



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

Reply to:
301 E. Stewart Ave., #203
Las Vegas, NV 89101

Tel: (702) 388-6125

TO: Joseph Holonich, Director, HLPD, M/S 4 H 3
FROM: Sr. On-Site Representatives Office, Las Vegas
DATE: October 21, 1992
SUBJECT: OFFICE OF GEOLOGIC DISPOSAL (OGD) WEEKLY HIGHLIGHTS FOR THE WEEKS ENDING OCTOBER 2 AND OCTOBER 9, 1992; YUCCA MOUNTAIN FIELD ACTIVITY REPORT FOR THE WEEKS ENDING SEPTEMBER 18, 25, OCTOBER 2 AND 9, 1992

Please find enclosed the above-referenced reports.

There is nothing requiring specific management attention in the reports.

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

nan

NOTE TO CHARLOTTE ABRAMS: Also enclosed is: the Daily Operations Reports, Weekly Interactions Report, Field Test Coordinator's Reports, October 5-9, 1992; LLNL September 1992 YMP Status Report; REECO Yucca Mountain Site Characterization Project Status Report (September 1992); Preliminary Field Composite Borehole Logs (Drilling completed 9/22/92)

See enclosure on shelf

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*rec'd with letter
dtd 10/2/1992*



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

OCT 08 1992

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

OFFICE OF GEOLOGIC DISPOSAL (OGD) WEEKLY HIGHLIGHTS FOR THE WEEK ENDING
OCTOBER 2, 1992

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

A. Site Characterization Planning

Field Operations

Drilling activities at the UZ-16 borehole continue with the LM-300 drill rig. As of September 29, 1992, Reynolds Electrical & Engineering Co., Inc. (REECo), drilled to a depth of 799 feet and reamed to 759 feet.

Work continues on the fifth neutron access borehole, USW UZN-32. The borehole has been cored to a depth of 37 feet and the Odex casing is down to 21 feet.

On Job Package (JP) 92-7, Fran Ridge Pit Mapping, REECo continued cleaning the bedrock with high-pressure air and water, and the cleaned bedrock was accepted by the principal investigator. REECo started building the road for the platform truck access.

Regarding JP 92-12, Quaternary Faulting, installation of the trench fencing and protective wire mesh at Trench SCFT-1 was completed.

Sample Management Facility

Processing of core and cuttings from UE25 UZ-16 continued. Core from UE25 UZ-16 was laid out for examination by U.S. Geological Survey (USGS) representatives. Processing/logging core from USW UZN-32 continued.

Site Investigations

Mapping of trenches excavated for Study Plan (SP) 8.3.1.17.4.2, "Evaluation of the Location and Recency of Faulting Near Prospective Surface Facilities," and SP 8.3.1.17.4.6, "Quaternary Faulting Within the Site Area," continued.

102

Mapping and sampling of test pits excavations continued.

Environmental Field Programs

On September 28, 1992, the Yucca Mountain Site Characterization Project Office (YMPO) received air quality permits for two air compressors for the LM-300 drill rig and a gravel screening plant for use in the gravel pit to produce materials for construction.

Regulatory Interactions

Site Characterization Plan (SCP) Progress Report (PR)

PR 6 was submitted to the Secretary of Energy's office on September 22, 1992. Approval is expected by October 9, 1992, and the report should be released by November 1, 1992. Input for PR 7 is due to YMPO by October 10, 1992.

Mined Geologic Disposal System (MGDS) Annotated Outline (AO)

Revision 1 of the MGDS AO was delivered to the U.S. Nuclear Regulatory Commission (NRC).

Exploratory Studies Facility (ESF) Task Force Activities

Regarding the Independent Technical Review of the 90 percent complete ESF Design Package 1A, the verification process is continuing with some unresolved comments.

SCP SP Status

One SP revision was approved by YMPO this week: SP 8.3.1.5.1.3, Revision 1, "Climatic Implications of Terrestrial Paleoecology."

STUDY PLAN BREAKDOWN

In Screening Review	0
In YMPO and U.S. Department of Energy (DOE)/Headquarters (HQ) Review	0
Awaiting Comment Resolution	12
Awaiting Author Revision	5
In YMPO/HQ Verification Audit	4
Preparing to Submit or Awaiting YMPO Approval	6
Awaiting Submission to the NRC	2
NRC Phase 1 Review	16
NRC Acceptance	28
Total	73

SCP/SP Status:

Total SPs Assigned to Cover 106 Studies	103
SPs Not Yet Submitted for Review	38
SPs Submitted for Initial Review	65
Revised SPs Submitted for Review	8
Total SPs Submitted for Review	73

State of Nevada Comments Status:

Received Comments from the State of Nevada	10
Responses Transmitted to the State of Nevada	9

NRC Comments Status:

Received Comments from NRC	18
Responses Transmitted from OGD to DOE/HQ	11

B. Project Planning and Control

The Planning and Control System was successfully transitioned to the Civilian Radioactive Waste Management System Management and Operating Contractor (CRWMS M&O) effective September 28, 1992.

C. Quality Assurance (QA) Implementation

YMPO Audit YMP-92-24 is in progress.

Determination of Importance and Grading Enhancement**Quality (Q) List and Q-List Procedure Development**

A draft copy of the Items Important to Waste Isolation report was received from Sandia National Laboratories (SNL) on October 2, 1992. The draft Items Important to Safety report is expected from SNL by October 9, 1992. The Assessment Team (AT) will then review these reports for application to AT processes.

Implementation

The AT is reviewing Raytheon Services Nevada's (RSN) Classification Process and available ESF Classification Reports.

D. Public Outreach and Institutional Activities

The Nineteenth Public Open House tour of Yucca Mountain, Nevada, was conducted for approximately 225 people on September 26, 1992. Tour participants visited the Las Vegas Yucca Mountain Information Office (YMIO), the Field Operations Center (FOC), two laboratories, the LM-300 drill rig, and Yucca Mountain. Tour participants also viewed the transportation container exhibit which was staffed by Institutional and External Affairs (IEA) and YMP personnel at the FOC.

Carl Gertz, Project Manager, gave a project overview of current activities and accomplishments at the QA Preaudit Conference on September 28, 1992. He also provided a general overview presentation to the Rotary Club of Las Vegas in Las Vegas, Nevada, on September 28, 1992. Approximately 80 people attended.

Approximately 35 people attended the Yucca Mountain Lecture Series, "Are the Keys to Ancient Cultures Being Destroyed?" on September 29, 1992, at the YMIO. The lecture was presented by Paul Buck (Desert Research Institute).

The IEA staff coordinated logistics and staffed the transportation container exhibit at the YMIO on September 30, 1992, providing teachers and parents of school-age children an opportunity to view the container and ask questions. Approximately 100 people visited the YMIO and viewed the container.

IEA personnel staffed a YMP exhibit at the American Institute of Professional Geologists (AIPG) Conference September 27-30, 1992, at Lake Tahoe, Nevada. On September 29, 1992, Jean Younker (CRWMS M&O) gave a panel presentation on "The Role of the Geologist in Siting and Cleaning Up Waste" at the AIPG meeting regarding the subject, "Geologic Reason: A Basis for Decisions Affecting Society."

Several of the YMP staff were interviewed as part of a survey on public trust and confidence in DOE, which is being conducted on behalf of the Secretary of Energy Advisory Board Task Force on Radioactive Waste Management by the Social and Economic Sciences Research Center at Washington State University. Dale Van Natta (CRWMS M&O) presented a project briefing to 25 members of Kiwanis of Southwest Las Vegas on September 30, 1992, in Las Vegas.

On October 1, 1992, Dale Van Natta met with Max Powell (YMPO), members of the CRWMS M&O technical staff, and Dr. Bahram Nasser-Sharif at the University of Nevada, Las Vegas, to discuss possible uses of the university supercomputer for program modeling. Also, CRWMS M&O staff completed a draft of educational materials on energy and electricity which will be used during visits to the YMIO by Clark County School District students.

OCT 08 1992

The IEA staff distributed new YMP folders and fact sheets.

IEA personnel set up and staffed a YMP exhibit at the Jaycees State Fair which is being held in Las Vegas, October 2-11, 1992.

II. ANALYSIS & VERIFICATION DIVISION

Preparation of Chapter 1 and the Executive Summary of PR 7 continued.

Review of the predecisional draft Office of Civilian Radioactive Waste Management Regulatory Guidance Document was completed. Review comments were requested to be forwarded to RW-332 by September 30, 1992.

The staff participated in the "dry run" September 30-October 1, 1992, in Las Vegas for the Nuclear Waste Technical Review Board (NWTIRB) Full Board Meeting, which will be held October 14-15, 1992.

The staff participated in the Geochemistry Integration Team (GIT) teleconference on September 30, 1992. The primary topic of discussion was the GIT review of the Thermal Loading Decision Task Force Report.

III. GENERAL INFORMATION ITEMS

CFRMS M&O

Final signatures were received from YMPO on the Technical Data Management Transition Plan.

SNL

A Performance Assessment evaluation for Boreholes NRG-2, 3, 4, and 5 was completed and forwarded to YMPO on September 30, 1992.

LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)

A series of short-term oxidation scoping experiments on Gadolinium-doped unirradiated uranium oxide and spent fuel were performed to determine the parameters for next year's dry bath tests.

RSN

A partial package ESF Design 1A was delivered to YMPO on September 30, 1992.

USGS

The third and final phase of the percolation test is finished. After rapid intake of liquid water into the rock block in the initial flow stage, the final stage showed little-to-no water intake. Tests are ongoing to determine the cause of the no-flow.

The soil/geomorphology study on the relation between surficial geology and soil development in Pagany Wash and Split Wash began.

The Integrated Data Acquisition System (IDAS) was successfully brought on line to monitor Hydrologic Research Facility boreholes. Testing of IDAS telemetry systems was successful.

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 Theresa Hirsch at (702) 794-7759 for additional information. Exhibits are handled by Kevin Rohrer at (702) 794-7769, and tours are handled by Carleen Hill at (702) 794-7375.

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
A. <u>DOE/HQ Meetings</u>			
Monday, October 19	Energy Systems Acquisition Advisory Board Dry Run	Washington, DC	C. Gertz
Monday, October 26	Program Management Meeting	Washington, DC	C. Gertz
B. <u>CRWMS M&O/DOE Meetings</u>			
Wednesday, October 28	M&O Program Review	Vienna, VA	C. Gertz
C. <u>Internal and DOE/NV Meetings</u>			
Wednesday, October 21	NV Monthly Program Review	Las Vegas, NV	C. Gertz
Friday, October 23	Technical Project Officers Meeting	Las Vegas, NV	C. Gertz

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMFO Contact</u>
C. <u>Internal and DOE/NV Meetings (Continued)</u>			
Friday, October 23	Planning and Budget Meeting	Las Vegas, NV	C. Gertz
Friday, November 20	State of Project	Las Vegas, NV	C. Gertz
D. <u>NRC Interactions</u>			
Thursday, October 29	Technical Exchange - Functional Analysis of 10 CFR 60 (P)	San Antonio, TX	T. Bjerstedt
Tuesday, November 17	Technical Exchange - Volcanism (P)	Albuquerque, NM	T. Bjerstedt
TBD	Interaction Planning Meeting (P)	Rockville, MD	T. Bjerstedt
Monday- Tuesday, December 14-15	Technical Exchange - Total System Performance Assessment (P)	Rockville, MD	T. Bjerstedt
E. <u>NWTRB Interactions</u>			
Wednesday- Thursday, October 14-15	NWTRB Full Board Meeting (P)	Las Vegas, NV	J. Cooper
Friday, October 16	NWTRB Yucca Mountain Site Tour (P)	Las Vegas, NV	J. Cooper
Wednesday- Friday, November 4-6 (Tentative)	NWTRB SG&G Panel Meeting (P)	Denver, CO	J. Cooper
Wednesday- Friday, November 18-20	Workshop on Expert Judgment (P)	Albuquerque, NM	A. Simmons
Tuesday- Wednesday, January 5-6, 1993	NWTRB Full Board Meeting (P)	Arlington, VA	J. Cooper
February or March 1993 TBD	NWTRB HG&G Panel Meeting (P)	TBD	J. Cooper

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
E. <u>NWTRB Interactions (Continued)</u>			
Tuesday-Friday, April 20-23, 1993	NWTRB Full Board Meeting (P)	Reno, NV	J. Cooper
Tuesday, June 1, 1993	NWTRB International Trip	TBD	J. Cooper
Monday-Thursday, July 12-15, 1993	NWTRB Full Board Meeting (P)	Denver, CO	J. Cooper
Tuesday-Friday, October 19-22, 1993	NWTRB Full Board Meeting (P)	Las Vegas, NV	J. Cooper
F. <u>Advisory Committee on Nuclear Waste (ACNW) Interactions</u>			
Tuesday, October 20	ACNW Working on Group on Human Intrusion (P)	Las Vegas, NV	A. Gil
Wednesday, October 21	ACNW 47th Meeting (P)	Las Vegas, NV	A. Gil
Thursday, October 22	ACNW Yucca Mountain and NTS Tours (P)	Las Vegas, NV	A. Gil
Friday, October 23	ACNW GIS Tour (P)	Las Vegas, NV	A. Gil
Monday-Tuesday, November 16-17	ACNW 48th Meeting (P)	Bethesda, MD	A. Gil
Wednesday, November 18	ACNW WG Climate (P)	Bethesda, MD	A. Gil
Wednesday, December 16	ACNW WG on PA - Phase 2 HLW Inter- active PA by NRC (P)	Bethesda, MD	A. Gil
Thursday-Friday, December 17-18	ACNW 49th Meeting (P)	Bethesda, MD	A. Gil

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
G. <u>State and Public Interactions</u>			
Tuesday, October 6	Fay Herron Elementary School	Las Vegas, NV	A. Gil
Wednesday, October 7	North American Tunneling Conference	Boston, MA	C. Gertz
Wednesday, October 7	Amargosa Valley Elementary School	Amargosa Valley, NV	M. Pitterle
Wednesday, October 7,	Fay Herron Elementary School	Las Vegas, NV	E. Harle J. Blink
Thursday, October 8	Fay Herron Elementary School	Las Vegas, NV	E. Harle
Thursday, October 8	Massachusetts Institute of Technology	Cambridge, MA	C. Gertz
Thursday, October 8	Mobile Home Owners' Association	Las Vegas, NV	G. Fasano
Friday, October 9	Kiwanis of Las Vegas	Las Vegas, NV	B. Andrews
Friday, October 9	Fay Herron Elementary School	Las Vegas, NV	A. Gil
Saturday, October 10	Girl Scouts of America	Calico Basin, NV	R. Arnold
Wednesday, October 14	Kiwanis Club of Las Vegas	Las Vegas, NV	A. Robison
Wednesday, October 14	American Society of Civil Engineers & National Society of Professional Engineers	Las Vegas, NV	C. Gertz
Wednesday, October 14	Fong Elementary School	Las Vegas, NV	E. Harle
Thursday, October 15	Fong Elementary School	Las Vegas, NV	R. Arnold

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
G. <u>State and Public Interactions</u> (Continued)			
Thursday, October 15	United Kingdom Pretour Briefing	Las Vegas, NV	A. Robison
Thursday, October 15	Society of American Military Engineers	Las Vegas, NV	R. Dyer
Friday, October 16	Meadows School	Las Vegas, NV	J. Blink
Tuesday, October 20	American Nuclear Society (ANS)	Las Vegas, NV	C. Gertz
Wednesday, October 21	ACNW	Las Vegas, NV	C. Gertz
Wednesday, October 21	American Institute of Hydrology	Portland, OR	J. Younker
Thursday, October 22	Las Vegas Chamber of Commerce	Las Vegas, NV	C. Gertz
Tuesday, October 27	Yucca Mountain Lecture Series (P)	Las Vegas, NV	B. Crowe
Thursday, October 29	Yucca Mountain Lecture Series (P)	Pahrump, NV	B. Crowe
Thursday, October 29	Mendoza Elementary School	Las Vegas, NV	R. Arnold
Friday, October 30	Colorado School of Mines	Golden, CO	C. Gertz
Friday, October 30	KNPB-Channel 5 Panel Discussion	Reno, NV	C. Gertz
Wednesday, November 4	Annual DOE Safety Conference	Orlando, FL	R. Baumeister
Thursday, November 5	University of Waterloo, Department of Earth Sciences	Ontario, Canada	D. Tepper
Monday, November 9	Public Update Meeting	Las Vegas, NV	C. Gertz

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
G. <u>State and Public Interactions (Continued)</u>			
Tuesday, November 10	Public Update Meeting	Amargosa Valley, NV	C. Gertz
Tuesday, November 10	Cornell University, Department of Geological Sciences	Ithaca, NY	D. Tepper
Thursday, November 12	Public Update Meeting	Reno, NV	C. Gertz
Friday, November 13	Madison 6th Grade Center	Las Vegas, NV	R. Arnold
Tuesday, November 17	Yucca Mountain Lecture Series (P)	Beatty, NV	R. Saunders
Wednesday, November 18	American Association of University Women	Las Vegas, NV	M. Powell
Thursday, November 19	Yucca Mountain Lecture Series (P)	Las Vegas, NV	R. Saunders
Thursday, November 19	Archael Nevada	Las Vegas, NV	R. Arnold
Wednesday, December 2	Court Continuation School	Las Vegas, NV	R. Arnold
H. <u>Exhibits Scheduled</u>			
Friday- Sunday, October 2-11	Jaycees State Fair	Las Vegas, NV	
Monday- Friday, October 5-9	Association of Engineering Geologists	Long Beach, CA	
Thursday- Saturday, October 8-10	Nevada Library Association	Las Vegas, NV	
Sunday, October 11	Fallon Naval Air Station Air Show	Fallon, NV	

<u>Date</u>	<u>Event</u>	<u>Location</u>
H. <u>Exhibits Scheduled (Continued)</u>		
Friday- Saturday, October 16-17	Boy Scouts Expo '92	Las Vegas, NV
Saturday, October 17	Public Open House (P)	Las Vegas, NV
Sunday- Thursday, October 18-22	American Mining Congress	Las Vegas, NV
Friday- Sunday, October 23-25	Fairshow '92	North Las Vegas, NV
Monday- Thursday, October 26-29	Geological Society of America	Cincinnati, OH
Monday, November 9	Public Update Meeting (P)	Amargosa Valley, NV
Tuesday, November 10	Public Update Meeting (P)	Las Vegas, NV
Thursday, November 12	Public Update Meeting (P)	Reno, NV
Tuesday- Thursday, November 17-19	ANS Winter Meeting	Chicago, IL
Thursday- Saturday, November 19-21	Nevada Association of Counties	Fallon, NV
Friday, November 20	State of the Project Meeting	Las Vegas, NV

OCT 08 1992

<u>Date</u>	<u>Event</u>	<u>Escorts</u>
I. <u>Tours Scheduled</u>		
Tuesday, October 6	United States Council for Energy Awareness	J. Cooper
Thursday, October 8	Realtor Association (Las Vegas Board of Realtors)	D. Van Natta K. Wirtz B. Thompson
Tuesday, October 13	Senior Tripsters	A. Gil A. Norton K. Grassmeier
Wednesday, October 14	LLNL Science and Engineering Students	TBD
Thursday, October 15	Boulder City Senior Center	B. Distel
Thursday, October 15	US/UK Defense Coordination Meeting	TBD
Friday, October 16	NWTRB	A. Simmons
Saturday, October 17	Public Open House (P)	Various Escorts
Tuesday, October 20	Tonopah High School & Beatty Middle School	TBD
Tuesday, October 20	Federal Personnel Branch/NV	M. Powell
Thursday, October 22	ACNW	TBD
Friday, October 23	Japan Nuclear Safety Research Association on HLW	TBD
Tuesday, October 27	Quail Estates West	TBD
Wednesday, October 28	Southern NV Retired Teachers' Association	TBD
Tuesday, November 3	Thurman White Middle School	TBD

<u>Date</u>	<u>Event</u>	<u>Escorts</u>
I. <u>Tours Scheduled</u> (Continued)		
Thursday, November 5	Thurman White Middle School	TBD
Tuesday, November 10	Thurman White Middle School	TBD
Thursday, November 12	Thurman White Middle School	TBD
Friday, November 13	Boy Scouts of America	M. Penovich
Wednesday, November 18	Public Open House (P)	Various Escorts
Thursday, November 19	Pahrump Middle School	TBD
Monday, November 23	Palo Verde Nuclear Power Station	TBD
Tuesday, December 1	Paradise Christian Academy	TBD
Thursday, December 3	Pahrump Middle School	TBD
Saturday, December 12	Public Open House (P)	Various Escorts
Wednesday, January 20, 1993	Tonopah Middle School	TBD
Wednesday, February 24, 1993	Tonopah Middle School	TBD
Thursday, March 11, 1993	Meadows School	TBD

YMP:VFI-112


 Carl P. Gertz
 Project Manager



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

OCT 15 1992

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

OFFICE OF GEOLOGIC DISPOSAL (OGD) WEEKLY HIGHLIGHTS FOR THE WEEK ENDING
OCTOBER 9, 1992

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

A. Site Characterization Planning

Field Operations

The Site Manager and Field Operations Center staff participated in and provided logistical support for one major tour this reporting period.

