.2.3.1 Waste Form

1.2.2.3.1.1 Waste Form Testing - Spent Fuel

The Preliminary Waste Form Characterization Report was sent to YMPO for review on March 4. YMPO has elected to perform a limited QMP-06-04 review. Prior to approval and submission to the Reference Information Base (RIB). This submission will complete Milestone T360.

Spent Fuel Oxidation

The drybath tests continued without incident. The next scheduled interim examination begins March 30.

R. Stout and R. Einziger attended a YMPO EBS Performance Assessment meeting in Las Vegas March 10-11. They gave presentations on spent fuel testing and modeling activities, emphasizing the oxidation and dissolution work and spent fuel cladding as a barrier. L. Thomas and Einziger have been working on the fundamentals of an experimental plan to address the remaining questions regarding spent fuel oxidation.

Preliminary interpretation of low temperature (<200°C) spent fuel oxidation indicates that over a wide range of variables, the low temperature and first phase for the oxidation behavior of spent fuel appears to depend on the fuel type in only a transitory manner. Eventually, all the tested spent fuels attain a U_4O_{9+x} metastable plateau phase at O/M of 2.4. Based on higher temperature data gained in other programs, the time to transition through this metastable plateau seems to have an Arrhenius behavior. The importance of this U_4O_9 lattice metastable state is that its phase transformation and volumetric contraction would not destroy the cladding. It is expected that eventually the fuel will continue to oxidize to a higher state that does have a significantly (~30%) lower density, but very little information is available to predict the time for this to occur over the domain of potential repository temperature histories. Waste form performance assessment implications of the fuel remaining in the metastable U_4O_{9+x} state necessitate the acquisition of data in the oxidation activities to determine the time-temperature domain when transition

from U_4O_{9+x} to higher oxidation phases occurs during decreasing temperature histories.

PNL provided input to LLNL for future planning for the spent fuel oxidation work.

Spent Fuel Dissolution

The flow through dissolution apparatus is being modified to prevent permeation loss of oxygen from the solutions and to allow on-line measurement of oxygen content. Measurements show that leaching solutions lost 90% of their dissolved oxygen by the time they contact the UO_2 samples. This means that all the measurements were done at 1/10 the expected oxygen activity. The four atmospheric tests are being repeated. In principle, the existing measurements are still meaningful, but they did not include the highest values of oxygen concentration desired.

UO_2 sample cells are being redesigned to allow use of standard (available) stainless steel components should the present plastic cells prove deficient at higher temperatures.

Five of the ten planned tests at 1% to 10% of atmospheric oxygen fugacity have been started at PNL. However, the day to day uranium concentration in some tests is highly irregular. Start up of additional tests at reduced oxygen fugacities will be delayed until the cause of this problem is identified and corrected.

PNL provided input to LLNL on future planning for the spent fuel dissolution tasks.

A paper entitled "Parametric Study of LWR Spent Fuel Dissolution Kinetics" is in internal review. It was co-authored by W. Gray (PNL), H. Leider, and S. Steward, (LLNL). It will be submitted to the "Journal of Nuclear Materials". The UO_2 data will be submitted separately to the SEPDB at a later date when the tests are completed.

Activity Plan D-20-53b "Flow-through Dissolution Tests on Spent Fuel" was updated.

1.2.2.3.1.2 Waste Form Testing - Glass

This WBS element has received limited funding in FY92. These funds are being used to maintain the N2 and N3 tests at ANL.

The N2 tests (SRL actinide-doped glass) continue with no sampling period occurring this month. These tests have been in progress for 316 weeks. The N3 tests (ATM-10, a West Valley actinide-doped glass) continue and have been in progress for 234 weeks.

1.2.2.3.2 Metal Barriers

J. Blink met with Professor D. Jones of UNR in Las Vegas on March 6 to discuss integration of UNR Cooperative Agreement work with the LLNL-YMP Metal Barriers work. Professor Jones is interested in working on microbiological induced corrosion (MIC) and plans to spend part of the summer at LLNL working on stress corrosion phenomena.

1.2.2.3.3 Other Materials

This WBS element has not been funded in FY92.

1.2.2.3.4 Integrated Testing

1.2.2.3.4.1 Integrated Radionuclide Release

G-20-2 Determination of Elemental Profiles in Rocks, Minerals, and Glasses using the Ion Microscope

Samples of zeolite to be used for elemental depth-profiling studies have been collected and begun to be characterized by optical and x-ray techniques. Technical issues related to the measurement of elemental profiles for alkalis, alkaline earths, and uranium in zeolites and small particles have been identified. Reduction of previously collected elemental data continued.

