



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 Licensing Representatives' Office, Las Vegas
DATE: March 22, 1994
SUBJECT: OFFICE OF GEOLOGIC DISPOSAL WEEKLY HIGHLIGHTS FOR THE WEEK
ENDING MARCH 4, 1994

Please find enclosed the above-referenced information. There is nothing requiring specific management attention.

cc: w/enc.: Charlotte Abrams, M/S 4 H 3
Anne Garcia, M/S 4 H 3

Enclosure as stated

NOTE TO CHARLOTTE: Enclosed is the REECO February YMP Progress Report and Variance Analysis Reports

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DEPARTMENT OF ENERGY
Office of Civilian Radioactive Waste Management
Office of Geologic Disposal
Yucca Mountain Site Characterization Project Office
P.O. Box 98608
Las Vegas, NV 89193-8608

WBS 1.2.9.2
QA: N/A

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Daniel A. Dreyfus, Director, Civilian Radioactive Waste Management,
HQ (RW-1) FORS

OFFICE OF GEOLOGIC DISPOSAL WEEKLY HIGHLIGHTS FOR THE WEEK ENDING
MARCH 4, 1994 (SCP: N/A)

I. FORECAST SIGNIFICANT EVENTS

Upcoming leadership and team building training includes: Team Leader Training on March 9-11, 1994; Conflict Resolution on March 22, 1994; "Seven Habits of Highly Effective People April 19-22, 1994; and Teambuilding: Building High-Performance Teams April 28-29, 1994.

Site Characterization Activities

An acceptance inspection for the Tunnel Boring Machine is scheduled to be held at the Nicholson Manufacturing Company in Seattle, Washington, March 17-18, 1994.

Site Characterization Testing

Drilling will continue at UZ-14. Drilling of the second and third hydrochemistry boreholes in Test Alcove 1 will continue. Drilling of relief holes and percolation testing of the Large Test Block (Large Block Test) of Topopah Spring welded tuff at the Fran Ridge site will begin next week. Standup tests will be conducted in the west Exile Hill NRT-1 trench. Attempts will be made to pull casing in borehole UE-25 NRG-6.

Exploratory Studies Facility

During the week of March 14, 1994, preparation of the Tunnel Boring Machine assembly pad at the portal entry will begin. Assembly of the Tunnel Boring Machine is schedule to start on April 4, 1994.

Design

The Repository Waste Package development team will begin a development of management assumptions on retrieval strategy, requirements, and concepts.

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

Site Characterization Activities

Exploratory Studies Facility

Construction

Regarding Job Package (JP) 92-20, Exploratory Studies Facility North Portal Pad and Facilities, completed logging of the first borehole to support radial borehole and hydrologic testing in the test alcove. Core drilling is in progress on the second of three planned 100-foot-long radial boreholes in the test alcove. The hole was advanced to a distance of 26.6 feet this week.

Continued backfilling the water line trench from Well J-13 to the Booster Pump Station.

Began excavating trenches for the sewer system on the North Portal Pad.

Completed erecting concrete batch plant and will begin initial testing.

Construction is continuing on the 69kV power distribution system with trenching for the duct banks and manholes on the North Portal Pad. Continued installation of electrical manholes. Continued placing of rebar and pouring concrete for ductbanks and installing electrical conduits.

The following milestone represents the near-term plan for Exploratory Studies Facility activities:

69kV power available at the North Portal March 15, 1994

Design

Continued comment incorporation from the 90 percent design reviews for Design Packages 2B and 1C. Began updating the Basis for Design with the results from the 90 percent design review comments resolutions for Design Package 2B and 1C in preparation for submittal to the U.S. Department of Energy (DOE) for an Acceptance Review. Continuing design activities for Packages 1D and 2C.

Site Characterization Testing

Exploratory drilling operations progress is summarized as follows:

<u>Borehole</u>	<u>Current Core Depth 03/04/94</u>	<u>Current Ream Depth 03/04/94</u>	<u>Total Planned Depth</u>
UZ-14	1,442.1 feet	1,421.6 feet	2,000 feet
NRG-7/7A	1,504.2 feet	302.1 feet	1,445 feet
SD-12	160.4 feet	143.8 feet	2,300 feet

Regarding UZ-14, water was not encountered while coring this interval indicating the effectiveness of the cement grout plug placement.

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Regarding JP 93-15, Borehole NRG-7/7A, hole is presently in the Calico Hills formation. Several damp near-vertical rock discontinuities were observed in the drill core for the interval of depth from 1475.4 feet through 1504.17 feet. Approximately two ounces of water were recovered with a bailer. Preliminary indications are that this is perched water. Water samples are being collected for chemical and isotopic analyses. The hole was completed a few feet into the Calico Hills, and core below the contact was found to be dry.

Regarding JP 94-04, SD-12 Borehole, drilling continues in the Hackly Zone of the Tiva Canyon Member.

Regarding JP 94-06, final grading is in progress. The pad and road are on hold due to equipment priorities.

Regarding JP 94-3, Borehole UE-25 NRG-2D, auger drilling and sampling have been completed. Final hole depth is 170.2 feet. Standard Penetration Tests were performed at 5-foot intervals to 140.0 feet. Seven feet of augers were left in the hole. Fishing operations to recover the augers were unsuccessful. Demobilization of drilling equipment was completed on March 4, 1994.

Regarding USW SD9, the drill pad is close to being completed. Construction equipment is working on the access road to the site.

Regarding JP 93-11, C-Well Testing, laying of the black water discharge pipe continued.

Testing is temporarily suspended in Trench NRT-1 on the west side of Exile Hill.

Twelve core examinations were conducted at the Sample Management Facility for Sandia National Laboratories, Los Alamos National Laboratory (Los Alamos), DOE, and the U.S. Geological Survey (USGS).

The Sample Management Facility processed core and cuttings from ESF-AL1 RBT2, NRG-7/7A, UZ-14, SD-12, UE-25 NRG-2C, and NRG-2D.

Prepared environmental boundaries, sketches, and written descriptions for excavation of trenches and access roads at Whaleback Ridge, Split Wash, and Drill Hole Wash locations.