Regarding Job Package (JP) 92-3, drilling activities on UZ-16 with the LM-300 drill rig continue. Reynolds Electrical & Engineering Co., Inc. (REECO), has cored to a depth of 799 feet and reamed to 780 feet.

On JP 91-9, Neutron Access Boreholes, drilling activities continue with the CME-850 drill rig on USW UZN-32. REECO has cored and reamed to a depth of 60 feet.

A preactivity planning meeting for safety purposes was conducted for the Fran Ridge Pit Mapping job.

Sample Management Facility

Processing of core from UE25 UZ-16 and USW UZN-32 continued. Processing of approved specimens for Los Alamos National Laboratory and the U.S. Geological Survey (USGS) continued. Core was laid out from UE25 UZN-16 for examination by USGS representatives.

Site Investigations

Mapping of trenches excavated for Study Plan (SP) 8.3.1.17.4.2, "Evaluating the Location and Recency of Faulting Near Prospective Surface Facilities," and SP 8.3.1.17.4.6, "Quaternary Faulting Within the Site Area," continued. Mapping and sampling of test pits excavations continued. Timothy Sullivan and Dennis Williams (Yucca Mountain Site Characterization Project Office [YMPO]) are overseeing the excavations weekly.

Regulatory Interactions

Site Characterization Plan (SCP) Progress Report (PR)

PR 6 is in the Secretary of Energy's office. Approval is expected by October 13, 1992, and distribution would then occur during the first week of November 1992. Input for PR 7 is due to YMPO by October 10, 1992. Several new directives from John Bartlett, Director, Office of Civilian Radioactive Waste Management, concerning the content of the PR, may impact the schedule for PR 7.

Issue Resolution

The Issues Resolution Steering Group held a video-conference on October 5, 1992. The status and progress on high-priority issues (erosion and calcite-silica) were discussed. The current schedules for resolution of issues and the integration of some issues were also discussed. Scheduling of work on other issues and the impact of budget constraints will be addressed at the next meeting which is scheduled for November 17, 1992.

Exploratory Studies Facility (ESF) Task Force Activities

Regarding the Independent Technical Review of the 90 percent complete ESF Design Package 1A, the verification process is continuing with some unresolved comments.

SCP SP Status

It was brought to our attention that we were not handling revisions to SPs consistently. Some were being carried on the weekly and monthly reports and some were not. From now on, minor revisions to SPs will not be included in the numbers reported for weekly and monthly reports. We will only track major revisions (e.g., revisions that will require full YMPO technical review and U.S. Nuclear Regulatory Commission [NRC] review). Consequently, the totals reported for this week will be slightly different than last week.

STUDY PLAN BREAKDOWN

In Screening Review	0
In YMPO and U.S. Department of Energy (DOE)/Headquarters (HQ) Review	0
Awaiting Comment Resolution	12
Awaiting Author Revision	5
In YMPO/HQ Verification Audit	4
Preparing to Submit or Awaiting YMPO Approval	6
Awaiting Submission to NRC	0
NRC Phase 1 Review	15
NRC Acceptance	28
Total	70

SCP/SP Status:

Total SPs Assigned to Cover 106 Studies	103
SPs Not Yet Submitted for Review	38
SPs Submitted for Initial Review	65
Revised SPs Submitted for Review	5
Total SPs Submitted for Review	70

State of Nevada Comments Status:

Received Comments from the State of Nevada	10
Responses Transmitted to the State of Nevada	9

NRC Comments Status:

Received Comments from NRC	18
Responses Transmitted from OGD to DOE/HQ	11

B. Project Planning and Control

Planning and Scheduling (P&S) and summary account planning reports of the new work breakdown structure (WBS) were delivered to participants.

Fiscal year (FY) 1993 summary account planning sheets were distributed to Division Directors for review.

Planning guidance was provided to Division Directors for the FY 1993 budget to the third level WBS.

The YMP Planning and Control System (PACS) FY Planning Form was developed for Division Directors to provide summary account planning data for P&S accounts without planning.

The new version 3.0 release of the PACS Participant Work Station is being tested. Upgrades include the ability to reprogram, rebaseline, renumber, and import budget at estimate to complete for summary accounts.

A data base was created to show cross walk of FY 1992 accounts; products were delivered to YMPO for analysis.

Two new earned value graphs were developed: the Cost Schedule Performance Index which illustrates the cost and schedule performance indexes and the Cumulative Variance which illustrates cost and schedule variances.

C. Quality Assurance (QA) Implementation

The YMPO Audit YMP-92-24 was completed on September 30, 1992, and covered QA program Elements 3.0, 4.0, 5.0, 6.0, 7.0, 15.0, 17.0, and 20.0. The audit resulted in the processing of four Corrective Action Requests (CAR). One CAR was considered significant and dealt with legibility, completeness, and correct identification of records. The other CAR pertained to various aspects of Configuration Management.

Determination of Importance and Grading Enhancement

Quality (Q) List and Q-List Procedure Development

The draft Items Important to Safety (IITS) report was received from Sandia National Laboratories. The IITS and Items Important to Waste Isolation reports will be reviewed by the Assessment Team (AT) for application to AT processes.

Management Control List and Procedure Development

Internal Technical & Management Support Services (T&MSS) review comments have been resolved on the Requirements Traceability Network User's Manual. Final signatures are being obtained.

Implementation

All AT members' comments to the two draft Implementing Line Procedures (ILP) relative to AT conduct of business and development/maintenance of the AT Controlled List have been received.

D. Public Outreach and Institutional Activities

A tour to Yucca Mountain, Nevada, was conducted for 20 guests of the U.S. Council for Energy Awareness (USCEA) on October 6, 1992. Russell Dyer, YMPO, gave a general overview pretour briefing. A tour was also coordinated and conducted on October 8, 1992, for 200 guests of the Greater Las Vegas Realtor's Association.

On October 5, 1992, Institutional and External Affairs (IEA) staff attended the Southern Nevada Building Trades Council meeting, the grand opening of Lake Mead Hospital, the Las Vegas Private 100 Companies luncheon, all in Las Vegas, Nevada, and the USCEA regional conference in Palo Verde, Arizona. They also attended the Clark County Nuclear Waste Steering Committee meeting on October 8, 1992, in Boulder City, Nevada.

IEA personnel coordinated support staff for a YMP technical exhibit which was displayed at the Association of Engineering Geologists Conference in Long Beach, California, October 5-9, 1992. They were involved in the coordination and staffing of a YMP public exhibit displayed at the Las Vegas Jaycees' State Fair October 2-11, 1992, in Las Vegas. Over 30 YMP employees contributed to the staffing of this exhibit. Approximately 500-600 members of the public visited the display.

April Gil, YMPO, and Effie Harle, T&MSS, gave geology presentations to fourth and fifth grade classes at Fay Herron Elementary School in Las Vegas on October 6 and October 9, 1992. Effie Harle and James Blink (Lawrence Livermore National Laboratory [LLNL]) provided educational presentations focusing on energy to these classes October 7-8, 1992. Approximately 300 students attended the presentations.

Carl Gertz, Project Manager, gave a technical presentation at the North American Tunneling Conference on October 7, 1992, in Boston, Massachusetts. Over 400 people attended his presentation entitled, "Projects of the Future: Yucca Mountain - A High-Level Nuclear Waste Disposal Site?" Carl Gertz also gave a technical presentation to the Department of Nuclear Engineering at the Massachusetts Institute of Technology on October 8, 1992, in Cambridge, Massachusetts. Approximately 50 people attended.

Michael Pitterle, T&MSS, gave an educational presentation to an eighth grade earth science class at Amargosa Elementary School on October 7, 1992, in Amargosa Valley, Nevada. Approximately 16 students attended. Thomas Pysto, T&MSS, also gave an educational presentation, "Environmental Studies at Yucca Mountain," to approximately 60 students at Burkholder Junior High School on October 8, 1992, in Las Vegas.

Richard Arnold (a consultant) provided a presentation on the theme, "Native American Days," at the Halle Hewetson Elementary School on October 7, 1992. Approximately 900 students from kindergarten through fifth grades attended.

IEA personnel coordinated staffing for a YMP exhibit on display at the Nevada Library Association Conference October 8-10, 1992, in Las Vegas. The display was staffed by YMP participants including a representative of the YMP Research and Study Center. Approximately 75 librarians visited the display.

The IEA staff drafted a fact sheet, which describes the YMP library for use in the library exhibit as well as for eventual distribution to the general public. IEA took custody of the final art and color separations to be used for the four-color covers for subsequent major print products in the new product line.

Approximately 35 people attended Gregory Fasano's, T&MSS, general overview presentation to the Mobile Home Owners' Association on October 8, 1992, in Las Vegas. William Andrews (a consultant) gave a general overview presentation to the Kiwanis Club on October 9, 1992, in Las Vegas, with approximately 35 people in attendance.

In conjunction with principal investigators from other YMP participants, IEA selected vendors for the computer graphics to be used in the ESF video and are working closely with Procurement staff in their award of that subcontract this week.

Effie Harle, Mindy Wadkins, T&MSS; and Max Powell, YMPO, met with the principal of Orr Junior High School on October 8, 1992, to plan the YMP and Orr Junior High partnership program. The IEA staff also attended a Science Bowl meeting on October 9, 1992, in Las Vegas.

IEA distributed the new six-page folder, "Why are scientists studying Yucca Mountain?" and seven fact sheets showing the new product line style to approximately 300 individuals and institutions. They began filling subsequent requests for additional copies. Among these were a request from DOE/HQ for copies for distribution at an international education conference and a request from the NRC for an initial order of 50 copies. The IEA staff also provided related support material and the DOE/YMP input for appendices for a book to be used at the aforementioned international education conference.

Dale Van Natta, Civilian Radioactive Waste Management Systems Management and Operating Contractor (CRWMS M&O), met with Judith Schumacher, Raytheon Services Nevada (RSN) External Affairs, on October 9, 1992. They discussed cooperative efforts in education to support RSN's leadership role of the Business Roundtable's Education Coalition in Nevada.

OCT 15 1992

The IEA staff began planning for Clark County and White Pine County representatives to tour the Waste Isolation Pilot Plant in Carlsbad, New Mexico, on October 27, 1992.

II. ANALYSIS & VERIFICATION DIVISION

The staff participated in the Organization for Economic Cooperation and Development/Nuclear Energy Agency International Conference on Expert Judgment October 7-9, 1992, in Paris, France. On October 8, 1992, the staff observed the working meeting for development of the Convergence Plan in Denver, Colorado.

Preparation of Chapter 1 and the Executive Summary of PR 7 was completed.

Review of the Mined Geologic Disposal System System Requirements Document has been completed. Comments were submitted to the CRWMS M&O Review Coordinator on October 8, 1992.

The verification review under ILP 22.3.1 for SP 8.3.4.2.4.3, "Study Plan for the Characterization of Geomechanical Attributes of the Waste Package Environment," was completed.

The verification review under Administrative Procedure 1.10Q for SP 8.3.1.17.4.3, "Quaternary Faulting Within 100 km of Yucca Mountain, Including Walker Lane," was initiated.

III. GENERAL INFORMATION ITEMS

LLNL

Sensitivity analyses have been conducted for hydrothermal calculations of repository performance at Areal Power Densities of 20 to 114 kW/acre and spent-fuel age of 30 and 60 years.

USGS

Water-level/earthquake monitoring equipment was moved from Well USW H-5 to Well UE-25p #1 after the access tube in USW H-5 was blocked.

The foundation was completed for the insulated instrument shelter at the USGS Hydrologic Research Facility in Area 25; this shelter will house the instruments used to calibrate equipment for future deep unsaturated zone boreholes in the Integrated Data Acquisition System network.

Detailed mapping was completed of Calico Hills tuffaceous rocks in upper Black Glass Canyon and upper Paintbrush Canyon.

SP 8.3.1.8.5.2.3, "Heat Flow at Yucca Mountain," was submitted to DOE for review.

CRWMS M&O

The Advanced Conceptual Design Work Plan is in for the Nevada Site Manager's signature.

YMP

The design documents developed for the start of ESF construction, expected November 30, 1992, were submitted to YMPO for "acceptance for construction." Design changes resulting from the verification activity are still in process but will not affect the start of construction.

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 Theresa Hirsch at (702) 794-7759 for additional information. Exhibits are handled by Kevin Rohrer at (702) 794-7769, Public Update Meetings are handled by Joanna Magruder at (702) 794-7056, and tours are handled by Carleen Hill at (702) 794-7375.

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
A. <u>DOE/HQ Meetings</u>			
Monday, October 19	Dry Run Pre-ESAAB to ESAAB Staff	Washington, DC	C. Gertz
Monday, October 26	Program Management Meeting	Washington, DC	C. Gertz
B. <u>CRWMS M&O/DOE Meetings</u>			
Wednesday, October 28	CRWMS M&O Program Review	Vienna, VA	C. Gertz

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
C. <u>Internal and DOE/NV Meetings</u>			
Wednesday, October 21	NV Monthly Program Review	Las Vegas, NV	C. Gertz
Friday, October 23	Technical Project Officers Meeting	Las Vegas, NV	C. Gertz
Friday, October 23	Planning and Budget Meeting	Las Vegas, NV	C. Gertz
Friday, November 20	State of the Project	Las Vegas, NV	C. Gertz
D. <u>NRC Interactions</u>			
Thursday, October 29	Technical Exchange - Functional Analysis of 10 CFR 60 (P)	San Antonio, TX	T. Bjerstedt
TBD	Interaction Planning Meeting (P)	Rockville, MD	T. Bjerstedt
Monday- Tuesday, December 14-15	Technical Exchange - Total System Performance Assessment (P)	Rockville, MD	T. Bjerstedt
TBD 1993	Technical Exchange - Volcanism (P)	Albuquerque, NM	T. Bjerstedt
E. <u>Nuclear Waste Technical Review Board (NWTB) Interactions</u>			
Wednesday- Thursday, October 14-15	NWTB Full Board Meeting (P)	Las Vegas, NV	J. Cooper
Friday, October 16	NWTB Yucca Mountain Site Tour (P)	Las Vegas, NV	J. Cooper
Wednesday- Friday, November 4-6 (Tentative)	NWTB SG&G Panel Meeting (P)	Denver, CO	J. Cooper
Wednesday- Friday, November 18-20	Workshop on Expert Judgment (P)	Albuquerque, NM	A. Simmons

OCT 15 1997

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
E. <u>NWTRB Interactions (Continued)</u>			
Tuesday- Wednesday, January 5-6, 1993	NWTRB Full Board Meeting (P)	Arlington, VA	J. Cooper
February or March 1993 TBD	NWTRB HG&G Panel Meeting (P)	TBD	J. Cooper
Tuesday- Friday, April 20-23, 1993	NWTRB Full Board Meeting (P)	Reno, NV	J. Cooper
Tuesday, June 1, 1993	NWTRB International Trip	TBD	J. Cooper
Monday- Thursday, July 12-15, 1993	NWTRB Full Board Meeting (P)	Denver, CO	J. Cooper
Tuesday- Friday, October 19-22, 1993	NWTRB Full Board Meeting (P)	Las Vegas, NV	J. Cooper
F. <u>Advisory Committee on Nuclear Waste (ACNW) Interactions</u>			
Tuesday, October 20	ACNW WG on Human Intrusion (P)	Las Vegas, NV	A. Gil
Wednesday, October 21	ACNW 47th Meeting (P)	Las Vegas, NV	A. Gil
Thursday, October 22	ACNW GIS Tour (P)	Las Vegas, NV	A. Gil
Friday, October 23	ACNW Yucca Mountain and NTS Tours (P)	Las Vegas, NV	A. Gil
Monday- Tuesday, November 16-17	ACNW 48th Meeting (P)	Bethesda, MD	A. Gil