Several samples of tuff-wafers that had previously been exposed to radionuclides were placed in contact with alpha-particle sensitive autoradiography paper in an attempt to identify the distribution and pathways of radionuclides on the millimeter scale. These samples are similar to those for which elemental profiles were measured using the ion-microscope. Exposure times on the order of one to two weeks have not resulted in any visible radiographic pattern. Longer exposures and "hotter" samples will be used.

G-20-3 Interactions of Actinide-bearing Solutions with Rock Core Samples

The flow testing of the flow-through system, which is designed to study the adsorption and hydrology of pore fluid with radionuclide tracers, was completed. The system was tested to 150°C. The system is shutdown so that the transducers can be calibrated along with the pressure-transmitting diaphragm. We expect that the calibration will be completed next month. Then the system will be assembled for flow-through experiments.

A more detailed scanning electron microscopic (SEM) analysis of the core sample to be used in the flow-through experiment was made with the SEM instrument in the Chemistry Department. This instrument is capable of higher spatial resolution and can be used to make elemental "dot maps". Elemental maps for iron and potassium revealed these elements to be localized and not distributed randomly over the fracture surfaces.

- Samples of the fluids from the UO_2 leaching experiments were analyzed for colloids using the photon correlation spectrometer (PCS), and large (~1 - 10 μm) particles were observed. The nature of these particles will be examined using electron diffraction and imaging, and energy dispersive elemental analysis.

G-20-6 Source Term Development

The acid/base titrations of goethite in the presence of background electrolyte have been completed at elevated temperatures. The results indicate the goethite surface becomes more basic with increasing temperature.

1.2.2.3.4.2 Thermodynamic Data Determination

This WBS element has not been funded in FY92.

1.2.2.3.5 Nonmetallic Barrier Concepts

This WBS element has not been funded in FY92.

1.2.2.4. Design, Fabrication, and Prototype Testing

1.2.2.4.1 Waste Package Design

This WBS element has not been funded in FY92.

1.2.2.4.2 Container Fabrication and Closure Development

This WBS element has not been funded in FY92.

1.2.2.4.3 Container/Waste Package Interface Analysis

T. Doering visited LLNL on March 19 to meet with D. Ruffner and G. Johnson. G. Johnson is beginning a study of the internal temperatures of a large drift-emplaced waste package for a variety of thermal loadings and spent fuel ages.

1.2.5 REGULATORY AND INSTITUTIONAL

1.2.5.2 Licensing

1.2.5.2.1 NRC Interaction Support

T. Buscheck, R. Van Konynenburg and J. Blink attended the NRC Technical Exchange held in Albuquerque, NM on March 17-18. T. Buscheck presented a paper entitled "Modeling Repository-Heat-Driven Flow at Yucca Mountain".

1.2.5.2.2 Site Characterization Program

M. Revelli participated in the March 12-13 Integrated Test Evaluation (ITE) meeting in Las Vegas. The primary objectives for this meeting were to discuss and agree upon the scope of the evaluation and the ITE implementation plan.

As a result of the March 12-13 ITE meeting, an ITE subgroup met in Albuquerque, NM on March 19 to refine the list of technical issues and eliminate those not directly related to potentially unsuitable site conditions. M. Revelli represented LLNL at this meeting and will present the results to the ITE Core Team.

1.2.5.2.4 Technical Support Documentation

No significant activities.

1.2.5.2.5 Study Plan Coordination

S. Blair is reviewing Sandia National Laboratory Study Plan 8.3.1.15.1.4, "Laboratory Determination of Mechanical Properties of Fractures".

J. Nitao reviewed USGS Study Plan 8.3.1.2.2.2, Rev. 1, "Water Movement Test" and the Document Review Sheets were submitted to YMPO.

1.2.5.2.6 Semi-Annual Progress Reports

Guidance on the 6th Progress Report (PR) for reporting period October 1, 1991 through March 31, 1992 was received on March 10th. The report was submitted to YMPO on March 31.

1.2.9 PROJECT MANAGEMENT

1.2.9.1 Management and Integration

1.2.9.1.1 Management

W. Clarke and J. Blink attended the TPO meeting in Las Vegas on March 6.

J. Blink participated in the following:

1) served as a management reviewer for the Title II Design package 1-A, North Portal Area,

2) participated in the Determination of Importance & Grading Enhancement (DIGE) meeting in Las Vegas on March 12,

3) attended the UNLV Cooperative Agreement on March 24. He arranged for Professor J. Cardle to visit LLNL on April 23 to discuss integration of his work with LLNL hydrology work,

4) attended a YMP Safety Committee meeting in Las Vegas on March 12.