The following is a listing of site characterization field activities that are currently active:

SCP ACTIVITY	TITLE	COMMENTS
8.3.1.3.2.1	Mineralogy, Petrology & Rock Chemistry of Transport Pathways	Outcrop sampling
8.3.1.3.2.2	Mineralogic & Geochemical Alteration	Outcrop sampling
8.3.1.4.2.2	Structural Features within Site Area	Surface mapping, ESF mapping
8.3.1.8.5.1	Characterization of Volcanic Features	Test pits, trenching
8.3.1.14.2	Soil & Rock Properties of Potential Location of Surface Facilities	Test pits, trenching, ramp exploration holes
8.3.1.17.4.2	Location & Recency of Faulting Near Prospective Surface Facilities	Trench mapping

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SCP ACTIVITY	TITLE	COMMENTS
8.3.1.17.4.3	Quaternary Faulting within 100 km of Yucca Mountain, Nevada	Surface mapping
8.3.1.17.4.4	Quaternary Faulting in NE-Trending Fault Zones	Surface mapping
8.3.1.17.4.6	Quaternary Faulting within Site Area	Trench mapping
8.3.1.2.1.1	Precipitation & Meteorological Monitoring for Regional Hydrology	Ongoing measurements
8.3.1.2.1.2	Runoff & Streamflow	Ongoing measurements
8.3.1.2.2.1	Unsaturated Zone Infiltration	Drilling/logging of neutron-access holes; ponding tests
8.3.1.2.2.2	Water Movement Tracer Tests	Cl-36 measurements
8.3.1.2.2.3	Percolation in Unsaturated Zone	UZ drilling/testing Perched water testing
8.3.1.2.2.4	Characterization of YM Percolation in UZ-ESF Investigation	Perched water
8.3.1.2.2.6	Gaseous Phase Movement in Unsaturated Zone	UZ drilling/testing
8.3.1.2.2.7	Unsaturated Zone Hydrochemistry	UZ drilling/testing
8.3.1.2.3.1	Site Saturated Zone Groundwater Flow System	Ongoing monitoring
8.3.1.2.3.2	Saturated Zone Hydrochemistry	Ongoing sampling
8.3.1.15.1.8	In Situ Design Verification	Construction monitoring/testing

Environmental Safety and Health Programs

Five environmental compliance surveillances were conducted at the Yucca Mountain site ensuring compliance with permit and programmatic requirements.

The Safety and Health Division conducted 18 surveillances during this reporting period.

Large Block Test

Sawing of the fourth side of the Large Block Test of Topopah Spring welded tuff was completed. Drilling of 1 1/2-inch perimeter holes began March 3, 1994, and should be completed on March 4, 1994.

Site Characterization Plan/Study Plan Status

The U.S. Nuclear Regulatory Commission (NRC) has completed a detailed technical review of Study Plan 8.3.1.9.2.1 "Natural Resource Assessment of Yucca Mountain, Nye County, Nevada." No study plans were approved by the Yucca Mountain Site Characterization Office (YMSCO) this week.

STUDY PLAN BREAKDOWN

	Initial Plans	Major Revisions
Not Submitted to YMSCO	35	0
In Screening Review	0	0
In YMSCO Review	3	2
Awaiting Comment Resolution	2	3
In Verification Audit	6	1
Awaiting YMSCO Approval	1	0
Awaiting Submission to NRC	0	0
Awaiting NRC Initial Review	7	5
Accepted by NRC	50	6
<hr/>		
Totals	104	17
Total Submitted to NRC	57	11

State of Nevada Comments Status:

Received Comments from the State of Nevada.....	31
Responses Transmitted to the State of Nevada	19

NRC Comments Status:

Received Comments from NRC	30
Responses Transmitted from DOE to NRC.....	25

III. GENERAL INFORMATION ITEMS

Reviewed and provided comments on Office of Civilian Radioactive Waste Management (OCRWM) Administrative Procedure 32.1, Revision 0.

Assisted in preparations of briefing material for OCRWM/RW-1 Congressional Budget Hearings.

Reviewed and provided comments on proposed DOE position on Public Health and Safety Standards for a Repository at Yucca Mountain.

Verified resolution of Analysis and Verification Division (RW-22) comments of the review draft, OCRWM Regulatory Guidance Document.

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Completed 801 Position Paper review. On metal barriers, Lawrence Livermore National Laboratory (LLNL) is performing computer simulations to determine the effects on pitting corrosion of the number of cells (and pits), exposure time, and growth probability. The results of these simulations suggest the following:

1. Using a large number of cells does not significantly affect the shape of the distribution of pit depths although it produces a smoother distribution than if a small number of cells is used.
2. As the exposure time increases, the distribution gradually decreases in height, broadens, becomes less skewed toward small depths, and moves to larger depths.
3. Decreasing the growth probability decreases the rate at which the distribution evolves but not the character of the evolution.

The Mineralogy-Petrology staff conducted petrographic mapping to complete collection of the data needed on laminae structures for the final report on mineralogy and petrology of calcite-silica deposits in Trenches 14 and 14A.

The Los Alamos Mineralogy-Petrology task group completed X-ray diffraction analysis of all samples provided by the Los Alamos sorption task.

Los Alamos scientists met to plan collaborative studies of sorption on fracture surfaces.

Los Alamos Geochemistry task completed two sets of experiments to study selenium sorption. The first experiment investigated selenium transport through tuff columns under unsaturated conditions; the second involved the study of selenium sorption using batch sorption techniques. Comparison of these results will allow us the Los Alamos sorption task to attempt to validate batch sorption values for use in flow systems under unsaturated conditions.

Reviewed and provided comments on new Yucca Mountain Administrative Procedure 5.4Q, "Technical Field Work Requests."

Regarding rock characteristics, USGS personnel met with the DOE/Field Testing Coordinator at the Sample Management Facility this week to view core from UE-25 NRG-2D to help determine the location of the Rainier Mesa "Tuff X" in the borehole. Stratigraphic contacts were also selected for core from boreholes USW UZN-11 and USW UZN-38. USGS personnel have made a preliminary site selection for the planned USW UZ-7A borehole with respect to the Ghost Dance Fault location east of USW WT-2. Mapping of rock fabric orientation and microfracture sets continued on the Ghost Dance Fault exposure at Antler Ridge Pavement 1 this week.

Regarding tectonics, soils mapping in Fortymile Wash was performed this week by USGS in support of the erosion rate studies on Yucca Mountain.

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On Unsaturated Zone Studies, USGS personnel ran a downhole video camera in UE-25 NRG-2D this week to help ascertain hole conditions and the status of the reaming tool. The gamma-gamma and neutron logs were run in a number of shallow boreholes this week to test the equipment and procedures.

On Saturated Zone Studies, USGS personnel ran neutron moisture logs and measured water levels in boreholes in upper Fortymile Wash as part of the recharge studies. A new, customized downhole pH measurement system was assembled in USGS Area 25 facilities for testing before use in the field.

IV. PUBLIC OUTREACH AND INSTITUTIONAL ACTIVITIES

Various YMP staff coordinated and assisted with the JASON V Project, February 28-March 12, 1994, at Cheyenne High School, in Las Vegas. Approximately 300 teachers and other volunteers participated. The JASON V Project, enriching learning through exploration, uses state-of-the-art technology so that students across the country may experience the excitement of scientific discovery as it happens. This year's project comes to the Las Vegas area from Belize, Central America. Over 20,000 students are expected to attend the broadcasts during the two weeks.