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
F. <u>ACNW Interactions (Continued)</u>			
Wednesday, November 18	ACNW WG Climate (P)	Bethesda, MD	A. Gil
Wednesday, December 16	ACNW WG on PA - Phase 2 HLW Interactive PA by NRC (P)	Bethesda, MD	A. Gil
Thursday- Friday, December 17-18	ACNW 49th Meeting (P)	Bethesda, MD	A. Gil
G. <u>State and Public Interactions</u>			
Saturday, October 10	Girl Scouts of America	Calico Basin, NV	R. Arnold
Wednesday, October 14	Kiwanis Club of Las Vegas	Las Vegas, NV	A. Robison
Wednesday, October 14	American Society of Civil Engineers & National Society of Professional Engineers	Las Vegas, NV	C. Gertz
Wednesday, October 14	Fong Elementary School	Las Vegas, NV	E. Harle
Thursday, October 15	Fong Elementary School	Las Vegas, NV	R. Arnold
Thursday, October 15	Bonanza High School	Las Vegas, NV	T. Kaish C. Binzer
Thursday, October 15	United Kingdom Pretour Briefing	Las Vegas, NV	A. Robison
Thursday, October 15	Society of American Military Engineers	Las Vegas, NV	R. Dyer
Thursday, October 15	NWTRB	Las Vegas, NV	C. Gertz

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
G. <u>State and Public Interactions (Continued)</u>			
Friday, October 16	Meadows School	Las Vegas, NV	J. Blink
Monday, October 19	REECo Partners in Education	Las Vegas, NV	T. Kaish
Tuesday, October 20	American Nuclear Society (ANS)	Las Vegas, NV	C. Gertz
Tuesday, October 20	Burkholder Junior High School	Las Vegas, NV	J. Blink
Wednesday, October 21	ACNW	Las Vegas, NV	C. Gertz
Wednesday, October 21	REECo Partners in Education	Las Vegas, NV	R. Arnold
Wednesday, October 21	American Institute of Hydrology	Portland, OR	J. Younker
Thursday, October 22	Las Vegas Chamber of Commerce	Las Vegas, NV	C. Gertz
Tuesday, October 27	Yucca Mountain Lecture Series (P)	Las Vegas, NV	B. Crowe
Thursday, October 29	Yucca Mountain Lecture Series (P)	Pahrump, NV	B. Crowe
Thursday, October 29	Mendoza Elementary School	Las Vegas, NV	R. Arnold
Friday, October 30	Colorado School of Mines	Golden, CO	C. Gertz
Friday, October 30	KNPB-Channel 5 Panel Discussion	Reno, NV	C. Gertz
Wednesday, November 4	Annual DOE Safety Conference	Orlando, FL	R. Baumeister
Thursday, November 5	University of Waterloo, Department of Earth Sciences	Ontario, Canada	D. Tepper

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
G. <u>State and Public Interactions (Continued)</u>			
Monday, November 9	Public Update Meeting	Amargosa Valley, NV	C. Gertz
Tuesday, November 10	Public Update Meeting	Las Vegas, NV	C. Gertz
Tuesday, November 10	Cornell University, Department of Geological Sciences	Ithaca, NY	D. Tepper
Thursday, November 12	Public Update Meeting	Reno, NV	C. Gertz
Friday, November 13	Madison 6th Grade Center	Las Vegas, NV	R. Arnold
Tuesday, November 17	Yucca Mountain Lecture Series (P)	Beatty, NV	R. Saunders
Wednesday, November 18	American Association of University Women	Las Vegas, NV	M. Powell
Thursday, November 19	Yucca Mountain Lecture Series (P)	Las Vegas, NV	R. Saunders
Thursday, November 19	Archael Nevada	Las Vegas, NV	R. Arnold
Wednesday, December 2	Court Continuation School	Las Vegas, NV	R. Arnold
Thursday, January 14, 1993	ANS	Parsippany, NJ	C. Gertz

<u>Date</u>	<u>Event</u>	<u>Location</u>
H. <u>Exhibits Scheduled</u>		
Sunday, October 11	Fallon Naval Air Station Air Show	Fallon, NV
Friday- Saturday, October 16-17	Boy Scouts Expo '92	Las Vegas, NV

<u>Date</u>	<u>Event</u>	<u>Location</u>
H. <u>Exhibits Scheduled (Continued)</u>		
Saturday, October 17	Public Open House (P)	Las Vegas, NV
Sunday- Thursday, October 18-22	American Mining Congress	Las Vegas, NV
Friday- Sunday, October 23-25	Fairshow '92	North Las Vegas, NV
Monday- Thursday, October 26-29	Geological Society of America	Cincinnati, OH
Friday- Saturday, November 6-7	Nevada State Science Conference	Las Vegas, NV
Monday, November 9	Public Update Meeting (P)	Amargosa Valley, NV
Tuesday, November 10	Public Update Meeting (P)	Las Vegas, NV
Thursday, November 12	Public Update Meeting (P)	Reno, NV
Tuesday- Thursday, November 17-19	ANS Winter Meeting	Chicago, IL
Thursday- Saturday, November 19-21	Nevada Association of Counties	Fallon, NV
Friday, November 20	State of the Project Meeting	Las Vegas, NV
Tuesday, October 13	Senior Tripsters	A. Gil A. Norton K. Grassmeier
Wednesday, October 14	LLNL Science and Engineering Students	TBD

<u>Date</u>	<u>Event</u>	<u>Escorts</u>
I. <u>Tours Scheduled</u>		
Thursday, October 15	Boulder City Senior Center	B. Distel
Thursday, October 15	US/UK Defense Coordination Meeting	TBD
Friday, October 16	NWTRB	A. Simmons
Saturday, October 17	Public Open House (P)	Various Escorts
Tuesday, October 20	Tonopah High School & Beatty Middle School	TBD
Tuesday, October 20	Federal Personnel Branch/NVOO	M. Powell
Thursday, October 22	ACNW	TBD
Friday, October 23	Japan Nuclear Safety Research Association on HLW	TBD
Tuesday, October 27	Quail Estates West	TBD
Wednesday, October 28	Southern NV Retired Teachers' Association	TBD
Tuesday, November 3	Thurman White Middle School	TBD
Thursday, November 5	Thurman White Middle School	TBD
Tuesday, November 10	Thurman White Middle School	TBD
Thursday, November 12	Thurman White Middle School	TBD

<u>Date</u>	<u>Event</u>	<u>Escorts</u>
I. <u>Tours Scheduled (Continued)</u>		
Friday, November 13	Boy Scouts of America	M. Penovich
Wednesday, November 18	Public Open House (P)	Various Escorts
Thursday, November 19	Pahrump Middle School	TBD
Monday, November 23	Palo Verde Nuclear Power Station	TBD
Tuesday, December 1	Paradise Christian Academy	TBD
Thursday, December 3	Pahrump Middle School	TBD
Thursday, December 3	TRB/State of Nevada Environmental	W. Dixon
Saturday, December 12	Public Open House (P)	Various Escorts
Wednesday, January 20, 1993	Tonopah Middle School	TBD
Wednesday, February 24, 1993	Tonopah Middle School	TBD
Thursday, March 11, 1993	Meadows School	TBD
Thursday, March 18, 1993	Gabs School	TBD
Tuesday, April 20, 1993	Round Mountain High School	TBD

YMP:VFI-347

J. Maxwell Blanchard
 Carl P. Gertz
 Project Manager



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Yucca Mountain Site Characterization
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WBS 1.2.7.4
QA: N/A

SEP 30 1992

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 September 18, 1992 and September 25, 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: Nye County Consultants; M&O Employees; NWTRB; NRC; M&O Program Management Review; SNL Programmatic Tour; Beatty Chamber of Commerce; NARUC and Public Open House.
- b. Provided operations support for field site characterization activities.
- c. Issued vehicles, first aid kits, fire extinguishers, and other necessary equipment personnel performing field duty.
- d. Site Emergency Management Plan is in final revision.
- e. One FOC engineer attended State Environmental Seminar.
- f. Continuing upgrade program for YMP Motor Pool. Inspected and accepted 8 vehicles for inclusion to YMSO Motor Pool.
- g. The FOC staff comprising the Bullfrog Planning commission are continuing with development of data base for Facilities Management Program.
- h. Initiated review of DOE Order 4330.4A in order to facilitate development of Maintenance Management Plan for YMSO.
- i. Attended technical evaluation meeting to select animation vendor for ESF video.
- j. Provided photographic support for M&O Program Management Review and NARUC tours.
- k. Arranged for photographing the 39 test pits.

- l. Arranged Fran Ridge Test Pit and Pavement photo mission.
 - m. Developed Support Facilities Design and Construction Sequence recommendation based upon order of need.
- B. Project Safety and Health, (DOE/SAIC)
- a. Drafted letters on Area 25 Safety policies, REECO medical requesting a Medical Plan, and replying to Dr. Paz's inquiry on diesel research.
 - b. Adjusted language in 3 draft FOI's.
 - c. Surveyed Phase II offices for ventilation flow patterns.
 - d. Assisted M&O personnel on North Portal ventilation.
 - e. Completed monthly non-conformance report.
 - f. Worked with Training on upgrading CPR/First Aid training programs.
 - g. Completed Fire Extinguisher inspection for all support area buildings.
 - h. Conducted 4 surveillances; UZ-16=1, SMF Trailer=1, N-31 Borehole=1; and Subdock=1.
 - i. Staff Member attending seminar for "OSHA Inspector."
 - j. Reviewed and commented on MGDS Requirements Documents.
 - k. Researched regulations on road berm requirements.
 - l. Sent letter to M&O requesting them to discontinue DAR on Draft AP 6.20.
 - m. Resolve final comments on AP 5.38.
 - n. Accompanied REECO Fire Inspection on annual inspection of FOC building.
 - o. Reviewed and commented on draft revision of New Employee Safety Orientation.
 - p. IH continued to review technical problems on vacuum drilling and ways to increase blower efficiency.

- q. Conducted 6 surveillances; Met Tower Building=1; UZ-16=1; SMF Trailer=1; N-31 Borholes=1; Fran Ridge Test Pit=1; and SMF Lab=1.
- r. Staff member attending seminar for "OSHA" Inspector.
- s. Inspected SMF cut-off saw ventilation system.
- t. Developed memo on REECO S&H accomplishment for last six months.

2. Raytheon Services, Nevada, (RSN)

A. Field Support

- a. Survey crew continued work on Area 25 control net.
- b. The Field Engineering Group checks the trench walls on a daily basis in order to determine suitability for continued operations.
- c. Survey of the geophysical lines is ongoing.
- d. N-63, N-33 and N-34 Drill Holes ready for survey. Completed except for calculations.
- e. Survey crew supporting UZ-16, Midway Valley Trenches (Magnetometer and Gravity Stations), Phase II of the Test Pits, and the Fran Ridge work.
- f. Issued nine (9) work initiations (WIs) in support of ongoing and upcoming Job Packages.
- g. Surveyed T4 and T6 trenches; only calculations and plotting remain.
- h. Field Engineering providing support to JP 91-9/Rev. 3, JP 92-12, JP 92-7 and JP 92-8.
- i. Current status of JP 92-2, "Test Pits" and JP 92-5, "Test Pits" is in progress.
- j. Electrical as-built of FOC, Building 4015 is ongoing.
- k. Support USGS Survey for leveling channels.
- l. Surveyed Midway Valley Test Pits, calculations remain.
- m. Priority was established for YMP Access Road. Work to be scheduled FY 93 (LOE).

SEP 30 1992

- n. GSF Test Pits are ready for survey.
- o. Surveyed Midway Valley Test Pits, calculations remain.

B. Quality Control

- a. Continued verification of activities on UZ-16 borehole utilizing the LM-300 Drill Rig.
- b. Monitored drilling at UZN-31 (CME-850 Rig).
- c. performed inspection activities on the following 44 test pits being excavated: GSF-TP-1, 2, 3, 4,, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39 and 13.
- d. Closed the following PKG's; and sent to vault: UZN-33; UZN-34; and UZN-63.
- e. Initiated verification activities on UZN-32 (CME-850 Rig).

3. Sample Management Facility, (SME/SAIC)

- a. Continued processing core and cutting from UZ-16.
- b. Recovered core and cuttings from UZN-31.
- c. Processing core and cuttings from UZN-31.
- d. Completed drilling operations on UZN-31.
- e. Completed processing core and cuttings from UZN-31.
- f. Initiated support for drilling operations for UZN-32.
- g. Began processing specimen removal request approved at September SOC meeting.

4. YMP Hydrologic Research Facility, (USGS)

- a. Normal data retrieval from instrumented holes on Yucca Mountain by Saturated Zone Group.
- b. Field personnel conducting neutron logging in the field.
- c. Meteorological Project collecting satellite data, precipitation data and synoptic scale weather chart information. Collection data from 8/11 storm.

SEP 18 1992

- d. Gordon Ratray at NTS for monitoring tracer gas injection at UZ-16 and observe core collection for hydrochemical studies.
 - e. Chris Menges and Patricia Riley in Stage Coach and Crater Flats Area for excavation of trenches and to support NRC tour.
 - f. Steve Beason and Mike Fahey, USBR, overseeing Test Pit Excavation on Fran Ridge.
 - g. John Whitney, Rick Spengler, John Struckless, and Jeff Coe at NTS for coordination and implementation of instrumentation platform build behind the HRF.
 - h. Joe Rousseau at HRF for coordination and implementation of instrumentation platform build behind the HRF.
 - i. John Wesling, Bert Swain, and Andy Thomas at NTS for Midway Valley excavations and to support NRC tour.
 - j. Alan Ramelli and Giovanni Naverro at NTS in support of trenching activities at Crater Flats.
 - k. Mick Moses and Brian Laird are in the Yucca Mountain are staking shot holes.
 - l. John Stuckless at NTS to support public tour, 9/26.
 - m. Paul Burger, USBR, at Yucca Mountain collecting field data.
 - n. Mike Chornack at NTS to participate in Open house Tour and conduct unsaturated-zone section administrative business.
 - o. John Czarniecki in Amargosa Desert to break in new field technician on water-level measuring and hydrochemical sampling.
5. Reynolds Electrical and Engineering Co., Inc., (REECO)

Activities conducted during week ending September 18, 1992:

A. Drilling

- a. JP 92-3, UZ-16, LM-300, cored to 694.55 feet, reamed to 679.03 feet. Transmission repair completed.
- b. JP 91-9, UZN-31, CME-850, cored to 94.54 feet, reamed to 79.44 feet. Lost 6 hours on 9/16 when pin broke and hammer and reamer had to be fished out of hole.

SEP 30 1992

B. Logistics

- a. Continued requisitioning supplies, materials, and services for YMP Field Operations Center.
- b. Made necessary arrangements for feeding, transportation, support, etc., in support of NWTRB and NRC tours.
- c. Picked up 40 foot trailer of excess office furniture from Tonopah Test Range for use on Ranch.

C. Construction

- a. JP 92-7, Fran Ridge Pit Mapping... REECO continued cleaning bedrock with high pressure air and water for mapping.

Activities conducted during week ending September 25, 1992:

A. Drilling

- a. JP 92-3, UZ-16, LM-300, cored to 759.24 feet, reamed to 724.01 feet.
- b. JP 91-9, CME-850, UZN-31 completed to a depth of 192.59 feet; cored and reamed. Moved rig and tools to UZN-32, rigged up, cored to 8.56 feet, reamed to 1.5 feet.

B. Logistics

- a. Continued requisitioning supplies, materials, and services for YMP Field Operations Center.
- b. Made necessary arrangements for feeding, transportation, support, etc., in support of four tours.
- c. Completed preparations for Open House Tour scheduled for 9/26.

c. Construction

- a. JP 92-7, Fran Ridge Pit Mapping... REECO continued cleaning bedrock with high pressure air and water for mapping.
- b. The cleaned bedrock has been accepted by the PI. REECO started to build road for platform truck access.
- c. JP 92-12, Quaternary Faulting... REECO completed fencing and installation of protective wire mesh at Trench SCFT-1.

SEP 30 1992

6. Los Alamos National Laboratory, (LANL)

- a. Fran Ridge Pit mapping continues.
- b. RSN completed classification analysis of design elements for Package 1A.

7. Documents and Records Center, (SAIC)

Activities during week ending September 18, 1992:

- a. Received and Issued to following Controlled Documents:
 - Job Packages - N/A
 - Specifications - N/A
 - Drawings - N/A
 - FCR 92/148, "Standard GSF Test Pit Dimensions."
 - Work Programs - N/A
- b. Reproduction:
 - 6261 pages copied
 - 71 drawings copied
- c. Issued 60 requested controlled documents.
- d. Issued 3 uncontrolled documents.
- e. DTAR logoffs: 94.
- f. Attended FOC Staff Meeting.
- g. Attended several meetings concerning up coming audit.

Activities during week ending September 25, 1992:

- a. Received and Issued to following Controlled Documents:
 - Job Packages - N/A
 - Specifications - N/A
 - Drawings - N/A
 - FCRs - N/A
 - Work Programs - N/A
- b. Reproduction:
 - 3219 pages copied.
 - 46 drawing copied.
- c. Documents Issued:
 - 10 controlled documents.
 - 18 uncontrolled documents.

Carl P. Gertz

-8-

SEP 30 1992

- d. DTAR logoffs: 69.
- e. Attended FOC Staff Meeting.

8. Field Training

- a. Standard First Aid Class was given to Tim Green at the REECO Medical Building.
- b. Tim Green permanently assigned as Site Training Coordinator.
- c. Standard First Aid class was given to 8 personnel.
- d. GET 1.2, 1.3, and 1.4 conducted, 4 attendees.
- e. GET 1.5 exams were administered, all passed.

Winfred A. Wilson

Winfred A. Wilson
Site Manager

YMP-WAW:382

cc:

R. M. Cameron, CRWMS M&O/YMSO, M/S 717
M. D. Voegele, SAIC, Las Vegas, NV
R. R. Schneider, SAIC/YMSO, M/S 717
G. K. Beall, SAIC, Las Vegas, NV
J. H. Peck, SAIC, Mercury, NV, M/S 719
C. J. Cotten, SAIC, Las Vegas, NV
I. R. Cottle, SAIC, Las Vegas, NV
M. B. Blanchard, YMP, Las Vegas, NV
R. V. Barton, YMP, Las Vegas, NV
J. R. Dyer, YMP, Las Vegas, NV
S. B. Jones, YMP, Las Vegas, NV
U. S. Clanton, YMP, Las Vegas, NV
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R. B. Baumeister, YMP/YMSO, M/S 717
R. J. White, YMP/YMSO, M/S 717
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~~Phil Justus, NRC, Las Vegas, NV~~



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Yucca Mountain Site Characterization
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WBS 1.2.7.4
QA: N/A

OCT 14 1992

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 October 2, 1992 and October 9, 1992:

1. Field Operations Center

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: United States Council for Energy Awareness; Realtor Association and the Senior Tripster.
- b. Site Manager participated in the preparation of the WBS 1.2.7. FY93 Budget presentation data prior to his formal meeting with the Project Manager and Deputy Manager, YMP.
- c. Provided operations support for field site characterization activities.
- d. Supported Open House tour of YMP facilities by providing drivers and other staff, field radios, vehicles and administrative and logistical support.
- e. Issued vehicles, first aid kits, fire extinguishers, and other necessary equipment personnel performing field duty.
- f. Site Emergency management Plan is in final revision, anticipate review initiation by 10/19.
- g. Performed survey of T&MSS and RSN employee's home locations in Las Vegas area to determine bus route and schedule for work commute.
- h. Received and installed G.I.S. Computer.
- i. Received, installed, and brought to an operational status the ORPS computer system.
- j. Supervised photography of 39 Crater Flats Test Pits.
- k. Set up Field mission to videotape and photograph MWV-T5 (the 500 meter trench-up to 200 negatives) to start 10/7/92.