5) ompleted "New User" training on the YMP-LV vax cluster on March 31. He made be reached on E-mail as user BLINKJ, and

6) participated in the Boy Scout Atomic Energy Merit Badge Workshop at the YMIO on March 7.

Six Affected Document Notices (ADN) were completed and submitted to YMPO.

LLNL provided a copy of the Climax videotape to OCWRM at the request of G. McNeill.

1.2.9.1.4 Records Management

Document Control issued five Change Notices and three new documents under controlled distribution. Routine follow-up for receipt acknowledgements continues.

A total of 224 items were logged into the LLNL-YMP tracking system. This includes 99 records/records packages that were processed through to the CRF. Four action items were closed.

B. Bryan attended a Project Office Records Workshop in Las Vegas on March 4-5.

1.2.9.2 Project Control

The monthly actual costs for the February PACS database were submitted to YMPO. The FY94 Field Work Proposal for the Yucca Mountain and Atomic Energy of Canada Limited (AECL) projects was prepared.

The internal PACS database budgets were analyzed and reconciled with the YMPO database. The technical scopes were reviewed and modifications made as required. The Work Authorization sheets were processed and distributed to the Technical Area Leaders for review and signature.

The Independent Cost Estimate (ICE) team visited LLNL on March 25-26. Discussions were held regarding the detail of planning and methods for estimating labor requirements and total costs for the following WBS elements:

1) Chemistry and Mineralogic Properties of the Waste Package,
2) Hydrologic Properties of the Waste Package,
3) Engineered Barrier System Field Tests,
4) Waste Form - Spent Fuel, and
5) Metal Barriers.

LLNL provided the ICE team with extensive cost information including wage rates, indirect rates, subcontract estimates, and methods of calculating outyear budgets. Considerable effort was also expended to technically acquaint team members with the technical scope of areas being analyzed.

Responses were provided to several GAO inquiries.

W. Clarke, J. Blink and J. Podobnik attended a DOE/M&O briefing in Las Vegas detailing modifications to the 2001 planning process in Las Vegas on March 5. J. Blink was named as LLNL-YMP point of contact to provide cost and schedule information for activities through 2001. This effort is to culminate on April 20. Participants will then prepare a detailed, bottoms-up Long Range Plan. The objective is to have a current plan completed by early July. J. Blink and J. Podobnik participated in a follow-up meeting on March 30.

The LLNL response report for the January DOE/YMPO Property Management audit was completed. All findings have been resolved and most equipment has been located and placed within the control system. All NWF equipment is being tagged

with "Property of Others NWF" labels. This activity is about 60% complete. By mid-April, this activity will be reduced to routine maintenance, and the property management function will primarily be carried out by the LLNL Energy Program Property Center Representative. Three training sessions were provided for LLNL-YMP staff regarding the LLNL property management system and additional requirements imposed by NWF regulations. Sessions were held on March 12, 17 and 26.

J. Podobnik attended a Project Control Steering Committee meeting in Albuquerque, NM on March 20. Topics discussed included ICE review background and requirements, integration and planning out to 2001, and transition of tasks to the M&O. The charter was to include full voting membership to all major participants. The Steering committee also heard a progress report from the Training Subcommittee. J. Blink a Training Subcommittee meeting in Las Vegas on March 12.

Workscopes and budget projections for the LLNL Institutional Plan were completed.

1.2.9.3 Quality Assurance

Dean Wolfe has been hired by LLNL as the LLNL-YMP Quality Assurance Manager. He started work on March 23.

Internal Audit 92-04, Waste Form Characterization, was conducted on March 3 - 17.

Audit Report 92-03, "Near Field Environment Characterization", was completed and distributed on March 19. One Corrective Action Report was issued.

The Energy Program Leader was notified of the requirement for the annual Management Assessment to be performed in accordance with Quality Procedure 033-YMP-QP 2.3.

TIP-YM-12, "Electronic Record Keeping", was finalized and forwarded to Document Control for distribution.

Work continues on revisions of Quality Procedures 4.0 and 17.0.

R. Monks and D. Wolfe attended the ASME Committee on Nuclear Quality Assurance meeting in Denver, CO on March 30 - April 1.