A presentation on Native American Culture was given to 39 guests of the Solo Club on March 1, 1994, in Las Vegas. Also, 60 fifth grade students from John S. Park Elementary School toured the Las Vegas Yucca Mountain Science Center and participated in a geology workshop, conducted by YMP staff.

An educational presentation on "Gee Whiz Science" was given to 105 students at C. P. Squires Elementary School, on March 4, 1994, in Las Vegas.

A general YMP overview was given to 25 students at Brinley Junior High School on March 2, 1994, in Las Vegas.

An update on site characterization at Yucca Mountain was given to 100 people at the Waste Management Symposium, on March 3, 1994, in Tucson, Arizona.

A Public Open House tour of Yucca Mountain was coordinated and conducted on February 26, 1994, for 233 people. Tour participants visited the Yucca Mountain Science Centers, the Field Operations Center, two laboratories, the top of Yucca Mountain, and the Exploratory Studies Facility north portal construction area.

Tours to Yucca Mountain were conducted on March 3, 1994, for 10 guests from Japan Electric Power Information Center, Inc., and for Eric Jordan, Regional Manager for Senator Harry Reid, and two guests. A tour was also conducted on March 4, 1994, for 35 guests of Waste Management '94.

YMP exhibits were set up and staffed for the Waste Management Symposia, February 27-March 3, 1994, in Tucson, Arizona. Approximately 500 people visited the displays.

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YMP staff completed coordination of a "Name the Tunnel Boring Machine" contest. More than 500 names were submitted. A committee, representing construction, field testing, and administrative personnel, chose "The Yucca Mucker" as the winning entry.

YMP staff completed 25 external information requests. This was accomplished by providing written responses to written and verbal queries and/or by supplying existing literature.

V. 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 coordinated by the Speakers Bureau; contact Jackie Brandt at (702) 794-7896 or Theresa Hirsch at (702) 794-7759 for additional information. Exhibits are coordinated by Joanna Magruder at (702) 794-7056, Public Update Meetings are coordinated by Jamie Elliott at (702) 794-7769, and Tours are coordinated by Carleen Hill at (702) 794-7375 or Kelly Doyle at (702) 794-7133.

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMSCO Contact</u>
<u>A. Stakeholders Meetings</u>			
Thursday, March 10	State, Tribal, and Local Government Coordination Group (P)	Death Valley, CA	R. Nelson
Friday, April 15	Affected Units of Government (P)	Las Vegas NV	S. Richardson
<u>B. DOE/Headquarters Meetings</u>			
Thursday, April 7	OCRWM Director's Program Review (P)	Vienna VA/LV (Video- conference)	R. Nelson
<u>C. CRWMS M&O/DOE Meetings</u>			
Wednesday, April 27	CRWMS Program Management Review (P)	Las Vegas, NV	R. Nelson
<u>D. Internal & DOE/Nevada Operations Office Meetings</u>			
March Time frame	Third Annual YMP Safety & Health Awareness Program (P)	Las Vegas, NV	R. Nelson
Thursday- Friday, March 17-18	Total Quality Management Offsite	Las Vegas, NV	R. Nelson

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMSCO Contact</u>
<u>E. NRC Interactions</u>			
Tuesday- Wednesday, March 15-16	NRC Technical Exchange on Status of Work Relevant to Characterization of Saturated and Unsaturated Flow (P)	Denver, CO	T. Bjerstedt
<u>F. Nuclear Waste Technical Review Board (NWTRB) Interactions</u>			
Tuesday- Wednesday, March 8-9	NWTRB - Structural Geology and Geoengineering Panel (P)	San Francisco, CA	D. Williams
Thursday- Friday, March 10-11	NWTRB - Engineered Barrier System Panel (P)	Pleasanton, or Oakton, CA	W. Simecka
Monday- Tuesday, March 21-22	NWTRB - Environment and Public Health Panel (P)	Las Vegas, NV	W. Dixon
Monday- Wednesday, April 11-13	NWTRB Full Board Meeting (P)	Reno, NV	R. Patterson
<u>G. Advisory Committee on Nuclear Waste (ACNW) Interactions</u>			
Tuesday, March 22	ACNW Working Group on Low-Level Waste Performance Assessment (P)	Bethesda, MD	A. Gil
Wednesday- Thursday, March 23-24	62nd ACNW Meeting Topic TBD (P)	Bethesda, MD	A. Gil
<u>H. National Academy of Sciences (NAS) Interactions</u>			
Thursday- Friday, April 28-29	NAS Committee on Yucca Mountain Standards (P)	Las Vegas, NV	S. Jones
Tuesday, March 8	Democratic Women's Club - General Overview	Pahrump, NV	P. Carmack

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
I. <u>State and Public Interactions</u>			
Wednesday, March 9	Youth Leadership Las Vegas Program - Environmental	Las Vegas, NV	D. Bradford M. d'Ouille
Saturday, March 12	Expanding Your Horizons - Math & Science	Las Vegas, NV	A. Gil L. Linden
Wednesday, March 16	American Nuclear Society - TBD	San Diego, CA	J. Peck
Wednesday, March 16	Amargosa Science Fair - Judging Science Fair	Amargosa, NV	D. Kessel J. Weaver
Wednesday, March 16	San Diego Association of Geologists - General Overview	San Diego, CA	G. Fasano
Friday, March 18	Association of Girl Scouts Executive Staff - Native American Culture	Las Vegas, NV	R. Arnold
Sunday, March 20	Risk Management Quarterly Assn. - TBD	San Diego, CA	TBD
Thursday, March 24	Moonstruck Gallery - Native American Culture	Las Vegas, NV	R. Arnold
Friday, March 25	Retired Officers' Association - General Overview	Las Vegas, NV	J. Peck
Sunday, March 27	Yucca Mountain Speaker Series(P) - "Desert Beauties - Spring Wildflowers"	Pahrump, NV	K. Wirtz
Tuesday, March 29	Yucca Mountain Speaker Series(P) - "Desert Beauties - Spring Wildflowers"	Las Vegas, NV	K. Wirtz