OCT 14 1992

- l. The Bullfrog Planning Commission continuing with development of data base for Facilities Management Program.
- m. Drafted letter requesting surplus TTR "Chevron Camp" modular units; 5 office modules, cafeteria, and warehouse/medical clinic.

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

- a. Completed review and comment on MGDS Requirements Documents.
- b. Attended/Conducted monthly Safety & Health Advisory Committee Meeting.
- c. Worked on revision of WBS 1.2.13.2 and Project FY93 integrated budget for WBS 1.2.13.2.
- d. Resolved final comments on AP 5.38.
- e. Investigated work procedures for "Popper Pit" projects.
- f. Reviewed REECO procedures against OSHA requirements for work platforms.
- g. Recalculated data to develop lower flow rates for LM300 Hazvac ventilation.
- h. Conducted 5 surveillances; UZ-16=1, SMF Lab=1, N-32 Borehole=1; Cinder Core=1; and EG&G Trailers=1.
- i. Continued survey work on VBC Phase II Office Area.
- j. Stocked additional First Aid Kits.
- k. Obtained from REECO Medical a booklet on total medical services provided.
- l. Reviewed Job Package 92-12.
- m. Conducted indoor air quality survey of YMP information office, sampling to continue.
- n. Attended Fran Ridge Platform Mapping Pre-activity meeting.
- o. SHCD staff took physicals at REECO Medical, Mercury.
- p. Met with DOE and USGS representatives on upcoming seismic work. Discussed concerns on explosives - handling, transportation, and loading holes.

OCT 14 1992

- q. Worked on integrated budget.
- r. Wrote fire analysis paper on Field Operations Center building.
- s. Conducted fire extinguisher inspection of FOC, Building 4015, and Building 4522.
- t. Wrote memo to T&MSS Safety Manager concerning transport of employees who become ill. Policies and procedures need to be developed that are also applicable to participants.
- u. Held close-out meeting with USGS on Hazard Communication Program functional appraisal.
- v. Conducted 1 surveillance, A-24 Maintenance shop-1.
- w. Conducted survey work on VEC Phase II Office Area.
- x. Stocked additional First Aid Kits.
- y. Met with Field Test Coordinator and established method to ensure that IH personnel are aware of field activities.
- z. Conducted training on use of new type of respirator. Testing for effectiveness and worker acceptance.

2. Raytheon Services Nevada, (RSN)

A. Field Support

- a. Survey crew continued work on Area 25 control net.
- b. The Field Engineering Group checks the trench walls on a daily basis in order to determine suitability for continued operations.
- c. Survey of the geophysical lines is complete. Phase I & II calculations remain.
- e. Survey crew supporting UZ-16, Midway Valley Trenches (Magnetometer and Gravity Stations, field work complete), Phase II of the Test Pits, and the Fran Ridge work.
- f. Issued nine (9) work initiations (WIs) in support of ongoing and upcoming job packages.
- g. Surveyed T4 and T6 trenches; only calculations and plotting remain.
- h. Field Engineering providing support to JP 91-9/Rev 3, JP 92-12, JP 92-2 and JP 92-8.

OCT 14 1992

- i. Current status of JP 92-2, "Test Pits" submitted. JP 92-5, "Test Pits" is in progress.
- j. Electrical as-built of FOC, Building 4015 is complete. Drawing(s) changes(s) is ongoing.
- k. GSF Test Pits and N-31 are ready for survey.
- l. Surveyed Midway Valley Test Pits, Phases I & II. Calculations remain.
- m. Priority was established for YMP Access Road. Work to be scheduled FY93 (LOE).
- n. Busted Butte and NRG-1 pavement survey completed. Calculations remain.
- o. Fran Ridge pit and pavement ready for survey.

B. Quality Control

- a. Continued verification of activities on UZ-16 borehole utilizing the LM-300 Drill Rig.
- b. Continued verification activities at UZN-32 utilizing the CME-850 Rig.
- c. Verify the start of geophysical logging of NRG-1. Program and all work to be done by USBR.
- d. Closed four (4) exposure packages, BEW E1, E2, E3, and E4 (JP 92-12).
- e. Initiated NCR #RSN-Y-007 on exposure at NRG-1 Pad.
- f. Completed verification of fences around the following trenches for conditions: CF1, Trench 8, SCR-1, 2, 3, and SCF-1.

3. Sample Management Facility, (SMF/SAIC)

- a. Continued processing core and cuttings from UZ-16.
- b. Continued processing core and cuttings from UZN-31 and UZN-32.
- c. Laid out core from UZN-16 for examination by USGS.
- d. Processing approved specimens for LANL and USGS.

OCT 14 1992

4. YMP Hydrologic Research Facility, (USGS)

- a. Normal data retrieval from instrumented holes on Yucca Mountain by Saturated Zone Group.
- b. Field personnel conducting neutron logging in the field.
- c. Meteorological Project collecting satellite data, precipitation data and synoptic scale weather chart information.
- d. Pete Striffler at NTS for monitoring tracer gas injection at UZ-16 and observe core collection for hydrochemical studies.
- e. Alan Ramelli and Giovannie Navero at NTS in support of trenching activities at Crater Flats.
- f. Mike Chornack at NTS to participate in Open House Tour and conduct unsaturated-zone section administrative business.
- g. John Welsing and Andy Thomas with geometrics, in Midway Valley trenches collecting data.
- h. Ken Smith and Staff, UNR, at NTS collecting data and selecting new sites for seismic program.
- i. Bill Thorderson, Gary LaCain, Carol Loscot, Mark Kurmack, and John Kume, Denver, at HRF for training in and setting up Mass Low Calibration System in Calibration Lab.

5. Reynolds Electrical and Engineering Co., Inc., (REECO)

Activities conducted during week ending October 2, 1992:

1. Drilling

- a. JP 92-3, UZ-16, LM-300, cored to 799.18 feet, reamed to 780.14 feet.
- b. JP 91-9, CME-850, UZN-32, cored to 60.68 feet, reamed to 60.68 feet.

2. Logistics

- a. Continued requisitioning supplies, materials, and services for YMP Field Operations Center.
- b. Made necessary arrangements for feeding, transportation, support, etc. in support of tours.

OCT 14 1992

3. Constructions

- a. JP 92-12, Quaternary Faulting...REECO completed fencing, installation of protective wire mesh and private property signs at Trenches SCFT-1, CF-1 and T-8.
- b. JP 92-7, Fran Ridge Pit Mapping...REECO cleaned bedrock with high pressure air and water for mapping.
- c. JP 92-8, Soil and rock Test Pits, Phase II...REECO completed fencing the Test Pits in Midway Valley.

Activities conducted during week ending October 9, 1992:

1. Drilling

- a. JP 92-3, UZ-16, LM-300, cored to 819.20 feet, reamed to 815.15 feet. Using 12 1/4 inch trycon mill tooth bit in an attempt to reduce and/or stabilize the drift angle of the borehole.
- b. JP 91-9, CME-850, UZN-32, cored to 178.98 feet, reamed to 154.35 feet.

2. Logistics

- a. Continued requisitioning supplies, materials, and services for YMP Field Operations Center.
- b. Made necessary arrangements for feeding, transportation, support, etc., in support of ongoing tours.

3. Construction

- a. No activity.

6. Los Alamos National Laboratory, (LANL)

- a. No report submitted.

7. Documents and Records Center, (SAIC)

Activities during week ending October 2, 1992:

- a. Received and Issued to following controlled documents:

Job Packages - N/A
Specifications - N/A
Drawings - N/A

OCT 14 1992

FCRs - N/A
Work Programs - N/A

b. Reproduction:

4300 pages copied.
54 drawings copied.

c. Documents Issued:

12 controlled documents.
28 uncontrolled documents.

d. DTAR logoffs: 82.

e. Attended FOC staff meeting.

f. Audit conducted of DRC by Project Office Auditors.

Activities during week ending October 9, 1992:

a. Received and issued to following controlled documents.

Job Packages - N/A
Specifications - N/A
Drawings - YMP-025-9-CIVL-PL01, Rev. 1, "Borehole Site &
Grading Plan."

FCRs - FCR 93/003, "Addition of Test Pits to Soil and Rock
Phase II Excavations."
FCR 93/009, "Pavement Clearing at NRG-1."

Work Programs - N/A

b. Reproduction:

2242 pages copied.
56 drawings copied.

c. Documents Issued:

90 controlled documents
75 uncontrolled documents.

Carl P. Gertz

-8-

OCT 14 1974

8. Field Training

- a. Standard First Aid Class was given to 8 personnel.
- b. GET 1.2, 1.3 and 1.4 conducted, 4 attendees.
- c. 14 GET 1.5 exams were administered and all passed.
- d. Conducted the GET 1.5 refresher training for 5 personnel. All passed the refresher test.

Winfred A. Wilson

Winfred A. Wilson
Site Manager

YMP:WAW-394

cc:

R. M. Cameron, CRWMS M&O/YMSO, Mercury, NV
R. R. Schneider, SAIC/YMSO, Mercury, NV
G. K. Beall, SAIC, Las Vegas, NV
J. H. Peck, SAIC, Mercury, NV
I. R. Cottle, SAIC, Las Vegas, NV
M. B. Blanchard, YMP, Las Vegas, NV
R. V. Barton, YMP, Las Vegas, NV
J. R. Dyer, YMP, Las Vegas, NV
S. B. Jones, YMP, Las Vegas, NV
U. S. Clanton, YMP, Las Vegas, NV
J. T. Sullivan, YMP, Las Vegas, NV
R. B. Baumeister, YMP/YMSO, Mercury, NV
R. J. White, YMP/YMSO, Mercury, NV
W. R. Tunnell, YMP/YMSO, Mercury, NV
Phil Justus, NRC, Las Vegas, NV

bcc:

A. C. Bonk, REECO, Las Vegas, NV



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

WBS 1.2.3.5
QA: N/A

OCT 16 1992

Carl H. Johnson, State of Nevada, Carson City, NV
Phillip Niedzielski-Eichner, Nye County, Chantilly, VA
Dennis A. Bechtel, Clark County, Las Vegas, NV
Albert C. Douglas, City of Las Vegas, Las Vegas, NV
~~Philip S. Justus, NRC, Las Vegas, NV~~

DAILY OPERATIONS REPORTS AND WEEKLY INTERACTIONS CALENDAR

Enclosed for your information are copies of the Daily Operations Reports for Yucca Mountain Site Characterization Project drill holes UE-25 UZ16, and USW UZ N32 (enclosure 1). These reports were prepared by Raytheon Services Nevada and cover October 5-9, 1992.

A copy of the Weekly Interactions Calendar (enclosure 2) is enclosed for your information. It includes a section providing the status of boreholes, trenches, and test pits.

A copy of the field test coordinator's report (enclosure 3) summarizing activities of the previous week and forecasting the activities planned for the current week is also included for your information.

If you need additional information regarding these reports, please contact Uel S. Clanton at (702) 794-7943.

J. Russell Dyer, Director
Regulatory & Site Evaluation Division

RSED:USC-477

Enclosures:

1. Daily Operations Reports
2. Weekly Interactions Calendar
3. Field Test Coordinator's Report

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30
Date: October 12, 1992
Page: 1 of 1

Job Package No.: 92-03

Station: UE-25 UZ16

Drill Rig: LM300

Activity: Coring

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

REPORT FOR: October 9, 1992 (Rig Day 88)

<u>HOURS FROM - TO</u>	<u>OPERATIONS DESCRIPTION</u>
0800 - 0820	Service and warm up equipment.
0820 - 0900	Re-ream section from 799' to 819'.
0900 - 0940	Rig up and run deviation survey at 810', found deviation to be 2 degrees and 10 minutes off vertical using a 6 degree tool.
0940 - 1055	Trip in hole with core assembly.
1055 - 1130	Attempt to core, no air pressure at standpipe. Troubleshoot problem.
1130 - 1200	Lunch
1200 - 1251	Troubleshoot problem and determined drillcrew did not install connector tube in saver sub. Drillcrew inserted missing connector tube.
1251 - 1500	Core run #189 from 819.20' to 829.36' (115 min.) Rec. 9.8'
1500 - 1615	Core run #190 from 829.36' to 834.33' (55 min.) Rec. 4.9'
1615 - 1630	Shut down and secure rig.

NOTE: Full crew did not arrive until 0940 hrs because protestors had blocked the gate.

CORING: Average air rate 551 SCFM
 Average vacuum rate 1057 SCFM

REAMING: Average air rate 740 SCFM
 Average vacuum rate 1325 SCFM

Ending Depth:	Cored 834.33'	Reamed 819.20'	Drilled 0
Daily Footage:	Cored 15.13'	Reamed 00.00'	Drilled 0

Drilling Rep: Dick Sowards, REECO
A/E Rep: Richard Wright, RSN
Personnel On Site: 1-RSN; 8-REECO; 2-USGS; 3-SMF; 4-Visitors
Visitors On Site: RSN - Lindquist, Cunningham; SAIC - Scroggins, Roesner

Field Report Prepared By: Richard Wright
Office Report Prepared By: Richard Wright

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs
Date: October 12, 1992
Page: 1 of 1

Job Package No.: 91-9, Revision 3

Station: USW UZ N32

Drill Rig: CME-850

Activity: Rigging down and moving to new location

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately $\pm 180'$. 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

REPORT FOR: October 9, 1992 (Rig Day 13)

<u>HOURS FROM - TO</u>	<u>OPERATIONS DESCRIPTION</u>
0800 - 0830	Service and start up rig and equipment.
0830 - 0915	Rig maintenance, change oil and filters.
0915 - 0958	Down time due to protestors.
0958 - 1040	Ream cycle #13 from 188.74' to 207.41'.
1040 - 1119	Pull out of hole with Odex hammer laying down drill rods.
1119 - 1200	Rig down dust collection equipment from well head.
1200 - 1230	Lunch.
1230 - 1330	Secure hole around 5.5" casing while rigging down.
1330 - 1600	Rigging down and moving to new location.
1600 - 1630	Shut down and secure rig.

Average Air Rates: Coring N/A SCFM
 Reaming 292 SCFM

NOTE: FINAL REPORT. Total Depth 207.41'.

Ending Depth:	Cored 207.41'	Reamed 207.41'	Drilled 0
Daily Footage:	Cored 0	Reamed 18.67'	Drilled 0

Drilling Rep: Neal Walker, REECo

A/E Rep: James E. Anthony

Personnel On Site: 1-RSN; 4-REECo; 1-USGS; 1-Visitors

Visitors On Site: RSN - Lindquist

Field Report Prepared By: James E. Anthony

Office Report Prepared By: James E. Anthony

CORE RUNS, DATES, BITS	DRILLING RATE (ft/hr)			FRAC FREQ (/5 ft)		DEPTH / GRAPHIC LOG	LITHOLOGY/REMARKS
	0	10	20	0	50		
185 10/5/92	7.2			11		800	
186	4.8			9		805	
187	6.6			7		810	
188	6.0			8		815	
20.0/18.6 93%						820	
189 10/9/92	5.4			7		825	
190				6		830	
15.1/14.7 97%	5.4			13		835	
						840	
						845	

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30
Date: October 9, 1992
Page: 1 of 1

Job Package No.: 92-03

Station: UE-25 UZ16

Drill Rig: LM300

Activity: Trip in hole with core assembly

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

REPORT FOR: October 8, 1992 (Rig Day 87)

<u>HOURS FROM - TO</u>	<u>OPERATIONS DESCRIPTION</u>
0800 - 0832	Service and warm up equipment.
0832 - 0952	Continue ream cycle #60 from 815.15' - 819.20'.
0952 - 1104	Re-ream section from 799' to 819'.
1104 - 1130	Rig up and run deviation survey at 810', found deviation to be 2 degrees and 10 minutes off vertical using a 6 degree tool.
1130 - 1200	Pull out of the hole with dual wall drill pipe and tri-cone ream bit.
1200 - 1227	Lunch
1227 - 1320	Continue pulling out of the hole with dual wall drill pipe and tri-cone bit.
1320 - 1341	Survey mast.
1341 - 1351	Change out bottom hole assembly; remove tri-cone ream bit and make up open-centered ream bit.
1351 - 1500	Trip in hole with dual wall drill pipe and open-centered ream bit.
1500 - 1553	Tag tight hole at 799'. Ream bottom section of hole from 799' to 819'.
1553 - 1615	Rig up and run deviation survey at 810', found deviation to be 2 degrees and 10 minutes off vertical using a 6 degree tool.
1615 - 1630	Shut down and secure rig.
CORING:	Average air rate N/A SCFM Average vacuum rate N/A SCFM
REAMING:	Average air rate 769 SCFM Average vacuum rate 1480 SCFM

Ending Depth:	Cored 819.20'	Reamed 819.20'	Drilled 0
Daily Footage:	Cored 00.00'	Reamed 4.05'	Drilled 0

Drilling Rep: Dick Sowards, REECO
A/E Rep: Richard Wright, RSN
Personnel On Site: 2-RSN; 8-REECO; 2-USGS; 2-SMF; 3-Visitors
Visitors On Site: RSN - Lindquist; REECO - McDaniel; CLV/State - Douglas

Field Report Prepared By: Richard Wright
Office Report Prepared : Richard Wright

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs
Date: October 9, 1992
Page: 1 of 1

Job Package No.: 91-9, Revision 3

Station: USW UZ N32

Drill Rig: CME-850

Activity: Reaming

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately $\pm 180'$. 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

REPORT FOR: October 8, 1992 (Rig Day 12)

HOURS FROM - TO	OPERATIONS DESCRIPTION
0800 - 0828	Service and start up rig and equipment.
0828 - 0833	At USGS direction, a sinker bar with tissue taped to end was run to check for water. Tissue returned to surface dry.
0833 - 0855	Trip in hole with Odex hammer. Rig up to ream.
0855 - 0941	Ream cycle #11 from 154.35' to 178.98'.
0941 - 1022	Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rerun RSN #33, a Christensen carbonado. Rig up to core.
1022 - 1053	Core run #51 from 178.98' to 184.06' (21 mins) 5.1' Rec.
1053 - 1121	Core run #52 from 184.06' to 189.05' (17 mins) 5.0' Rec.
1121 - 1200	Core run #53 from 189.05' to 194.05' (25 mins) 5.0' Rec.
1200 - 1236	Lunch.
1236 - 1302	Core run #54 from 194.05' to 199.09' (17 mins) 5.0' Rec.
1302 - 1346	Core run #55 from 199.09' to 204.06' (34 mins) 4.6' Rec.
1346 - 1423	Core run #56 from 204.06' to 207.41' (25 mins) 0.4' Rec.
1423 - 1500	Pull out of the hole with coring assembly.
1500 - 1521	Trip in hole with Odex hammer. Rig up to ream.
1521 - 1600	Ream cycle #12 from 178.98' to 188.74'.
1600 - 1630	Shut down and secure rig.