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMSCO Contact</u>
<u>E. NRC Interactions</u>			
Tuesday- Wednesday, March 15-16	NRC Technical Exchange on Status of Work Relevant to Characterization of Saturated and Unsaturated Flow (P)	Denver, CO	T. Bjerstedt
<u>F. Nuclear Waste Technical Review Board (NWTRB) Interactions</u>			
Tuesday- Wednesday, March 8-9	NWTRB - Structural Geology and Geoengineering Panel (P)	San Francisco, CA	D. Williams
Thursday- Friday, March 10-11	NWTRB - Engineered Barrier System Panel (P)	Pleasanton, or Oakton, CA	W. Simecka
Monday- Tuesday, March 21-22	NWTRB - Environment and Public Health Panel (P)	Las Vegas, NV	W. Dixon
Monday- Wednesday, April 11-13	NWTRB Full Board Meeting (P)	Reno, NV	R. Patterson
<u>G. Advisory Committee on Nuclear Waste (ACNW) Interactions</u>			
Wednesday- Thursday, February 23-24	61st ACNW Meeting Topic TBD (P)	Bethesda, MD	A. Gil
Tuesday, March 22	ACNW Working Group on Low-Level Waste Performance Assessment (P)	Bethesda, MD	A. Gil
Wednesday- Thursday, March 23-24	62nd ACNW Meeting Topic TBD (P)	Bethesda, MD	A. Gil
<u>H. National Academy of Sciences (NAS) Interactions</u>			
Thursday- Friday, April 28-29	NAS Committee on Yucca Mountain Standards (P)	Las Vegas, NV	S. Jones

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
I. <u>State and Public Interactions</u>			
Tuesday, March 8	Democratic Women's Club - General Overview	Pahrump, NV	P. Carmack
Wednesday, March 9	Youth Leadership Las Vegas Program - Environmental	Las Vegas, NV	D. Bradford M. d'Ouille
Saturday, March 12	Expanding Your Horizons - Math & Science	Las Vegas, NV	A. Gil L. Linden
Wednesday, March 16	American Nuclear Society - TBD	San Diego, CA	J. Peck
Wednesday, March 16	Amargosa Science Fair - Judging Science Fair	Amargosa, NV	D. Kessel J. Weaver
Wednesday, March 16	San Diego Association of Geologists - General Overview	San Diego, CA	G. Fasano
Friday, March 18	Association of Girl Scouts Executive Staff - Native American Culture	Las Vegas, NV	R. Arnold
Sunday, March 20	Risk Management Quarterly Assn. - TBD	San Diego, CA	TBD
Thursday, March 24	Moonstruck Gallery - Native American Culture	Las Vegas, NV	R. Arnold
Friday, March 25	Retired Officers' Association - General Overview	Las Vegas, NV	J. Peck
Sunday, March 27	Yucca Mountain Speaker Series(P) - "Desert Beauties - Spring Wildflowers"	Pahrump, NV	K. Wirtz
Tuesday, March 29	Yucca Mountain Speaker Series(P) - "Desert Beauties - Spring Wildflowers"	Las Vegas, NV	K. Wirtz

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
I. <u>State and Public Interactions</u> (Continued)			
Wednesday, April 6	Summerlin Community Association - Neighborhood Dialogues	Las Vegas, NV	TBD
Thursday, April 7	Association for Education in Journalism and Mass Communication - General Overview	Reno, NV	TBD
J. <u>Educational Interactions</u>			
Monday- Saturday, February 28- March 12	JASON Project - "Rain Forest"	Las Vegas, NV	E. Harle
Monday, March 7	Derfelt Elementary School - Native American Culture	Las Vegas, NV	R. Arnold
Tuesday, March 8	Roy Martin Junior High School - Environmental	Las Vegas, NV	T. Pysto
Tuesday, March 8	George Harris Elementary School - Native American Culture (Nevada Reading Week)	Las Vegas, NV	R. Arnold
Wednesday, March 9	Partnership in Education - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Thursday, March 10	Fremont Middle School - General Overview/Geology	Las Vegas, NV	D. Merritt
Thursday, March 10	C. P. Squires Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Monday, March 14	Silver Rim Elementary School - "Gee Whiz Science"	Tonopah, NV	J. Blink

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
J. <u>Educational Interactions</u> (Continued)			
Tuesday, March 15	Hawthorne - "Gee Whiz Science"	Hawthorne, NV	J. Blink
Tuesday, March 15	Ute Perkins Elementary School - Energy	Las Vegas, NV	J. Sizemore M. d'Ouville
Wednesday, March 16	Incline Elemen- Elementary School - "Gee Whiz Science"	Incline, NV	J. Blink
Wednesday, March 16	Bill Yonema Tomiyasu Elementary School - Energy	Las Vegas, NV	J. Sizemore M. d'Ouville
Thursday, March 17	Incline Middle School - "Gee Whiz Science"	Incline, NV	J. Blink
Thursday, March 17	William R. Lummis Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Thursday, March 17	Bill Yonema Tomiyasu Elementary School - Energy	Las Vegas, NV	J. Sizemore M. d'Ouville
Thursday, March 17	William R. Lummis Elementary School - Metric System	Las Vegas, NV	L. Cuba
Friday, March 18	Tonopah Elementary School School - Nye County Egg Drop	Tonopah, NV	J. Blink
Monday, March 21	Southern Nevada Science Fair - Science Fair	Las Vegas, NV	Various
Monday, March 21	Partnerships in Education - Work- shop on Mapping & Hydrology & Native American Culture	Las Vegas, NV	C. Knobbier R. Arnold
Tuesday, March 22	Gibson Middle School - Environmental Issues Related to YMP	Las Vegas, NV	G. Fasano

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
J. <u>Educational Interactions</u> (Continued)			
Wednesday, March 23	Fremont Junior High School - Geology - Career Day	Las Vegas, NV	J. Peck
Wednesday, March 23	Bridger Middle School - Environmental Issues Related to YMP	Las Vegas, NV	T. Pysto
Thursday, March 24	C. P. Squires Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Friday, March 25	Thurman White Middle School - Fossils	Henderson, NV	A. Gil
Friday, March 25	Thurman White Middle School - Native American Culture	Henderson, NV	R. Arnold
Tuesday, April 5	Science and Mountains Teacher Workshop	Las Vegas, NV	E. Harle
Wednesday, April 6	C. P. Squires Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Wednesday, April 6	C. P. Squires Elementary School - Geology	Las Vegas, NV	J. Sizemore M. d'Ouille
Thursday, April 7	Science and Mountains Teacher Workshop	Las Vegas, NV	E. Harle
Thursday, April 7	C. P. Squires Elementary School - Geology	Las Vegas, NV	J. Sizemore M. d'Ouille
Saturday, April 9	Girl Scouts - Geology Merit Badge Workshop	Las Vegas, NV	Various

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<u>Date</u>	<u>Event</u>	<u>Location</u>
K. <u>Exhibits Scheduled</u>		
Saturday, March 19	Public Open House (P)	Las Vegas, NV
Monday- Wednesday, March 21-23	Geological Society of America - Cordilleran Section	San Bernardino, CA
Thursday, March 24	Green Valley Civic Association Network	Henderson, NV
Thursday- Sunday, April 7-10	Clark County Fair	Logandale, NV
<u>Date</u>	<u>Event</u>	<u>Escorts</u>
L. <u>Tours Scheduled</u>		
Tuesday, March 8	St. Cloud State University (MN)	TBD
Wednesday, March 9	YMP Orientation	TBD
Thursday, March 10	Laughlin High School	TBD
Friday, March 11	Power Nuclear Reactor Cooperative - Japan	TBD
Monday, March 14	Power Nuclear Reactor Cooperative - Japan	TBD
Monday, March 14	UK NIREX	TBD
Tuesday, March 15	Jewish War Veterans	TBD
Wednesday, March 16	Fremont Middle School	TBD
Saturday, March 19	Public Open House (P)	Various Escorts
Monday, March 21	Nuclear Waste Technical Review Board	W. Dixon
Tuesday, March 22	Boulder City Bureau of Reclamation	TBD

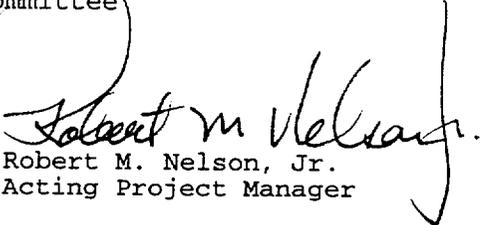
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<u>Date</u>	<u>Event</u>	<u>Escorts</u>
L. <u>Tours Scheduled</u> (Continued)		
Wednesday, March 23	LLNL Science and Engineering Research Semester Students	TBD
Wednesday, March 23	Fremont Middle School	TBD
Thursday, March 31	National Council, State Garden Club Specific Region Convention	TBD
Friday, April 1	National Association of Regulatory Utility Commissioners	TBD
Tuesday, April 5	W. Mac Lyon Middle School	TBD
Wednesday, April 6	YMP Orientation	TBD
Thursday, April 7	Southern States Energy Board Advisory Committee on Radioactive Materials Transportation	TBD
Friday, April 8	State of Nevada Technical Review Committee	TBD

YMP:CLH-2409


Robert M. Nelson, Jr.
Acting Project Manager



DEPARTMENT OF ENERGY
Office of Civilian Radioactive Waste Management
Office of Geologic Disposal
Yucca Mountain Site Characterization Project Office
P.O. Box 98608
Las Vegas, NV 89193-8608

*work with
letter add.
3/22/94*

WBS 1.2.9.2
QA: N/A

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Daniel A. Dreyfus, Director, Civilian Radioactive Waste Management,
HQ (RW-1) FORS

OFFICE OF GEOLOGIC DISPOSAL WEEKLY HIGHLIGHTS FOR THE WEEK ENDING
MARCH 4, 1994 (SCP: N/A)

I. FORECAST SIGNIFICANT EVENTS

Upcoming leadership and team building training includes: Team Leader Training on March 9-11, 1994; Conflict Resolution on March 22, 1994; "Seven Habits of Highly Effective People April 19-22, 1994; and Teambuilding: Building High-Performance Teams April 28-29, 1994.

Site Characterization Activities

An acceptance inspection for the Tunnel Boring Machine is scheduled to be held at the Nicholson Manufacturing Company in Seattle, Washington, March 17-18, 1994.

Site Characterization Testing

Drilling will continue at UZ-14. Drilling of the second and third hydrochemistry boreholes in Test Alcove 1 will continue. Drilling of relief holes and percolation testing of the Large Test Block (Large Block Test) of Topopah Spring welded tuff at the Fran Ridge site will begin next week. Standup tests will be conducted in the west Exile Hill NRT-1 trench. Attempts will be made to pull casing in borehole UE-25 NRG-6.

Exploratory Studies Facility

During the week of March 14, 1994, preparation of the Tunnel Boring Machine assembly pad at the portal entry will begin. Assembly of the Tunnel Boring Machine is schedule to start on April 4, 1994.

Design

The Repository Waste Package development team will begin a development of management assumptions on retrieval strategy, requirements, and concepts.

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

Site Characterization Activities

Exploratory Studies Facility

Construction

Regarding Job Package (JP) 92-20, Exploratory Studies Facility North Portal Pad and Facilities, completed logging of the first borehole to support radial borehole and hydrologic testing in the test alcove. Core drilling is in progress on the second of three planned 100-foot-long radial boreholes in the test alcove. The hole was advanced to a distance of 26.6 feet this week.

Continued backfilling the water line trench from Well J-13 to the Booster Pump Station.

Began excavating trenches for the sewer system on the North Portal Pad.

Completed erecting concrete batch plant and will begin initial testing.

Construction is continuing on the 69kV power distribution system with trenching for the duct banks and manholes on the North Portal Pad. Continued installation of electrical manholes. Continued placing of rebar and pouring concrete for ductbanks and installing electrical conduits.

The following milestone represents the near-term plan for Exploratory Studies Facility activities:

69kV power available at the North Portal March 15, 1994

Design

Continued comment incorporation from the 90 percent design reviews for Design Packages 2B and 1C. Began updating the Basis for Design with the results from the 90 percent design review comments resolutions for Design Package 2B and 1C in preparation for submittal to the U.S. Department of Energy (DOE) for an Acceptance Review. Continuing design activities for Packages 1D and 2C.

Site Characterization Testing

Exploratory drilling operations progress is summarized as follows:

<u>Borehole</u>	<u>Current Core Depth 03/04/94</u>	<u>Current Ream Depth 03/04/94</u>	<u>Total Planned Depth</u>
UZ-14	1,442.1 feet	1,421.6 feet	2,000 feet
NRG-7/7A	1,504.2 feet	302.1 feet	1,445 feet
SD-12	160.4 feet	143.8 feet	2,300 feet

Regarding UZ-14, water was not encountered while coring this interval indicating the effectiveness of the cement grout plug placement.

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Regarding JP 93-15, Borehole NRG-7/7A, hole is presently in the Calico Hills formation. Several damp near-vertical rock discontinuities were observed in the drill core for the interval of depth from 1475.4 feet through 1504.17 feet. Approximately two ounces of water were recovered with a bailer. Preliminary indications are that this is perched water. Water samples are being collected for chemical and isotopic analyses. The hole was completed a few feet into the Calico Hills, and core below the contact was found to be dry.

Regarding JP 94-04, SD-12 Borehole, drilling continues in the Hackly Zone of the Tiva Canyon Member.

Regarding JP 94-06, final grading is in progress. The pad and road are on hold due to equipment priorities.

Regarding JP 94-3, Borehole UE-25 NRG-2D, auger drilling and sampling have been completed. Final hole depth is 170.2 feet. Standard Penetration Tests were performed at 5-foot intervals to 140.0 feet. Seven feet of augers were left in the hole. Fishing operations to recover the augers were unsuccessful. Demobilization of drilling equipment was completed on March 4, 1994.