Average Air Rates: Coring 420 SCFM
 Reaming 286 SCFM

NOTE: Total Depth 207.41'. Lorrie Flint for Allen Flint selected Total Depth.

Ending Depth:	Cored 207.41'	Reamed 188.74'	Drilled 0
Daily Footage:	Cored 28.43'	Reamed 34.39'	Drilled 0

Drilling Rep: Neal Walker, REECO

A/E Rep: James E. Anthony

Personnel On Site: 1-RSN; 4-REECO; 2-SMF; 2-USGS; 4-Visitors

Visitors On Site: RSN - Lindquist; SAIC - Moyer; REECO - McDaniel; CLV/NV - Douglas

Field Report Prepared By: James E. Anthony and David Putnam

Office Report Prepared By: James E. Anthony

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs
Date: October 8, 1992
Page: 1 of 1

Job Package No.: 91-9, Revision 3

Station: USW UZ N32

Drill Rig: CME-850

Activity: Tripping In with Odex hammer

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately $\pm 180'$. 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

REPORT FOR: October 7, 1992 (Rig Day 11)

HOURS FROM - TO	OPERATIONS DESCRIPTION
0800 - 0827	Service and start up rig and equipment.
0827 - 0851	Core run #41 from 134.81' to 139.94' (14 mins) 5.0' Rec.
0851 - 0910	Core run #42 from 139.94' to 145.21' (11 mins) 5.2' Rec.
0910 - 0931	Core run #43 from 145.21' to 150.38' (9 mins) 5.0' Rec.
0931 - 0950	Core run #44 from 150.38' to 154.35' (9 mins) 4.2' Rec.
0950 - 1025	Pull out of the hole with coring assembly.
1025 - 1045	Trip in hole with Odex hammer. Rig up to ream.
1045 - 1130	Ream cycle #10 from 129.83' to 154.35'.
1130 - 1206	Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rerun RSN #33, a Christensen carbonado. Rig up to core.
1206 - 1236	Lunch.
1236 - 1257	Core run #45 from 154.35' to 159.54' (15 mins) 5.1' Rec.
1257 - 1334	Core run #46 from 159.54' to 164.68' (22 mins) 5.1' Rec.
1334 - 1400	Core run #47 from 164.68' to 165.67' (10 mins) 1.0' Rec.
1400 - 1420	At USGS direction, a sinker bar with tissue taped to end was run to determine if perched water was present. No perched water present.
1420 - 1438	Ream core hole with core bit to knock off mud ring.
1438 - 1454	Core run #48 from 165.67' to 170.69' (9 mins) 5.1' Rec.
1454 - 1513	Core run #49 from 170.69' to 175.70' (10 mins) 5.0' Rec.
1513 - 1530	Core run #50 from 175.70' to 178.98' (9 mins) 3.0' Rec.
1530 - 1600	Pull out of hole with coring assembly.
1600 - 1630	Shut down and secure rig.

Average Air Rates: Coring 288 SCFM
 Reaming 303 SCFM

Ending Depth:	Cored 178.98'	Reamed 154.35'	Drilled 0
Daily Footage:	Cored 44.17'	Reamed 24.52'	Drilled 0

Drilling Rep: Neal Walker, REECo

A/E Rep: James E. Anthony

Personnel On Site: 2-RSN; 7-REECo; 2-SMF; 2-USGS; 5-Visitors

Visitors On Site: RSN - Cunningham; SAIC - Moyer, Wagner; Christensen - Duncan; DOE - Tunnell

Field Report Prepared By: James E. Anthony

Office Report Prepared By: James E. Anthony

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30
Date: October 8, 1992
Page: 1 of 1

Job Package No.: 92-03
Station: UE-25 UZ16
Drill Rig: LM300
Activity: Reaming

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

REPORT FOR: October 7, 1992 (Rig Day 86)

HOURS FROM - TO	OPERATIONS DESCRIPTION	
0800 - 0820	Service and warm up equipment.	
0820 - 1033	Continue reaming hole to bottom, tag 6½' of fill.	
1033 - 1110	Start compressor and ream 6½' of fill.	
1110 - 1200	Ream cycle #60	
1200 - 1230	Lunch	
1230 - 1615	Ream cycle #60 from 799.09' to 815.15'.	
1615 - 1630	Shut down and secure rig.	
CORING:	Average air rate	N/A SCFM
	Average vacuum rate	N/A SCFM
REAMING:	Average air rate	742 SCFM
	Average vacuum rate	1341 SCFM

Ending Depth:	Cored 819.20'	Reamed 815.15'	Drilled 0
Daily Footage:	Cored 00.00'	Reamed 16.06'	Drilled 0

Drilling Rep: Dick Sowards, REECO

A/E Rep: David Putnam & Richard Wright

Personnel On Site: 2-RSN; 9-REECO; 2-USGS; 2-SMF; 6-Visitors

Visitors On Site: RSN - Lindquist; REECO - Henze, Mason, Fulkerson; USGS - Sullivan; Christensen - Duncan

Field Report Prepared By: Richard Wright

Office Report Prepared : Richard Wright

CORE RUNS, DATES, BITS	DRILLING RATE (ft/hr)		HVAL FEED (/5 ft)		DEPTH / GRAPH	LITHOLOGY/REMARKS
	0	10	20	50		
185 10/5/92	7.2		11		800	
186	4.8		9		805	
187	6.6		7		810	
188	6.0				815	
20.0/18.6 93%					820	
					825	
					830	
					835	
					840	
					845	

KURS DATES BITS	CORE LOSS	DRILLING RATE (ft/hr)				FRAC FREQ (/5 ft)				DEPTH LOG FEET	LITHOLOGY / REMARKS
		0	10	20	30	0	50	100	150		
46		20.8								165	U232 LITHOLOGY / REMARKS
47		6								170	
48		34.8								175	
49		30.0								180	
50	44.2/43.8 99%	21.6								185	
										190	
										195	
										200	
										205	

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs
Date: October 7, 1992
Page: 1 of 1

Job Package No.: 91-9, Revision 3

Station: USW UZ N32

Drill Rig: CME-850

Activity: Coring

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately $\pm 180'$. 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

REPORT FOR: October 6, 1992 (Rig Day 10)

<u>HOURS FROM - TO</u>	<u>OPERATIONS DESCRIPTION</u>
0800 - 0815	Service and start up rig and equipment.
0815 - 0836	Pull out of the hole with coring assembly.
0836 - 0851	Trip in hole with Odex hammer. Rig up to ream.
0851 - 0940	Ream cycle #8 from 90.68' to 109.70'.
0940 - 1007	Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rerun RSN #33, a Christensen carbonado. Rig up to core.
1007 - 1058	Core run #36 from 109.70' to 114.74' (37 mins) 4.1' Rec.
1058 - 1135	Core run #37 from 114.74' to 119.81' (27 mins) 4.6' Rec.
1135 - 1200	Core run #38 from 119.81' to 124.82' (18 mins) 4.7' Rec.
1200 - 1230	Lunch.
1230 - 1308	Core run #39 from 124.82' to 129.83' (20 mins) 5.2' Rec.
1308 - 1413	Pull out of hole with coring assembly. Trip in hole with Odex hammer. Rig up to ream.
1413 - 1501	Ream cycle #9 from 109.70' to 129.83'.
1501 - 1528	Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rerun RSN #33, a Christensen carbonado. Rig up to core.
1528 - 1553	Core run #40 from 129.83' to 134.81' (16 mins) 4.9' Rec.
1553 - 1630	Shut down and secure rig.

Average Air Rates: Coring 315 SCFM
 Reaming 314 SCFM

Ending Depth:	Cored 134.81'	Reamed 129.83'	Drilled 0
Daily Footage:	Cored 25.11'	Reamed 39.15'	Drilled 0

Drilling Rep: Neal Walker, REECo

A/E Rep: James E. Anthony

Personnel On Site: 1-RSN; 5-REECo; 3-SMF; 1-USGS; 1-DOE; 6-Visitors

Visitors On Site: RSN - Cunningham, Lindquist; SAIC - Doyle; REECo - Ktzer, Metler; CLV/NV - Douglas.

Field Report Prepared By: James E. Anthony

Office Report Prepared By: James E. Anthony

RUNS DATES BITS	CORE LOG	(ft/hr)			(/ 5 ft)		DEPTH GRAPHIC LOG	LITHOLOGY/ REMARKS
		0	10	20	0	50		
		20	70	120	50	100		
28		2.8				55		
15.0/14.6 97%		2.3					75	
29 10/2/92			11.1			70		
30						61		
			12.6				85	
31						32		
15.0/12.9 86%			14.3				90	
10/5/92		3.9				55		
							95	
33			8.5			37		
							100	
34			9.7			47		
							105	
35			6.0			80		
19.0/15.5 82%							110	
10/6/92			8.2			54		
36							115	
37								

@90.0 ft. A moist vertical fracture.

@95.0 ft. Columner/Shardy Base Contact

@114.7 Shardy Base/Bedded Tuff Contact

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30
Date: October 7, 1992
Page: 1 of 1

Job Package No.: 92-03

Station: UE-25 UZ16

Drill Rig: LM300

Activity: Reaming in hole

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

REPORT FOR: October 6, 1992 (Rig Day 85)

HOURS FROM - TO	OPERATIONS DESCRIPTION
0800 - 0820	Service and warm up equipment.
0820 - 0832	Finish pulling out of the hole with core assembly.
0832 - 0839	Rig up to pull out of the hole with dual wall drill pipe.
0839 - 0958	Pull out of the hole with dual wall drill pipe.
0958 - 1107	Replace a 1/4" high pressure hydraulic control hose in derrick.
1107 - 1130	Finished pull out of the hole with dual wall drill pipe.
1130 - 1200	Lunch
1200 - 1304	Change out open-centered ream bit for a 12 1/4" mill tooth tri-cone bit.
1304 - 1615	Go in hole with dual wall drill pipe. Begin reaming hole at 340'.
1615 - 1630	Shut down and secure rig.
CORING:	Average air rate N/A SCFM
	Average vacuum rate N/A SCFM
REAMING:	Average air rate N/A SCFM
	Average vacuum rate N/A SCFM

Ending Depth: Cored 819.20' Reamed 799.09' Drilled 0
Daily Footage: Cored 00.00' Reamed 0' Drilled 0

Drilling Rep: Dick Sowards, REECO

A/E Rep: David Putnam & Richard Wright

Personnel On Site: 2-RSN; 9-REECO; 2-USGS; 2-SMF; 1-DOE; 4-Visitors

Visitors On Site: RSN - Cunningham, Clark, Lindquist; REECO - Henze; CLV/State - Douglas; SAIC - Scroggins

Field Report Prepared By: David Putnam & Richard Wright
Office Report Prepared By: David Putnam & Richard Wright

CORE LOGS	RUNS DATES	DRILLING RATE (ft/hr)		BITS	HKAC FREQ (/5 ft)	DEPTH/ GRAPH/ LOG
		0	10			
174	14.4/9.9 69%	20	70	20	0	755
175	9/25/92	20	13.8	120	50	760
176		20	7.2	120	50	765
177		20	6.6	120	50	770
178		20	7.2	120	50	775
179		20	3.0	120	50	780
180	23.4/17.8 76%	20	18.0	120	50	785
181	9/28/92	20	3.9	120	50	790
182		20	4.2	120	50	795
183		20	3.6	120	50	800
184	16.5/13.2 80%	20	12.0	120	50	

UE25 UZ#16 Page 19 Of
LITHOLOGY/REMARKS

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs
Date: October 6, 1992
Page: 1 of 1

Job Package No.: 91-9, Revision 3

Station: USW UZ N32

Drill Rig: CME-850

Activity: Tripping

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately $\pm 180'$. 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

REPORT FOR: October 5, 1992 (Rig Day 9)

HOURS FROM - TO	OPERATIONS DESCRIPTION
0800 - 0830	Service and start up rig and equipment.
0830 - 0856	Unable to start generator. Starter burned out. Safety meeting.
0856 - 0930	Pull out of hole with coring assembly. Trip in hole with Odex hammer. Rig up to ream.
0930 - 1037	Wait on starter for generator. Change out filters in dust collector. Install new starter. Install dust cap at well head.
1037 - 1125	Ream cycle #7 from 75.68' to 90.68'.
1125 - 1149	Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rerun bit RSN #33, a Christensen surface set carbonado, serial #2s27751. Rig up to core.
1149 - 1200	Begin core run #32 at 90.68'.
1200 - 1230	Lunch.
1230 - 1345	Core run #32 from 90.68' to 95.68' (76 mins) 4.6' Rec.
1345 - 1426	Core run #33 from 95.68' to 100.05' (31 mins) 2.4' Rec.
1426 - 1510	Core run #34 from 100.05' to 105.68' (35 mins) 4.9' Rec.
1510 - 1600	Core run #35 from 105.68' to 109.70' (40 mins) 3.6' Rec.
1600 - 1630	Shut down and secure rig.

Average Air Rates: Coring 297 SCFM
 Reaming 297 SCFM

Ending Depth: Cored 109.70' Reamed 90.68' Drilled 0
Daily Footage: Cored 19.02' Reamed 15.00' Drilled 0

Drilling Rep: Neal Walker, REECo

A/E Rep: James E. Anthony

Personnel On Site: 1-RSN; 9-REECo; 2-SMF; 1-USGS; 0-DOE; 3-Visitors

Visitors On Site: RSN - Cunningham, Ricks; SAIC - Pitterle.

Field Report Prepared By: James E. Anthony
Office Report Prepared By: James E. Anthony

RUNS DATES BITS	DRILLING RATE (ft/hr)			FRAC FREQ (/ 5 ft)		DEPTH GRAPHIC LOG	LITHOLOGY/ REMARKS
	0	10	20	0	50		
27	2.6			55		75	UZ32 LITHOLOGY/ REMARKS
28 15.0/14.6 97%	2.3						
29 10/2/92				70			
30				61		80	
31 15.0/12.9 86%				32		85	
32 10/5/92	3.9			55		90	e90.0 ft. A moist vertical fracture.
33							
34	9.7			37		95	e95.0 ft. Columnar/Sharpy Base Contact
35	6.0			75		100	
						105	
						110	
						115	

**RAYTHEON SERVICES NEVADA
DAILY OPERATIONS REPORT
YUGCA MOUNTAIN PROJECT**

Report Time: 7:30
Date: October 6, 1992
Page: 1 of 1

Job Package No.: 92-03
Station: UE-25 UZ16
Drill Rig: LM300
Activity: Reaming

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

REPORT FOR: October 5, 1992 (Rig Day 84)

HOURS FROM - TO	OPERATIONS DESCRIPTION
0800 - 0830	Service and warm up equipment.
0830 - 0940	Go in hole with core assembly. Ran a new Christensen Strata Pac Bit SN 2S-28385, RSN #15.
0940 - 1041	Pick up one joint of core pipe and prepare to core, pull out of hole with inner barrel, shorten barrel length, trip in hole with inner barrel.
1041 - 1149	Core run #185 from 799.18' - 807.35'(68 min), Rec 7.3'.
1149 - 1200	Retrieve core #185.
1200 - 1230	Lunch
1230 - 1239	Run inner barrel.
1239 - 1254	Core run #186 from 807.35' - 808.61',(15 min), Rec 1.2'.
1254 - 1317	Retrieve core #186.
1317 - 1353	Core run #187 from 808.61' - 812.67',(36 min), Rec 4.1'.
1353 - 1417	Retrieve core #187.
1417 - 1525	Core run #188 from 812.67' - 819.20',(68 min), Rec 6.0'.
1525 - 1535	Retrieve core #188.
1535 - 1613	Pull out of the hole with core assembly.
1613 - 1630	Shut down & Secure rig.

CORING: Average air rate 603 SCFM
Average vacuum rate 1045 SCFM

REAMING: Average air rate 0 SCFM
Average vacuum rate 0 SCFM

Ending Depth: Cored 819.20' Reamed 799.09' Drilled 0
Daily Footage: Cored 20.02' Reamed 0' Drilled 0

Drilling Rep: Jerry Fulkerson, REECO

A/E Rep: David Putnam & Richard Wright

Personnel On Site: 2-RSN; 8-REECO; 2-USGS; 2-SMF; 1-DOE; 4-Visitors
Visitors On Site: RSN - Cunningham, Ricks; REECO - Mc Daniel, Henze;

Field Report Prepared By: David Putnam & Richard Wright
Office Report Prepared By: David Putnam & Richard Wright

CORE RUNS, DATES, BITS	DRLING RATE (ft/hr)			FRAC FREQ (/5 ft)		NEEPS	LITHOLOGY/REMARKS
	0-20	20-70	70-120	0-50	50-100		
174 14.4/9.9 69%		19.8		48		755	
175 9/25/92		13.8		36		760	
176		7.2				765	
177		6.6		14		770	
178		7.2		25		775	
179		3.0		84		780	
180			18.0			785	
181 23.4/17.8 76%				12		790	
182 9/28/92		3.9		24		795	
183		4.2				800	
184		3.6		22			
10/5/92 16.5/13.2 80%		12.0					

CORE RUNS, DATES, BITS	\$51 WBS	DRILLING RATE (ft/hr)			FRAC FREQ (/5 ft)	DEPTH / GRAPH	UE2S UZ-16 LITHOLOGY/REMARKS
		0	10	20			
185 10/5/92		7.2			50	800	
186		4.8			50	805	
187		6.6			50	810	
188		6.0			50	815	
20.0/18.6 93%					50	820	
					50	825	
					50	830	
					50	835	
					50	840	
					50	845	

WEEKLY INTERACTIONS CALENDAR

STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/9/92

<u>DATE/LOC.</u>	<u>TOPIC</u>	<u>TECHNICAL LEAD (SUPPORT)</u>	<u>CONTACT (SUPPORT)</u>	<u>PARTICIPANT (SUPPORT)</u>	<u>COMMENTS</u>
10/14-15/92 Las Vegas, NV (Plaza Suite Hotel)	NWTRB Full Board	D. Harrison	Cooper (Hoffman-M&O)	M&O LLNL PNL	Source term; 1) Concept and release mechanisms, 2) spent fuel testing, 3) PA and design implications.
10/16/92 Las Vegas, NV	NWTRB Yucca Mountain Site Tour		Cooper (Hoffman-M&O)		
10/20/92 Las Vegas, NV	ACNW WG on Human Intrusion		Gil (LeRoy-M&O)		Discuss methodologies for assessment of potential for natural resources at YM, and relationship between such resources and potential for human intrusion.
10/21/92 Las Vegas, NV	ACNW 47th Meeting		Gil (LeRoy-M&O)		Agenda TBD.
10/22/92	ACNW GIS Tour		Gil (LeRoy-M&O)		Tour will take place in the morning only.
10/23/92	ACNW Yucca Mountain and NTS Tours		Gil (LeRoy-M&O)		Agenda TBD.

BOLD INDICATES REVISIONS AND NEW INFORMATION
**** = MEETINGS THAT ARE CLOSED TO THE PUBLIC**

WEEKLY INTERACTIONS CALENDAR

STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/9/92

<u>DATE/LOC.</u>	<u>TOPIC</u>	<u>TECHNICAL LEAD (SUPPORT)</u>	<u>CONTACT (SUPPORT)</u>	<u>PARTICIPANT (SUPPORT)</u>	<u>COMMENTS</u>
10/29/92 San Antonio, TX	NRC TE: CNWRA Functional Analysis of 10CFR60		Bjerstedt (LeRoy-M&O)	M&O	Discuss CNWRA activities related to regulatory and institutional uncertainties, definition of regulatory requirements, guidance on technical issues, and FCRG for LA.
11/4-6/92 Denver, CO (TENTATIVE)	NWTRB SG&G Panel Meeting		Cooper (Hoffman-M&O)	M&O	Discuss ESF and repository design.
11/16-17/92 Bethesda, MD	ACNW 48th Meeting		Gil (LeRoy-M&O)		Agenda TBD.
11/18/92 Bethesda, MD	ACNW WG Climate		Gil (LeRoy-M&O)		Discuss the potential for climate changes in Southern Basin and Range and the impact on natural processes affecting PA of potential repository at YM. Original scheduled 11/19/91, this has been rescheduled from 4/22/92.
Date and Location TBD Rockville, MD	Interaction Planning Meeting	Bjerstedt (LeRoy-M&O)	Bjerstedt (LeRoy-M&O)	M&O	Discuss/plan DOE/NRC interactions for first half 1993. Previously scheduled 11/18/92.

BOLD INDICATES REVISIONS AND NEW INFORMATION

**** = MEETINGS THAT ARE CLOSED TO THE PUBLIC**

WEEKLY INTERACTIONS CALENDAR

STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/9/92

<u>DATE/LOC.</u>	<u>TOPIC</u>	<u>TECHNICAL LEAD (SUPPORT)</u>	<u>CONTACT (SUPPORT)</u>	<u>PARTICIPANT (SUPPORT)</u>	<u>COMMENTS</u>
11/18-20/92 Albuquerque, NM	DOE Workshop on Expert Judgment	Dyer/Boak (Younker-M&O, Van Luik-M&O, Weaver-M&O)	Simmons (Hoffman-M&O)	M&O	Examine DOE's use of expert judgment for YMP, learn how other projects have used expert judgment, make recommendations for future use, fulfill NWTRB recommendation to hold workshop.
12/14-15/92 Rockville, MD	NRC TE: Total System Performance Assessment	Boak (Pahwa-M&O)	Bjerstedt (LeRoy-M&O)	M&O SNL PNL	
12/16/92 Bethesda, MD	ACNW WG on PA - Phase 2 HLW Interactive PA by NRC	Boak (Van Luik-M&O)	Gil (LeRoy-M&O)	M&O SNL	Will discuss progress of Phase 2 PA effort. Also will hear briefing from DOE on status of TSPA.
12/17-18/92 Bethesda, MD	ACNW 49th Meeting		Gil (LeRoy-M&O)		Agenda TBD.
Delayed to early 1993 Albuquerque, NM	NRC TE: Volcanism	Cooper (Jerez-M&O)	Bjerstedt (LeRoy-M&O)	M&O LANL	Discuss DOE volcanism studies as detailed in LANL report.

BOLD INDICATES REVISIONS AND NEW INFORMATION

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WEEKLY INTERACTIONS CALENDAR

STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/9/92

<u>DATE/LOC.</u>	<u>TOPIC</u>	<u>TECHNICAL LEAD (SUPPORT)</u>	<u>CONTACT (SUPPORT)</u>	<u>PARTICIPANT (SUPPORT)</u>	<u>COMMENTS</u>
Delayed to early 1993 (January) Albuquerque, NM	WIPP Roundtable discussion - NRC observation	Boak (Van Luik-M&O)	Bjerstedt (LeRoy-M&O)	M&O SNL PNL	NRC staff observe interaction between YMPO PA and WIPP PA. Previously scheduled 10/27/92.
Delayed to early 1993 (January) Carlsbad, NM	Tour of WIPP Site **	Boak (Van Luik-M&O)	Bjerstedt (LeRoy-M&O)	M&O	Previously scheduled 10/28/92.
1/5-6/93 Arlington, VA	NWTRB Full Board Meeting		Cooper (Hoffman-M&O)		M&O systems update and ESF and respository design follow-up.
2/93 or 3/93 TBD	NWTRB HG&G Panel Meeting		Cooper (Hoffman-M&O)		Agenda TBD.
4/20-23/93 Reno, NV	NWTRB Full Board Meeting		Cooper (Hoffman-M&O)		Agenda TBD.
6/1/93 TBD	NWTRB International Trip **		Cooper (Hoffman-M&O)		Agenda TBD.
7/12-15/93 Denver, CO	NWTRB Full Board Meeting		Cooper (Hoffman-M&O)		Agenda TBD.

BOLD INDICATES REVISIONS AND NEW INFORMATION

**** = MEETINGS THAT ARE CLOSED TO THE PUBLIC**

WEEKLY INTERACTIONS CALENDAR

STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/9/92

<u>DATE/LOC.</u>	<u>TOPIC</u>	<u>TECHNICAL LEAD</u> <u>(SUPPORT)</u>	<u>CONTACT</u> <u>(SUPPORT)</u>	<u>PARTICIPANT</u> <u>(SUPPORT)</u>	<u>COMMENTS</u>
10/19-22/93 Las Vegas, NV	NWTRB Full Board Meeting		Cooper (Hoffman-M&O)		Agenda TBD.

BOLD INDICATES REVISIONS AND NEW INFORMATION

**** = MEETINGS THAT ARE CLOSED TO THE PUBLIC**

WEEKLY INTERACTIONS CALENDAR

**DRILLING, TRENCHING, AND TEST PIT ACTIVITIES
10/9/92**

<u>DESIGNATION</u>	<u>PLANNED START DATE</u>	<u>PLANNED END DATE</u>	<u>BACKFILL DATE</u>	<u>YMPO SITE CONTACT</u>	<u>COMMENTS</u>
Midway Valley Investigations	7/22/92	8/7/92	N/A	Sullivan	Four (one additional is optional) gravity and Magnetic evaluation lines going East-West across Midway Valley were completed.
Soil and Rock Properties Test Pits (Phase II)	8/17/92	10/31/92	TBD	Williams	Excavate 41 test pits for engineering properties of planned roads, one each fields, and concrete aggregate sources. Data for design of ESF.
Fran Ridge Test Pit No. 1	8/24/92	9/15/92	N/A	Girdley	Bedrock excavation in Topopah by controlled blasting. Fracture network mapping will be undertaken.
Lathrop Wells Cinder Cone Volcanic Trenching	9/8/92	9/16/92	9/16/93	Cooper	Continuation of the volcanic studies.
Unsaturated Zone Borehole No. 16	5/27/92	3/24/93	N/A	Long	Unsaturated zone site characterization and vertical seismic profiling.

BOLD INDICATES REVISIONS AND NEW INFORMATION

**** = MEETINGS THAT ARE CLOSED TO THE PUBLIC**

WEEKLY INTERACTIONS CALENDAR

DRILLING, TRENCHING, AND TEST PIT ACTIVITIES
10/9/92

<u>DESIGNATION</u>	<u>PLANNED START DATE</u>	<u>PLANNED END DATE</u>	<u>BACKFILL DATE</u>	<u>YMPO SITE CONTACT</u>	<u>COMMENTS</u>
Neutron-Access Boreholes Phase II (12 boreholes)	8/3/92	TBD	N/A	Girdley	Core taken from these holes will be used by USGS for determination of moisture content and to construct tritium profiles.

BOLD INDICATES REVISIONS AND NEW INFORMATION

**** = MEETINGS THAT ARE CLOSED TO THE PUBLIC**



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

WBS 1.2.3
QA: N/A

OCT 15 1992

J. Russell Dyer, YMP, NV
Winfred A. Wilson, YMP, Mercury, NV, M/S 717

FIELD TEST COORDINATOR'S REPORT FOR THE WEEK ENDING OCTOBER 9, 1992

UZ-16

Scope of Activity: A borehole approximately 1700 feet in depth will be drilled using the LM-300 drilling system. The primary purpose of the hole will be for vertical seismic profile testing, although other tests such as air permeability, hydrogeochemistry, and matrix hydrologic properties are also being planned. Drilling is scheduled from May through December 1992, following pad construction in March 1992.

Status as of October 9, 1992: Borehole UZ-16 continues to be drilled with the LM-300 drill rig. Coring continued from 799.18 feet to 834.33 feet and the borehole was reamed from 799.09 feet to 819.20 feet. On October 8 and 9, 1992, deviation surveys were run at a depth of 810 feet using a 6 degree tool. Deviation of the hole was found to be 2 degrees and 10 minutes off vertical. A modified bottom drill string hole assembly and continued implementation of revised drilling procedures are being utilized in an attempt to return the borehole closer to vertical.

NEUTRON-ACCESS BOREHOLES

Scope of Activity: Approximately 24 shallow boreholes will be drilled/cored for neutron logging by the U.S. Geological Survey (USGS) in order to evaluate natural infiltration. Core taken from these holes will be used by USGS for determination of moisture content and to construct tritium profiles. The drilling operation utilizes an Odex drilling system, which produces HQ core and a cased hole having a diameter of approximately six inches. The drilling program is being implemented in two phases, each consisting of 12 boreholes that will take several months to complete.

Status as of October 9, 1992: Borehole USW UZN-32 was drilled with the CME-850 drill rig. It is the second of a pair of holes adjacent to each other in Split Wash near the trace of the Ghost Dance fault. Core was taken for the interval from 90.68 feet to 207.41 feet at which depth the hole was terminated. The hole was extended beyond the 180 foot target depth in order to penetrate into the Topopah caprock. The borehole was reamed from 75.68 feet to 207.41 feet. Total hole depth for USW UZN-32 is 207.41 feet. SF₆ tracer gas was injected during drilling operations. Upon completion of drilling at drill hole USW UZN-32, the CME-850 drill rig and support equipment was mobilized to drill hole USW UZN-35. Drilling will commence at this new hole location the week of October 12, 1992.

OCT 15 1992

QUATERNARY FAULTING WITHIN THE SITE AREA INVESTIGATIONS

Scope of Activity: Pavements and trenches will be excavated to provide exposures of Quaternary deposits and faults for mapping by geologists from the USGS as described in Study Plan 8.3.1.17.4.6 Quaternary Faulting in the Site Area. Planned activities include excavation of new trenches and modification of existing trenches on the Windy Wash fault, Solitario Canyon fault, and Stagecoach Road fault, and modification of existing exposures of the Paintbrush Canyon fault west of Busted Butte in the sand ramps by developing pavements.

Status as of October 9, 1992: Geologic mapping, sampling, and interpretation continues on trench excavations completed during previous weeks in Midway Valley and Solitario Canyon.

SOIL AND ROCK PROPERTIES

Scope of Activity: Objectives of this investigation are to characterize the soil and rock conditions that will influence or be influenced by the construction of the Exploratory Studies Facility surface and subsurface access facilities. This activity is comprised of a total of 32 test pits and one drill hole (NRG-1). Ongoing Phase II activities include 41 additional test pits and pavement clearing at NRG-1.

Status as of October 9, 1992: Two test trenches were sited at the proposed location of the pumping plant. Soil materials sampling and ring density tests are to be conducted at these trench locations.

CHARACTERIZATION OF STRUCTURAL FEATURES IN THE SITE AREA

Scope of Activity: Objectives of this investigation are to conduct prototype work for development of equipment and techniques for shaft mapping in the Exploratory Studies Facility. Developmental work is to be completed in an enlarged and deepened circular test pit on the east side of Fran Ridge. The area around the pit disturbed during the original excavation will be cleaned to the rock surface for use in pavement studies for Surface Fracture Network Studies.

Status as of September October 9, 1992: No work was completed during this period.

OCT 15 1992

VOLCANISM EXCAVATIONS

Scope of Activity: Test pits and trenches will be excavated at the Lathrop Wells Volcanic Center and at the Cima volcanic field in order to test alternative models of eruptive histories of cinder cone volcanic activity. The excavations will provide exposures of volcanic materials (lava flows, pyroclastic deposits) and soils for examination and collection of samples. Planned activities include collection of samples for age determinations by multiple methods, description and collection of samples for evaluation of soil development on volcanic units, exposure of contact relations to aid stratigraphic studies for mapping of volcanic centers, and collection of samples for petrologic analysis.

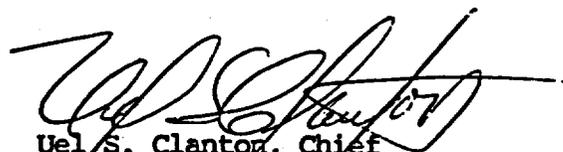
Status as of October 9, 1992: Preparations continue for additional excavations October 16 through 21, 1992, on the north flank of the Lathrop Wells Cone. Examination, documentation, and interpretation of geologic conditions exposed during these excavations will be performed concurrently with excavation operations due to the instability of excavation slopes and previous inability to preserve the excavation walls intact. A trench box will be available on location during excavation operations and utilized if conditions warrant.

BOREHOLE SECURITY

Scope of Activity: Objectives of this activity are the locking and securing of boreholes drilled during site characterization efforts and tracking of testing conducted in individual boreholes. Over 200 boreholes will be secured during the next several months.

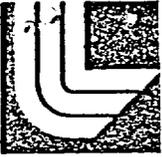
Status as of October 9, 1992: Borehole caps and locks were installed on 12 existing boreholes.

If you have any questions, please contact Kenneth J. Skipper at 794-7944.



Uel S. Clanton, Chief
Site Investigations Branch
Regulatory & Site Evaluation Division

RSED:KJS-464



Lawrence Livermore National Laboratory

LLYMP9210066
October 15, 1992

WBS 1.2.9
"QA: N/A"

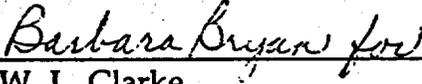
Carl Gertz, Project Manager
Department of Energy
Yucca Mountain Project Office
P.O. Box 98518
Las Vegas, Nevada 89193-8518

SUBJECT: Yucca Mountain Project Status Report - September 992
SCP: N/A

Attached is the September 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 510-422-7854 or Jim Blink in Las Vegas at 702-794-7157.

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
OCTOBER 1992 TECHNICAL HIGHLIGHTS AND STATUS REPORT
TABLE OF CONTENTS

1.2.1 Systems

- WBS 1.2.1.1 Management and Integration
- WBS 1.2.1.2.4 Systems Engineering Implementation
- WBS 1.2.1.3.5 Technical Database Input (Revelli)

Performance Analyses (Halsey)

- WBS 1.2.1.4.2 Waste Package Performance Assessment (Halsey)

Geochemical Modeling

- WBS 1.2.1.4.5 Geochemical Modeling & Database Development (Wolery/Johnson)
- WBS 1.2.1.4.7 Supporting Calculations for Postclosure Performance Analyses

1.2.2 Waste Package

- WBS 1.2.2.1 Management and Integration Waste Package Environment (Wilder)
- WBS 1.2.2.2.1 Chemical & Mineralogical Properties of the Waste Package (Glassley)
- WBS 1.2.2.2.2 Hydrologic Properties of Waste Package Environment (Buscheck)
- WBS 1.2.2.2.3 Mechanical Attributes of the Waste Package Environment (Blair)
- WBS 1.2.2.2.4 EBS Field Tests (Lin)

Waste Form & Materials Testing (Stout/Clarke)

- WBS 1.2.2.3.1.1 Waste Form Testing - Spent Fuel (Stout)
- WBS 1.2.2.3.1.2 Waste Form Testing - Glass (Bourcier)
- WBS 1.2.2.3.2 Metal Barriers (Clarke)
- WBS 1.2.2.3.4.1 Integrated Radionuclide Release: Tests and Models (Viani)
- WBS 1.2.2.3.4.2 Thermodynamic Data Determination (Silva)

Engineering & Systems Analyses (Clarke)

- WBS 1.2.2.4.1 Waste Package Design (Clarke)
- WBS 1.2.2.4.2 Container Fabrication & Closure Development (Clarke)
- WBS 1.2.2.4.3 Container/Waste Package Interface Analysis (Clarke)

1.2.5 Regulatory and Institutional

- WBS 1.2.5.2.1 NRC Interaction Support (Blink)
- WBS 1.2.5.2.2 Site Characterization Program (Blink)
- WBS 1.2.5.2.4 Technical Support Documentation (Blink)
- WBS 1.2.5.2.5 Study Plan Coordination (Blink)
- WBS 1.2.5.2.6 Semi-Annual Progress Reports (Campbell)

1.2.9 Project Management

- WBS 1.2.9.1.1 Management (Clarke)
- WBS 1.2.9.1.4 Records Management (Bryan)
- WBS 1.2.9.2 Project Control (Podobnik)
- WBS 1.2.9.3 Quality Assurance (Wolfe)

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

SEPTEMBER 1992

EXECUTIVE SUMMARY

(Items Proposed for Reporting in YMPO or OGD Reports)

- 1) WBS 1.2.1.4.2 (Waste Package Performance Assessment). The manual entitled "PANDORA 1.1 User's Manual" by L. Lewis and C. Hardenbrook was submitted for internal LLNL-YMP review.
- 2) WBS 1.2.2.2.1 (Chemical and Mineralogical Properties of the Waste Package Environment). Calculations of the coupling between hydrology and geochemistry are being made for elevated temperatures in the saturated zone. Results show a promising suite of sorptive minerals would be formed, providing a new barrier to radionuclide transport.
- 3) WBS 1.2.2.2.2 (Hydrologic Properties of the Waste Package Environment). A new option to the EXTOOL postprocessor for V-TOUGH tracks variable changes in a Lagrangian reference frame. This feature allows the user to specify a moving reference frame with a specified velocity and averaging volume to obtain the temperature history of moving packets of fluid. These data permit scoping calculations of geochemical changes which occur due to temperature changes.
- 4) WBS 1.2.2.2.2 (Hydrologic Properties of the Waste Package Environment). The impact of repository-heat-driven flow on hydrological performance has been described as a series of hydrothermal flow regimes (HFRs). Three major HFRs have been identified, with HFR I corresponding to when boiling (and possibly condensate flow) dominate hydrological performance, HFR II corresponding to the post-boiling period when the fluid distribution and intrinsic hydrological properties are still significantly altered by the repository heat, and HFR III which occurs when repository heat no longer affects hydrological performance.
- 5) WBS 1.2.2.2.4 (Engineered Barrier System (EBS) Field Tests). A draft plan for a laboratory 3x3x3 m heated block experiment was informally submitted to YMPO. The Fran Ridge test pits were identified as a potential source of 1-M³ blocks to be used to conduct the experiment.
- 6) WBS 1.2.2.3.1 (Waste Form). A letter discussing the options of disposing of some MCC spent fuel testing materials in the hot cell of PNL Bldg. 324 was prepared. The letter provides a cost estimate of future archival activities at MCC.