Regarding USW SD9, the drill pad is close to being completed. Construction equipment is working on the access road to the site.

Regarding JP 93-11, C-Well Testing, laying of the black water discharge pipe continued.

Testing is temporarily suspended in Trench NRT-1 on the west side of Exile Hill.

Twelve core examinations were conducted at the Sample Management Facility for Sandia National Laboratories, Los Alamos National Laboratory (Los Alamos), DOE, and the U.S. Geological Survey (USGS).

The Sample Management Facility processed core and cuttings from ESF-ALL RBT2, NRG-7/7A, UZ-14, SD-12, UE-25 NRG-2C, and NRG-2D.

Prepared environmental boundaries, sketches, and written descriptions for excavation of trenches and access roads at Whaleback Ridge, Split Wash, and Drill Hole Wash locations.

The following is a listing of site characterization field activities that are currently active:

SCP ACTIVITY	TITLE	COMMENTS
8.3.1.3.2.1	Mineralogy, Petrology & Rock Chemistry of Transport Pathways	Outcrop sampling
8.3.1.3.2.2	Mineralogic & Geochemical Alteration	Outcrop sampling
8.3.1.4.2.2	Structural Features within Site Area	Surface mapping, ESF mapping
8.3.1.8.5.1	Characterization of Volcanic Features	Test pits, trenching
8.3.1.14.2	Soil & Rock Properties of Potential Location of Surface Facilities	Test pits, trenching, ramp exploration holes
8.3.1.17.4.2	Location & Recency of Faulting Near Prospective Surface Facilities	Trench mapping

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SCP ACTIVITY	TITLE	COMMENTS
8.3.1.17.4.3	Quaternary Faulting within 100 km of Yucca Mountain, Nevada	Surface mapping
8.3.1.17.4.4	Quaternary Faulting in NE-Trending Fault Zones	Surface mapping
8.3.1.17.4.6	Quaternary Faulting within Site Area	Trench mapping
8.3.1.2.1.1	Precipitation & Meteorological Monitoring for Regional Hydrology	Ongoing measurements
8.3.1.2.1.2	Runoff & Streamflow	Ongoing measurements
8.3.1.2.2.1	Unsaturated Zone Infiltration	Drilling/logging of neutron-access holes; ponding tests
8.3.1.2.2.2	Water Movement Tracer Tests	C1-36 measurements
8.3.1.2.2.3	Percolation in Unsaturated Zone	UZ drilling/testing Perched water testing
8.3.1.2.2.4	Characterization of YM Percolation in UZ-ESF Investigation	Perched water
8.3.1.2.2.6	Gaseous Phase Movement in Unsaturated Zone	UZ drilling/testing
8.3.1.2.2.7	Unsaturated Zone Hydrochemistry	UZ drilling/testing
8.3.1.2.3.1	Site Saturated Zone Groundwater Flow System	Ongoing monitoring
8.3.1.2.3.2	Saturated Zone Hydrochemistry	Ongoing sampling
8.3.1.15.1.8	In Situ Design Verification	Construction monitoring/testing

Environmental Safety and Health Programs

Five environmental compliance surveillances were conducted at the Yucca Mountain site ensuring compliance with permit and programmatic requirements.

The Safety and Health Division conducted 18 surveillances during this reporting period.

Large Block Test

Sawing of the fourth side of the Large Block Test of Topopah Spring welded tuff was completed. Drilling of 1 1/2-inch perimeter holes began March 3, 1994, and should be completed on March 4, 1994.

Site Characterization Plan/Study Plan Status

The U.S. Nuclear Regulatory Commission (NRC) has completed a detailed technical review of Study Plan 8.3.1.9.2.1 "Natural Resource Assessment of Yucca Mountain, Nye County, Nevada." No study plans were approved by the Yucca Mountain Site Characterization Office (YMSCO) this week.

STUDY PLAN BREAKDOWN

	Initial Plans	Major Revisions
Not Submitted to YMSCO	35	0
In Screening Review	0	0
In YMSCO Review	3	2
Awaiting Comment Resolution	2	3
In Verification Audit	6	1
Awaiting YMSCO Approval	1	0
Awaiting Submission to NRC	0	0
Awaiting NRC Initial Review	7	5
Accepted by NRC	50	6
<hr/>		
Totals	104	17
Total Submitted to NRC	57	11

State of Nevada Comments Status:

Received Comments from the State of Nevada.....	31
Responses Transmitted to the State of Nevada	19

NRC Comments Status:

Received Comments from NRC	30
Responses Transmitted from DOE to NRC.....	25

III. GENERAL INFORMATION ITEMS

Reviewed and provided comments on Office of Civilian Radioactive Waste Management (OCRWM) Administrative Procedure 32.1, Revision 0.

Assisted in preparations of briefing material for OCRWM/RW-1 Congressional Budget Hearings.

Reviewed and provided comments on proposed DOE position on Public Health and Safety Standards for a Repository at Yucca Mountain.

Verified resolution of Analysis and Verification Division (RW-22) comments of the review draft, OCRWM Regulatory Guidance Document.

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Completed 801 Position Paper review. On metal barriers, Lawrence Livermore National Laboratory (LLNL) is performing computer simulations to determine the effects on pitting corrosion of the number of cells (and pits), exposure time, and growth probability. The results of these simulations suggest the following:

1. Using a large number of cells does not significantly affect the shape of the distribution of pit depths although it produces a smoother distribution than if a small number of cells is used.
2. As the exposure time increases, the distribution gradually decreases in height, broadens, becomes less skewed toward small depths, and moves to larger depths.
3. Decreasing the growth probability decreases the rate at which the distribution evolves but not the character of the evolution.

The Mineralogy-Petrology staff conducted petrographic mapping to complete collection of the data needed on laminae structures for the final report on mineralogy and petrology of calcite-silica deposits in Trenches 14 and 14A.

The Los Alamos Mineralogy-Petrology task group completed X-ray diffraction analysis of all samples provided by the Los Alamos sorption task.

Los Alamos scientists met to plan collaborative studies of sorption on fracture surfaces.

Los Alamos Geochemistry task completed two sets of experiments to study selenium sorption. The first experiment investigated selenium transport through tuff columns under unsaturated conditions; the second involved the study of selenium sorption using batch sorption techniques. Comparison of these results will allow us the Los Alamos sorption task to attempt to validate batch sorption values for use in flow systems under unsaturated conditions.

Reviewed and provided comments on new Yucca Mountain Administrative Procedure 5.4Q, "Technical Field Work Requests."