1.2.1 SYSTEMS

1.2.1.1 Management and Integration

No significant activities.

1.2.1.2 Systems Engineering

1.2.1.2.4 Systems Engineering Implementation

No significant activities.

1.2.1.2.5 Configuration Management and Plans and Procedures Control

LLNL-YMP reviewed its controlled documents for the following Affected Document Notices (ADNs), and no LLNL-controlled documents are affected:

- 1) CR 92/096, YM MGDS Requirements, R1
- 2) CR 92/098, ESFDR, R 7/2/92
- 3) CR 92/100, YM MGDS RDR, R1 and
- 4) CR 92/109, RECOMP, R4.

Comments by LLNL-YMP were submitted on the proposed "OCRWM Standards for Configuration Item (CI) and CI Identifiers/OCWRM Standard for Document Identifiers" to OCWRM on September 25.

The following IMOUs have been reviewed by LLNL-YMP staff, and no LLNL-controlled documents are impacted by these IMOUs and actions:

- 1) IMOU 330011, "Determine Impact of Materials, Fluids and Tracers Used During Construction and Testing of ESF Related Activities Only"
- 2) IMOU 630004, "Tracer Study Input",
- 3) IMOU 660015, " ESF Alternative Studies" and
- 4) IMOU 660025, "Title I Design Summary Report".

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

J. Blink attended the Technical Database Administrators meeting in Las Vegas on September 10.

1.2.1.4 Performance Assessment

1.2.1.4.2 Waste Package Performance Assessment

The manual entitled "PANDORA 1.1 User's Manual" by L. Lewis and C. Hardenbrook was submitted for internal LLNL-YMP review. This completes an internal deliverable.

The report entitled "Post-Closure Performance Assessment of Waste Packages for the Yucca Mountain Project" by W. O'Connell, T. Ueng and L. Lewis was submitted for internal LLNL-YMP review. This completes an internal deliverable.

1.2.1.4.5 Geochemical Modeling and Data Base Development

The first of the four geochemical code user manuals entitled "EQ3/6, A Software Package for Geochemical Modeling of Aqueous Systems: Package Overview and Installation Guide, Version 7.0, Part I" by T. Wolery was approved by YMPO on September 2 and will be published in October. The second geochemical code user manual (EQPT User's Guide) was revised in response to the reviewer's comments and is being re-reviewed. The third geochemical code user manual (EQ3NR Theoretical Manual and User's Guide) was sent to YMPO for programmatic approval. The fourth geochemical code user manual (EQ6 Theoretical Manual and User's Guide) is being reviewed internally.

An E-mail communication was received from B. McGrail (PNL) describing a potential problem with regard to the EQ3NR code. A response containing analysis and recommendations was sent via E-mail.

Transfer began of the GEMBOCHS database and software library from the local Sun 3/260 server (node s33 of the local Sun network) to a new, dedicated Sun SPARCstation2 (node s60). Completion of this transfer will result in dramatically improved performance for each database and software module of the GEMBOCHS system. The following activities were completed:

- 1) Node s60 was installed on the local network,
- 2) Ingres V6.4 was loaded, and
- 3) DBAPP and D0OUT were successfully ported to the new hardware platform.

Local beta testing of CNGBOCHS was completed and will be ported to node s60 for unrestricted local and outside use next month.

Seven element catalogs were generated that summarize current GEMBOCHS data for Am, Ni, Np, Pu, Tc, U and Zr species at the request of the Thermodynamic Data Determination task.

M. Schmidt (SAIC, Metairie, LA) visited LLNL on September 1 and was given an overview of the GEMBOCHS database and software library.

The document entitled "CNGBOCHS: an Integrated Ingres-Email-Interleaf System for Processing Change Requests Associated with the GEMBOCHS Thermodynamic Database and EQ3/6 Software Package" by S. Daveler, S. Lundeen and J. Johnson has been submitted for internal review.

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

W. Clarke, D. Ruffner and J. Blink participated in the Thermal Loading Task Force meetings held in Las Vegas on September 1.

J. Blink attended the Heater Test Duration meeting In Las Vegas on September 10.

B. Viani attended a meeting of the Geochemistry Integration Team (GIT) on September 17 in Las Vegas. Discussion centered around action items related to the December 1991 meeting dealing with performance assessment and geochemistry and on the colloid workshop to be held in May 1993.

1.2.2.2 Waste Package Environment

1.2.2.2.1 Chemical and Mineralogical Properties of the Waste Package Environment

Calculations of the coupling between hydrology and geochemistry are being made for elevated temperatures in the saturated zone. Results show a promising suite of sorptive minerals would be formed, providing a new barrier to radionuclide transport.

1.2.2.2.2 Hydrologic Properties of the Waste Package Environment

Model Calculations

Staff continued the preliminary scoping calculations of the hydrothermal performance of the repository using the RIB Version 4 thermal conductivity data, and using the new model which includes hydrothermal flow in the upper 1000 m of the saturated zone (SZ) as well as within the unsaturated zone (UZ). Several pairs of cases having the same Areal Mass Loading (AML, expressed in metric tons of uranium per acre), but different Areal Power Density (APD, expressed in kW/acre) and fuel age were compared. As has been seen in earlier studies, the duration of boiling is primarily determined by the AML. For example, two cases having an AML of 156 MTU/acre were considered. For 30-yr-old fuel and an APD of 114 kW/acre, the duration of boiling (t_{bp}) is 11,500 years while for 60-yr-old fuel and an APD of 71.74 kW/acre, t_{bp} is 13,000 years. Incidentally, the peak repository temperature (T_{peak}) for the 30-yr-old 114 kW/acre case is 202°C while T_{peak} for the 60-yr-old 71.74 kW/acre case is only 180°C. For an AML of 78 MTU/acre, the 30-yr-old 57 kW/acre case has a t_{bp} of 3600 years while the 60-yr-old 36.23 kW/acre case has a t_{bp} of 3000 years.

Laboratory Experiments

The calibration of the resonant cavity designed to measure the relative humidity in a rock sample has been delayed due to an instrumentation problem.

The determination of the characteristic curves of the eight disc-type Topopah Spring tuff samples from the U3hg-1 hole at a depth of 1312 feet and of the five Grouse Canyon tuff samples from G-Tunnel (NTS) continued. A room-temperature constant humidity chamber was used. Measurements have been completed for the imbibition phase up to 98% relative humidity, at 20°C. The samples are in the draining phase at 75% relative humidity. Measurements will continue next month.

The sample holder to be used for measuring electrical resistivity as a function of moisture content at elevated temperatures has been fabricated. The purpose of the measurement is to generate calibration curves of electrical resistivity of Topopah Spring tuff samples with respect to moisture content so that the laboratory and field determined resistivity can be interpreted in terms of degree of water saturation. One of the four Topopah Spring tuff samples has been jacketed and mounted in the sample holder. The measurement of electrical resistivity will be started next month.

Model Development & Documentation

T. Quinn and S. Daveler corrected a minor bug in the time-history subroutine in the V-TOUGH code.

Problems continue with the poor turnaround time on the NERSC Crays. The NERSC recently added a new Cray YMP C90. V-TOUGH will soon be ported to the C90 to determine whether improved turnaround time can be obtained.

S. Daveler added new features to EXTOOL to improve its ease of use and to broaden the range of options. A notable new option is the ability to track variable changes in a Lagrangian reference frame. This feature allows the user to specify a moving reference frame with a specified velocity and averaging volume (i.e., the volume of a moving packet). The initial purpose of this capability is to obtain the temperature history of moving packets of fluid in order to conduct scoping calculations of geochemical changes which occur due to temperature changes. The first application of this capability will be the upper saturated zone where significant temperature changes occur due to repository heating.

Hydrothermal Flow Regimes

T. Buscheck and J. Nitao met with W. Nelson (M&O/Intera) on September 22 at LLNL to discuss the development of a methodology for demonstrating that critically important features and processes are adequately represented in the detailed hydrological models which are the basis for performance assessment models. Nelson feels that it is imperative that the next iteration of the Performance Assessment Computational Exercises (PACE) include the impacts of repository-heat-driven hydrothermal flow on hydrological performance.

The critically important hydrological processes, and the necessary level of detail required to represent them, change with time after waste emplacement because of the evolving impact of repository heat. The impact of repository-heat-driven flow on hydrological performance has been described as a series of hydrothermal flow regimes (HFRs). Three major HFRs have been identified; with HFR 1

corresponding to when boiling (and possibly condensate flow) dominate hydrological performance, HFR II corresponding to the post-boiling period when the fluid distribution and intrinsic hydrological properties are still significantly altered by the repository heat, and HFR III which occurs when repository heat no longer affects hydrological performance.

Each of the first two major hydrothermal flow regimes can be divided into two subregimes. HFR Ia pertains where boiling and condensate flow dominate (or significantly influence) hydrological performance. HFR Ib occurs when boiling conditions have extended sufficiently far away from the waste package (WPs) so that boiling conditions dominate the hydrological performance at the WP environment. For HFR Ib, liquid-phase fracture flow in the vicinity of the WP is extremely unlikely.

During HFR II, fluid flow is dominated by the residual effects of rock dry-out and condensate buildup. These residual thermally-driven effects can also be divided into two categories; HFR IIa involves the impact of fluid redistribution (i.e., the residual dry-out and condensate zones), and HFR IIb involves the repository-heat-driven alteration of the intrinsic properties of the hydrologic-geochemical system (e.g. alteration of matrix permeability due to dehydration). HFR IIa persists as long as fluid saturations are in the process of being re-equilibrated back to a distribution which is dominated by ambient conditions. HFR IIb persists as long as some of the intrinsic hydrologic-geochemical properties (e.g. matrix permeability) have not been restored to their pre-emplacement values. The final hydrothermal flow regime, HFR III, pertains to when the fluid saturation distribution is dominated by ambient conditions, and the intrinsic hydrological-geochemical properties have been restored to pre-emplacement values. If the climatic conditions have not changed, HFR III is the same as the pre-emplacement ambient flow. It is likely that conditions for HFR III will never be attained.

For thermal loading conditions which generate marginal boiling performance, conditions for HFR Ib will never be attained. Instead there will be a transition from HFR Ia to HFR IIa. For thermal loading conditions which do not result in boiling conditions at any location within the repository horizon, HFR I will not occur. However, HFR IIa, IIb, and III pertain as they did for the scenarios with either boiling-dominated performance (HFR Ib) or mixed boiling/condensation conditions (HFR Ia).

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" was sent to the M&O for completion of the records package and for transmittal to OCRWM and NRC.

Input was prepared for issues assigned to the Thermal/Mechanical Effects Task Force for summarizing of repository thermal load issues.

1.2.2.2.4 Engineered Barrier System (EBS) Field Tests

A draft plan for a laboratory 3x3x3 m heated block experiment was informally submitted to YMPO. The Fran Ridge test pits were identified as a potential source of 1-M³ blocks to be used to conduct the experiment.

The first draft of Study Plan 8.3.4.2.4.4 "Engineered Barrier System Field Tests" has been completed. The internal review process will be started soon.

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

This WBS element has not been funded in FY92.

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

R. Stout, S. Steward (LLNL), W. Gray, L. Thomas and R. Einziger (PNL) participated in the Atomic Energy of Canada Limited (AECL) meeting in Pinawa, Canada on September 17-18. Progress was reported on work completed since the previous meeting in February of this year.

R. Einziger and PNL staff met with R. Stout, J. Podobnik (LLNL) and B. Fisher on September 25 at PNL to discuss the Mission 2001 spent fuel oxidation budget and scope for the next five years. Preparations were made for the dry run for the upcoming NWTRB meeting scheduled for Las Vegas October 14-15.

Spent Fuel Dissolution

Work began on UO₂ dissolution experiments at LLNL at 75°C, 20% oxygen and various pH's and carbonate concentrations. These experiments are part of the existing test matrix. Work also began on the long-term studies of UO₂ powder dissolution in carbonate solutions with and without sodium chloride (0.1M). Dissolution experiments on UO₂ crystals at oxygen concentrations less than 20% will begin in October.

Flow-through testing with spent fuel specimens at reduced oxygen fugacities continues to progress normally at PNL under the approved test matrix.

W. Gray (PNL) visited the spent fuel research laboratory at Studsvik, Sweden on September 21 and participated in the International Spent Fuel Workshop at Visby, Sweden on September 23-25. A growing feeling is shared by researchers from the various participating countries that important spent fuel dissolution issues are becoming better focused and are being resolved to ensure safe disposal of spent fuel.

Spent Fuel Oxidation

The drybaths continue to run. No new work is being initiated at this time.

Technical papers discussing spent fuel oxidation were sent to C. Frost (Ontario Hydro) by PNL as requested.

Materials Characterization Center (MCC) Hot Cell Activities

A letter discussing the options of disposing of some MCC spent fuel testing materials in the hot cell of PNL Bldg. 324 was prepared. The letter provides a cost estimate of future archival activities at MCC.

Work continues to complete the report "Spent Fuel Acquisition Plan".

1.2.2.3.1.2 Waste Form Testing - Glass

D-20-27 Unsaturated Testing of WVDP and DWPF Glass

The N2 tests (SRL actinide-doped glass) continue with no sampling period occurring this month. These tests have been in progress for 340 weeks. The N3 tests (ATM-10, a West Valley actinide-doped glass) continue and have been in progress for 258 weeks.

D-20-31 Studies of Glass Surface Layers and Precipitation

Detailed analyses of a suite of four low-temperature vapor-hydrated samples have been completed. The glass composition studied was SRL 131 which is one of the less durable formulations. The samples had been reacted for time periods up to three years. For each sample, a hydrated layer was found, and the composition and crystallinity of the layer was determined. While it is not possible to define a kinetic relationship for the low-temperature vapor alteration of glass from this limited number of samples, it is clear that the reaction in vapor proceeds at about the same initial rate as in liquid water and that alteration of glass will occur at 75°C.

1.2.2.3.2 Metal Barriers

The paper entitled "Selection of Candidate Container Material for the Conceptual Waste Package Design for a Potential High Level Nuclear Waste Repository at Yucca Mountain" by R. Van Konynenburg, W. Halsey, R. McCright, J. Farmer, W. Clarke and G. Gdowski is in internal technical review.

The paper entitled "Modeling Pitting Corrosion Damage of High-Level Radioactive Waste Containers, with Emphasis on the Stochastic Approach" by G. Henshall, W. Halsey, W. Clarke and R. McCright is in internal technical review.

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

Operational Safety Procedures (OSPs) for the x-ray diffractometer and the flow-through apparatus were amended and finalized.

Determination of Elemental Profiles in Rocks, Minerals, and Glasses using the Ion Microscope

Because of the low level of alpha activity in the tuff core wafers, it has been difficult optimizing exposure and development times. An alpha sample with sufficient activity (lantern mantle) was obtained and its alpha emission measured. This sample will be used to optimize the autoradiography technique.

Samples of clinoptilolite single crystals to be used in elevated temperature diffusion experiments were evaluated using light microscopy.

Interactions of Actinide-bearing Solutions with Rock Core Samples

Samples of the inflow and outflow solutions from the core flow apparatus were examined using TEM to look for evidence of organic and inorganic particles. Based on particle morphology, outflow solutions collected at two flow rates at room temperature contained both inorganic and organic particles. The organic particles were all similar and appeared to be bacteria. Their concentration was significantly greater at the higher flow rate. Thus, the reduction in permeability in the core (previously noted in August 1992) is apparently due to plugging caused by microbial growth. Samples of the outflow solution from the apparatus run at 150°C were also examined. In addition to particles with bacterial morphology, other particles indicative of pieces of organic material were also present. The inorganic particles present in all the outflow solutions were similar in morphology to the particles identified previously in J-13 and other NTS waters.

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

Electronic and paper copies of drawings made in FY92 were prepared for transition to the M&O.

1.2.5 REGULATORY AND INSTITUTIONAL

1.2.5.2 Licensing

1.2.5.2.1 NRC Interaction Support

At the direction of W. Simecka (YMPO) Version 7.1 of the EQ3/6 software package and a set of the pre-release code manuals were transmitted to R. Luce of the technical staff of the Nuclear Waste Technical Review Board (NWTRB).

T. Buscheck, W. Glassley and other LLNL staff members met with NWTRB member P. Domenico and NWTRB staff member R. Luce on September 29 at LLNL for informal discussions on repository-heat-driven hydrothermal flow. Topics included details of LLNL's models and assumptions, the sensitivity of hydrothermal performance to the hydrological and thermal system properties as well as the sensitivity of hydrological performance to thermal loading conditions. Also discussed was the validation of critical aspects of hydrologic performance models through hypothesis testing using in situ and laboratory experiments.

J. Blink, W. Bourcier, W. Halsey, W. O'Connell, S. Steward, R. Stout and T. Wolery (LLNL); J. Bates (ANL); and R. Einziger and W. Gray (PNL) attended the NWTRB dry run in Las Vegas on September 30.

1.2.5.2.2 Site Characterization Program

M. Revelli completed a review of the draft Integrated Test Evaluation (ITE) task Executive Summary which was developed at the August 27th ITE meeting. This material was discussed in a telecon with ITE task members on September 9.

LLNL prepared a draft response to the Lincoln County, NV comment regarding the Early Site Suitability Evaluation (ESSE) Preclosure Rock Characteristics Guideline evaluation. LANL staff also reviewed and concurred with the proposed response. This material was forwarded to the M&O (Las Vegas) for inclusion in the NRC/State/County ESSE Comment Response package.

1.2.5.2.4 Technical Support Documentation

No significant activities.

1.2.5.2.5 Study Plan Coordination

D. Carpenter reviewed the USGS Study Plan 8.3.1.17.4.4, "Quaternary Strike-Slip Faulting Proximal to the Site within Northeast-Trending Fault Zones".

1.2.5.2.6 Semi-Annual Progress Reports

Guidance for the 7th Progress Report (PR) was received by LLNL on September 15. The reporting period to be covered is April 1-September 30, 1992.

1.2.9 PROJECT MANAGEMENT

1.2.9.1 Management and Integration

1.2.9.1.1 Management

W. Clarke attended Technical Advisory Group meetings in Denver on September 8-9. W. Clarke and J. Blink attended the TPO meeting on September 11. J. Blink attended the TPO meeting with J. Bartlett on September 24.

J. Blink attended the Quality Integration Group meeting in Las Vegas on September 9.

J. Blink, as a reviewer, met with M&O representatives to resolve LLNL comments on the YMP Tracers, Fluids, and Materials Management Plan, Rev. 1.

J. Blink (LLNL) and E. Harle (SAIC) presented a public outreach program on energy and nuclear waste to K-8 students at Armagosa School in Nye County on September 4.

J. Blink (LLNL), E. Harle (SAIC), and T. Kaish (M&O/Duke Power) conducted a Boy Scout Atomic Energy Merit Badge Workshop at the Yucca Mountain Information Office in Las Vegas on September 12. Fourteen scouts earned the Merit Badge.

J. Blink attended a LESSON-NV organizational meeting in Las Vegas on September 15. LESSON is a science education program for K-8 teachers.

1.2.9.1.4 Records Management

Document Control issued one new revision and four Change Notices under controlled distribution. Routine follow-up for receipt acknowledgments continues.

A total of 183 items were logged into the LLNL-YMP tracking system. This includes 92 records/records packages that were processed through to the CRF. Four action items were closed.

The records inventory was completed by the records staff and was submitted by the September 18th deadline. A Corrective Action in Document Control was corrected by inventorying all on and off-site records.

Work continues on cross-referencing the 1989 records from the database to microfilm. Work also continues on backlog records.

1.2.9.2 Project Control

Representatives from the Information Resources Management (IRM) team visited LLNL on September 1.

Work continued to scrub Mission 2001 budgets with M&O representatives. A site visit was made to PNL on September 25 by R. Stout and J. Podobnik. The workscope and budgets were redefined for a resultant savings of approximately \$1 million over the duration of the project.

The August FTE report was submitted to YMPO. The August actual schedule progress and costs were submitted to YMPO via PACS workstation.

The August cost plan was prepared.

J. Podobnik attended the PACS steering committee meeting in Denver, CO on September 30. The schedule for the FY93 budget process was distributed, and interim funding arrangements for the first month of the fiscal year were discussed. The M&O representative presented report formats now available for participant use. Discussions were held on improvements suggested by various participants which primarily focused on the reduction of report content. Emphasis was suggested on graphics vs. tabular data. Also discussed were issues associated with elements in the new WBS that are components of the Laboratories' indirect cost pools. Difficulties in collecting costs as well as being able to receive funding in areas that are currently covered by overhead rate applications were brought to the attention of the DOE representative. Subcommittees were formed and names of participant representatives were provided.

J. Podobnik attended the briefing for the FY95 Information Resources Long Range Plan in Las Vegas on September 30. Changes to previous instructions were explained, and a schedule for plan development was provided.

The conversion of LLNL activities to accommodate the new WBS structure continued. Conversion of old cost accounts, PACS accounts, and worksopes are being coordinated with internal systems and with YMPO. Most cost accounts have been revised, and a chart of accounts together with a Responsibility Assignment Matrix will be issued to LLNL-YMP staff.

Staff attended LLNL briefings on the year-end close activity. The process is beginning to close out all accounts, clear pending payables, and issue SANLs for FY93.

1.2.9.3 Quality Assurance

Surveillance Report S92-11 (QA Records) was issued.

The LLNL-YMP response to Corrective Action Requests YM-92-064 through -068 was transmitted to YMPO. These CARs were generated as a result of Yucca Mountain Quality Assurance Division Audit YMP-92-21 of LLNL-YMP.

Corrective Action Report LLNL-025 was issued to the Waste Form Characterization Technical Area.

Closure notification of Corrective Action Reports LLNL-015, 016, and 017 (Software Quality Assurance) were transmitted to YMPO.

Quality Procedure 033-YMP-QP 12.0, Rev. 3 (Control of Measuring and Test Equipment), Change Notice 17.0-4-1 (Quality Assurance Records), and Change Notice 2.1-4-1 (Preparation, Approval & Revision of Procedures, Requirements, Plans, & the Quality Assurance Program Description) were completed and distributed.

Change Notice QARS-001B-0-3 (Quality Assurance Requirements Specification) for Argonne National Laboratory and Change Notice QARS-001C-0-3 (Quality Assurance Requirements Specification) for Pacific Northwest Laboratory were completed and distributed.

Two auditors from YMPO visited LLNL on September 29-October 1 to perform Surveillance 92-028 "Grading". As part of the surveillance, the auditors verified that CARs YM-92-048 and -049 have been completed and are ready to close.

D. Wolfe attended the DOE/EPA Quality Symposium and Committee Meeting in Kansas City, MO on August 30-September 2.

D. Wolfe attended the 19th Annual National Energy and Environmental Quality Division Conference held in Orlando, FL on September 20-23 and presented two papers, "Making the Transition to ANSI/ASQC E4" and "Measuring Success: Performance Matrices for an ANSI/ASQC E4 Based QA Program". He also attended the NQA-1 Committee Meeting.



Reynolds Electrical & Engineering Co., Inc.

Post Office Box 98521 • Las Vegas, NV 89193-8521

Handwritten signature

IN REPLY REFER TO:

580-01-036

WBS 1.2.9.1

QA: N/A

October 13, 1992

Carl P. Gertz, Project Manager
Yucca Mountain Site Characterization
Project Office
U.S. Department of Energy
Post Office Box, 98608
Las Vegas, NV 89193-8608

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT (YMP) STATUS REPORT (SCP: N/A)

Attached is the September YMP Status Report for Reynolds Electrical & Engineering Co., Inc.'s participation in the YMP.

If further information is required, please contact Sandra L. Hughes at 794-7192.

R. F. Pritchett

R. F. Pritchett, Manager
Yucca Mountain Project Division
YMP Technical Project Officer

RFP:SLH:mab

Enclosure
Status Report (3 pages)

cy: See page 2

TOTAL QUALITY IS OUR BUSINESS

REECO

AN EG&G COMPANY



REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
(REECO)

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT (YMP)

SEPTEMBER 1992 - STATUS REPORT

Reeco has no reportable Level 0 or Level 1 Milestones.

SITE (1.2.3)

WBS 1.2.3.2

Task: USGS Integrated Data Acquisition System (IDAS)

Continued support of IDAS to include receipt of Gemlink replacement equipment, technical inspection, equipment testing, maintenance and repairs.

Task: Fran Ridge Test Pits (Job Package 92-7)

Completed excavation to 20 foot depth of the northern pit. Cleaned bedrock with air-water blow pipes, backhoe and grader. Continued providing support as required.

WBS 1.2.3.5

Task: Capital Equipment to support Drilling Programs

Procurement is in process for the following drilling support equipment: Cuttings/handling system, hydraulic casing jacks and bag house, data recorder and monitors, and Class XIII drill rig. The drill rig was awarded to George E. Failing Company with a delivery date of December 16, 1992.

Task: Neutron Access Holes (Job Package 91-9)

Constructed road and pad for UZ-N31 and UZ-N32; constructed road for UZ-N35. Completed drilling/coring UZ-N31 at a total depth of 192 feet. Currently drilling/coring on UZ-N32, the fifth of 12 holes to be drilled in Phase II of the Neutron Access Boreholes. Present depth of the core hole is 48 feet. The 6-inch Odex casing is at 40 feet.

Task: North Portal Drill Hole and Surface Facility Test Pits (Job Package 92-2)

Completed cleaning bedrock with air-water blow pipe. Moved the CME-550 drill rig and associated equipment to NRG-1. Tripped in the hole to 28 feet; drove boulder (obstruction) to 142 feet. Upon DOE/YMP approval, left 8 feet of fill on the bottom. This task was accomplished using the LM-300 rig crew during the repair period on the LM-300 drill rig.

Task: UZ-16 Drilling and Testing (Job Package 92-3)

Resumed drilling operations on September 14, 1992, after suspension of operations on August 27, 1992 due to equipment failure. The Allison transmission on the LM-300 drill rig had to be replaced. Present depth of the core hole is 799 feet, and the present depth of the 12 1/4-inch ream hole is 759 feet.

Overheating problems with the Haz-Vac unit's engine have not been experienced due to cooler weather. Parts for a permanent fix are on order.

Task: Midway Valley Trenching (Job Package 92-5)

No field activity during this period.

Task: Soil & Rock Properties Test Pits Phase II (Job Package 92-8)

Completed excavation of all pits and roping of test pits.

Task: Quaternary Faulting (Job Package 92-12)

Completed excavation and fencing of four trenches south of Stagecoach Road; completed fencing of four trenches in Crater Flats.

Task: Lathrop Wells Trenching

Mobilized and completed two connecting perpendicular trenches and two safety catch benches totaling 4,000 BCY north of the cinder cone on two lava flows. Completed rope fencing of excavation.

EXPLORATORY STUDIES (1.2.6)**WBS 1.2.6.1****Task: Exploratory Studies Facility (ESF)**

Source Evaluation Board continued evaluation of the proposals submitted for the Technical Support and Underground Excavation for the ESF.

Continued administrative support for ESF activities to include planning, scheduling, management and Title II design review. Participated in the Office of Civilian Radioactive Waste Management Construction Readiness Review of Package 1A.

FIELD OPERATIONS (1.2.7.4)**Task: Administrative & Maintenance Support**

Continued support to W. A. Wilson, Yucca Mountain Site Manager to include: processing of purchase requisitions for Field Operations Center (FOC) Site Office requirements; providing support services to participants and maintenance on YMP utilized facilities, equipment and roads in Area 25; and providing logistical and support services to management contractor.



Provided support for the Yucca Mountain Site Office open house and public tours. Eight tours were held during this period with 345 people attending. Support included but was not limited to; arrangements for buses, registration of guests, coordination of lunches/beverages, medical service, furniture, mechanical service. Continued preparations for upcoming tours.

PROJECT MANAGEMENT (1.2.9)

WBS 1.2.9.1

Task: Management and Administrative Support

Continued coordination and staffing of YMP displays at meetings, exhibits, conferences and tours including the National Association of Regulatory Utility Commissioners tour and the American Society for Quality Control Conference; staffed and supported the Public Reading Room of the Research and Study Center.

Task: Site Characterization Plan (SCP) Distribution

Two SCP sets were distributed during this period. Two hundred copies each of the Overview and Progress Report #5 were provided to the Technical Information Section for distribution at professional conferences.

Task: Long Range Planning (LRP)

Continued status and update of Planning and Control System in support of Mission 2001; assisted in production of Title II Design Package 1A and construction schedules for Readiness Review; completed cost estimates as required.

WBS 1.2.9.3

Task: Quality Assurance (QA)

Continued actions to resolve Corrective Action Report CA-92-002 dealing with document control deficiencies. Corrective actions are scheduled to be completed by November 1, 1992.

Initiated planning for implementation of the first line Quality Control Inspection Program.



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

WBS 1.2.3.5
QA: N/A

OCT 15 1992

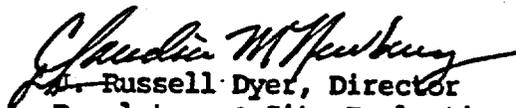
Carl H. Johnson, State of Nevada, Carson City, NV
Phillip Niedzielski-Eichner, Nye County, Chantilly, VA
Dennis A. Bechtel, Clark County, Las Vegas, NV
Albert C. Douglas, City of Las Vegas, Las Vegas, NV
~~Philip S. Justus, NRC, Las Vegas, NV~~

PRELIMINARY FIELD COMPOSITE BOREHOLE LOGS

For your information, enclosed is a copy of the Preliminary Field Composite Borehole Log for borehole USW UZN-31 which was developed by the Drilling Support and Sample Management Department of Technical and Management Support Services. Drilling of the borehole was completed on September 22, 1992.

If you need additional information regarding the log, please contact Uel S. Clanton at (702) 794-7943.

RSED:USC-364


Russell Dyer, Director
Regulatory & Site Evaluation Division

Enclosure:
Preliminary Field Composite
Borehole Log

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT PRELIMINARY FIELD COMPOSITE COREHOLE LOG

COREHOLE ID: USW UZN-31
 STUDY PLAN NO: 8.3.1.2.2.1.3
 CORE SIZE: HQ
 DRILL DATES: 9/3/92-9/22/92
 GROUND ELEV: 4101
 COORDINATES: N: 764250
 E: 562770
 TOTAL DEPTH: 192.6
 ANGLE FROM VERT: NA BEARING: NA

- ALLUVIUM
- NON-WELDED
- PARTIALLY WELDED
- DENSELY WELDED
- VITROPHYRE
- BEDDED TUFF

LOG FINAL DATE:
09/29/92

Logging by Drilling Support Division, Drilling Support and Sample Management Dept, T&MSS

RUNS DATES BITS		DRILLING RATE (ft/hr)		FRAC FREQ (/ 5 ft)		DEPTH GRAPHIC LOG	Page <u>1</u> of <u>5</u>
		0	10	20	50		
CORE LOSS		20	70	120	50	100	
DC-1	9/3/92	102.0		NO DATA		5	0.0-15.1 Alluvium: light brown; pebbles and cobbles of Tiva Canyon, light gray, subrounded and angular. @15.1 Alluvium/Tiva Contact 15.1-84.5 Tuff, ashflow, light brownish gray moderately to densely welded; 5-10% white pumice frags, 10% phenocrysts of plagioclase and sanidine, clay mineralization on fractures.
DC-2		115.8					
DC-3		37.2					
DC-4		60.0					
DC-5	95% 7.0/6.7	102.0					
DC-6	9/4/92	73.2					
DC-7		120					
DC-8		52.8					
DC-9		60					
DC-10		13.2					
DC-11		60					
DC-12		73.8					
DC-13		17.4					
1	17.6/17.1 97%	4.2		11		15	
2		4.7		17		20	
3		2.4					
4		1.8					
5		1.6					
6	10.9/10.8 101	3.0				25	
9/9/92 7		0.4	1.3				

ENCLOSURE

LITHOLOGY/ REMARKS

RUNS DATES BITS	CORR LOSS	DRILLING RATE (ft/hr)		FRAC FREQ (/ 5 ft)		DEPTH GRAPHIC LOG
		0 10 20 0	20 70 120 50	0 50	50 100	
5		11.6				
6 10.8/10.9 101%		3.0		25		
87		0.4				
9 9/9/92		1.3				30
		2.8		21		
10 4.8/4.8 100%		1.0				
11 9/10/92		3.8				35
12		3.3		29		
13		11.6				40
14		10.2				
15 9.4/9.8 103%		3.4		39		
9/11/92						
16		3.1		17		45
		2.8				
18		7.5		19		50
19		8.4		5		55
17.3/16.9 98%						
20		1.5				60
21 9/14/92		7.0		14		
22 6.1/5.8 95%		4.1				65
9/15/92				21		
23		6.0				70

RUNS DATES BITS	CORE LOSS	DRILLING RATE (ft/hr)			FRAC FREQ (/ 5 ft)		DEPTH GRAPHIC LOG	LITHOLOGY/ REMARKS
		0	10	20	0	50		
		20	70	120	50	100		
23			6.0					
24			8.8			40		
25			11.4			37		
26			10.0			22		
27			11.1			19		
28			11.5			12		
28.5/27.8 97%								
9/17/92 29			75.6			18		
30			60.0			8		
31			102.0			12		
32			150.0			7		
33								

@89.5 Shardy Base Contact
 89.5-106.5 Tuff, ashflow: grayish orange, nonwelded, vitric; 10% pumice fragments; 10% phenocrysts, sanidine, black glass shards.

@106.5 Tiva Shardy Base/Bedded Tuff Contact
 106.5-119.5 Tuff, ashfall; white to pale yellowish-orange, nonwelded, vitric, abundant pumice fragments.

RUNS DATES BITS	CORE LOSS	DRILLING RATE (ft/hr)			FRAC FREQ (/ 5 ft)		DEPTH GRAPHIC LOG	LITHOLOGY/ REMARKS	
		0	10	20	0	50			
		20	70	120	50	100			
33		150.0				12		<p>@ 119.5 Bedded Tuff/Yucca Mountain Member Contact</p> <p>119.5-138.5 Tuff, ashflow; moderate reddish orange, non-welded, vitric; 8-10% pumice up to 2 cm, very light gray; 1-2% phenocrysts of sanidine and biotite. Matrix is very fine ash.</p> <p>138.5-144.4 Bedded ash-fall tuff, composition similar to above. Pumice rare, several mm, no distinct bedding</p> <p>144.4-166.4 Tuff, ashflow; pinkish gray, nonwelded, devitrified, 10% white pumice frags, 7% phenocrysts of bronze biotite, plagioclase, and sanidine</p>	
25.0/23.2 93%									
9/18/92						120			
34		150.0				14			
35		42.8				14	125		
36		60.0			57		130		
37		27.2				16	135		
38		20.0				17			140
39		27.3				16	145		
40		23.1				17	150		
41		20.0				13		155	
42		17.2				6	160		