Regarding rock characteristics, USGS personnel met with the DOE/Field Testing Coordinator at the Sample Management Facility this week to view core from UE-25 NRG-2D to help determine the location of the Rainier Mesa "Tuff X" in the borehole. Stratigraphic contacts were also selected for core from boreholes USW UZN-11 and USW UZN-38. USGS personnel have made a preliminary site selection for the planned USW UZ-7A borehole with respect to the Ghost Dance Fault location east of USW WT-2. Mapping of rock fabric orientation and microfracture sets continued on the Ghost Dance Fault exposure at Antler Ridge Pavement 1 this week.

Regarding tectonics, soils mapping in Fortymile Wash was performed this week by USGS in support of the erosion rate studies on Yucca Mountain.

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On Unsaturated Zone Studies, USGS personnel ran a downhole video camera in UE-25 NRG-2D this week to help ascertain hole conditions and the status of the reaming tool. The gamma-gamma and neutron logs were run in a number of shallow boreholes this week to test the equipment and procedures.

On Saturated Zone Studies, USGS personnel ran neutron moisture logs and measured water levels in boreholes in upper Fortymile Wash as part of the recharge studies. A new, customized downhole pH measurement system was assembled in USGS Area 25 facilities for testing before use in the field.

IV. PUBLIC OUTREACH AND INSTITUTIONAL ACTIVITIES

Various YMP staff coordinated and assisted with the JASON V Project, February 28-March 12, 1994, at Cheyenne High School, in Las Vegas. Approximately 300 teachers and other volunteers participated. The JASON V Project, enriching learning through exploration, uses state-of-the-art technology so that students across the country may experience the excitement of scientific discovery as it happens. This year's project comes to the Las Vegas area from Belize, Central America. Over 20,000 students are expected to attend the broadcasts during the two weeks.

A presentation on Native American Culture was given to 39 guests of the Solo Club on March 1, 1994, in Las Vegas. Also, 60 fifth grade students from John S. Park Elementary School toured the Las Vegas Yucca Mountain Science Center and participated in a geology workshop, conducted by YMP staff.

An educational presentation on "Gee Whiz Science" was given to 105 students at C. P. Squires Elementary School, on March 4, 1994, in Las Vegas.

A general YMP overview was given to 25 students at Brinley Junior High School on March 2, 1994, in Las Vegas.

An update on site characterization at Yucca Mountain was given to 100 people at the Waste Management Symposium, on March 3, 1994, in Tucson, Arizona.

A Public Open House tour of Yucca Mountain was coordinated and conducted on February 26, 1994, for 233 people. Tour participants visited the Yucca Mountain Science Centers, the Field Operations Center, two laboratories, the top of Yucca Mountain, and the Exploratory Studies Facility north portal construction area.

Tours to Yucca Mountain were conducted on March 3, 1994, for 10 guests from Japan Electric Power Information Center, Inc., and for Eric Jordan, Regional Manager for Senator Harry Reid, and two guests. A tour was also conducted on March 4, 1994, for 35 guests of Waste Management '94.

YMP exhibits were set up and staffed for the Waste Management Symposia, February 27-March 3, 1994, in Tucson, Arizona. Approximately 500 people visited the displays.

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YMP staff completed coordination of a "Name the Tunnel Boring Machine" contest. More than 500 names were submitted. A committee, representing construction, field testing, and administrative personnel, chose "The Yucca Mucker" as the winning entry.

YMP staff completed 25 external information requests. This was accomplished by providing written responses to written and verbal queries and/or by supplying existing literature.

V. 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 coordinated by the Speakers Bureau; contact Jackie Brandt at (702) 794-7896 or Theresa Hirsch at (702) 794-7759 for additional information. Exhibits are coordinated by Joanna Magruder at (702) 794-7056, Public Update Meetings are coordinated by Jamie Elliott at (702) 794-7769, and Tours are coordinated by Carleen Hill at (702) 794-7375 or Kelly Doyle at (702) 794-7133.

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMSCO Contact</u>
<u>A. Stakeholders Meetings</u>			
Thursday, March 10	State, Tribal, and Local Government Coordination Group (P)	Death Valley, CA	R. Nelson
Friday, April 15	Affected Units of Government (P)	Las Vegas NV	S. Richardson
<u>B. DOE/Headquarters Meetings</u>			
Thursday, April 7	OCRWM Director's Program Review (P)	Vienna VA/LV (Video- conference)	R. Nelson
<u>C. CRWMS M&O/DOE Meetings</u>			
Wednesday, April 27	CRWMS Program Management Review (P)	Las Vegas, NV	R. Nelson
<u>D. Internal & DOE/Nevada Operations Office Meetings</u>			
March Time frame	Third Annual YMP Safety & Health Awareness Program (P)	Las Vegas, NV	R. Nelson
Thursday- Friday, March 17-18	Total Quality Management Offsite	Las Vegas, NV	R. Nelson

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMSCO Contact</u>
<u>E. NRC Interactions</u>			
Tuesday- Wednesday, March 15-16	NRC Technical Exchange on Status of Work Relevant to Characterization of Saturated and Unsaturated Flow (P)	Denver, CO	T. Bjerstedt
<u>F. Nuclear Waste Technical Review Board (NWTRB) Interactions</u>			
Tuesday- Wednesday, March 8-9	NWTRB - Structural Geology and Geoengineering Panel (P)	San Francisco, CA	D. Williams
Thursday- Friday, March 10-11	NWTRB - Engineered Barrier System Panel (P)	Pleasanton, or Oakton, CA	W. Simecka
Monday- Tuesday, March 21-22	NWTRB - Environment and Public Health Panel (P)	Las Vegas, NV	W. Dixon
Monday- Wednesday, April 11-13	NWTRB Full Board Meeting (P)	Reno, NV	R. Patterson
<u>G. Advisory Committee on Nuclear Waste (ACNW) Interactions</u>			
Tuesday, March 22	ACNW Working Group on Low-Level Waste Performance Assessment (P)	Bethesda, MD	A. Gil
Wednesday- Thursday, March 23-24	62nd ACNW Meeting Topic TBD (P)	Bethesda, MD	A. Gil
<u>H. National Academy of Sciences (NAS) Interactions</u>			
Thursday- Friday, April 28-29	NAS Committee on Yucca Mountain Standards (P)	Las Vegas, NV	S. Jones
Tuesday, March 8	Democratic Women's Club - General Overview	Pahrump, NV	P. Carmack

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
I. <u>State and Public Interactions</u>			
Wednesday, March 9	Youth Leadership Las Vegas Program - Environmental	Las Vegas, NV	D. Bradford M. d'Ouille
Saturday, March 12	Expanding Your Horizons - Math & Science	Las Vegas, NV	A. Gil L. Linden
Wednesday, March 16	American Nuclear Society - TBD	San Diego, CA	J. Peck
Wednesday, March 16	Amargosa Science Fair - Judging Science Fair	Amargosa, NV	D. Kessel J. Weaver
Wednesday, March 16	San Diego Association of Geologists - General Overview	San Diego, CA	G. Fasano
Friday, March 18	Association of Girl Scouts Executive Staff - Native American Culture	Las Vegas, NV	R. Arnold
Sunday, March 20	Risk Management Quarterly Assn. - TBD	San Diego, CA	TBD
Thursday, March 24	Moonstruck Gallery - Native American Culture	Las Vegas, NV	R. Arnold
Friday, March 25	Retired Officers' Association - General Overview	Las Vegas, NV	J. Peck
Sunday, March 27	Yucca Mountain Speaker Series (P) - "Desert Beauties - Spring Wildflowers"	Pahrump, NV	K. Wirtz
Tuesday, March 29	Yucca Mountain Speaker Series (P) - "Desert Beauties - Spring Wildflowers"	Las Vegas, NV	K. Wirtz

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMSCO Contact</u>
<u>E. NRC Interactions</u>			
Tuesday- Wednesday, March 15-16	NRC Technical Exchange on Status of Work Relevant to Characterization of Saturated and Unsaturated Flow (P)	Denver, CO	T. Bjerstedt
<u>F. Nuclear Waste Technical Review Board (NWTRB) Interactions</u>			
Tuesday- Wednesday, March 8-9	NWTRB - Structural Geology and Geoengineering Panel (P)	San Francisco, CA	D. Williams
Thursday- Friday, March 10-11	NWTRB - Engineered Barrier System Panel (P)	Pleasanton, or Oakton, CA	W. Simecka
Monday- Tuesday, March 21-22	NWTRB - Environment and Public Health Panel (P)	Las Vegas, NV	W. Dixon
Monday- Wednesday, April 11-13	NWTRB Full Board Meeting (P)	Reno, NV	R. Patterson
<u>G. Advisory Committee on Nuclear Waste (ACNW) Interactions</u>			
Wednesday- Thursday, February 23-24	61st ACNW Meeting Topic TBD (P)	Bethesda, MD	A. Gil
Tuesday, March 22	ACNW Working Group on Low-Level Waste Performance Assessment (P)	Bethesda, MD	A. Gil
Wednesday- Thursday, March 23-24	62nd ACNW Meeting Topic TBD (P)	Bethesda, MD	A. Gil
<u>H. National Academy of Sciences (NAS) Interactions</u>			
Thursday- Friday, April 28-29	NAS Committee on Yucca Mountain Standards (P)	Las Vegas, NV	S. Jones

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
I. <u>State and Public Interactions</u>			
Tuesday, March 8	Democratic Women's Club - General Overview	Pahrump, NV	P. Carmack
Wednesday, March 9	Youth Leadership Las Vegas Program - Environmental	Las Vegas, NV	D. Bradford M. d'Ouille
Saturday, March 12	Expanding Your Horizons - Math & Science	Las Vegas, NV	A. Gil L. Linden
Wednesday, March 16	American Nuclear Society - TBD	San Diego, CA	J. Peck
Wednesday, March 16	Amargosa Science Fair - Judging Science Fair	Amargosa, NV	D. Kessel J. Weaver
Wednesday, March 16	San Diego Association of Geologists - General Overview	San Diego, CA	G. Fasano
Friday, March 18	Association of Girl Scouts Executive Staff - Native American Culture	Las Vegas, NV	R. Arnold
Sunday, March 20	Risk Management Quarterly Assn. - TBD	San Diego, CA	TBD
Thursday, March 24	Moonstruck Gallery - Native American Culture	Las Vegas, NV	R. Arnold
Friday, March 25	Retired Officers' Association - General Overview	Las Vegas, NV	J. Peck
Sunday, March 27	Yucca Mountain Speaker Series (P) - "Desert Beauties - Spring Wildflowers"	Pahrump, NV	K. Wirtz
Tuesday, March 29	Yucca Mountain Speaker Series (P) - "Desert Beauties - Spring Wildflowers"	Las Vegas, NV	K. Wirtz

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
I. <u>State and Public Interactions</u> (Continued)			
Wednesday, April 6	Summerlin Community Association - Neighborhood Dialogues	Las Vegas, NV	TBD
Thursday, April 7	Association for Education in Journalism and Mass Communication - General Overview	Reno, NV	TBD
J. <u>Educational Interactions</u>			
Monday- Saturday, February 28- March 12	JASON Project - "Rain Forest"	Las Vegas, NV	E. Harle
Monday, March 7	Derfelt Elementary School - Native American Culture	Las Vegas, NV	R. Arnold
Tuesday, March 8	Roy Martin Junior High School - Environmental	Las Vegas, NV	T. Pysto
Tuesday, March 8	George Harris Elementary School - Native American Culture (Nevada Reading Week)	Las Vegas, NV	R. Arnold
Wednesday, March 9	Partnership in Education - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Thursday, March 10	Fremont Middle School - General Overview/Geology	Las Vegas, NV	D. Merritt
Thursday, March 10	C. P. Squires Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Monday, March 14	Silver Rim Elementary School - "Gee Whiz Science"	Tonopah, NV	J. Blink

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
J. <u>Educational Interactions</u> (Continued)			
Tuesday, March 15	Hawthorne - "Gee Whiz Science"	Hawthorne, NV	J. Blink
Tuesday, March 15	Ute Perkins Elementary School - Energy	Las Vegas, NV	J. Sizemore M. d'Ouville
Wednesday, March 16	Incline Elemen- Elementary School - "Gee Whiz Science"	Incline, NV	J. Blink
Wednesday, March 16	Bill Yonema Tomiyasu Elementary School - Energy	Las Vegas, NV	J. Sizemore M. d'Ouville
Thursday, March 17	Incline Middle School - "Gee Whiz Science"	Incline, NV	J. Blink
Thursday, March 17	William R. Lummis Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Thursday, March 17	Bill Yonema Tomiyasu Elementary School - Energy	Las Vegas, NV	J. Sizemore M. d'Ouville
Thursday, March 17	William R. Lummis Elementary School - Metric System	Las Vegas, NV	L. Cuba
Friday, March 18	Tonopah Elementary School School - Nye County Egg Drop	Tonopah, NV	J. Blink
Monday, March 21	Southern Nevada Science Fair - Science Fair	Las Vegas, NV	Various
Monday, March 21	Partnerships in Education - Work- shop on Mapping & Hydrology & Native American Culture	Las Vegas, NV	C. Knobbier R. Arnold
Tuesday, March 22	Gibson Middle School - Environmental Issues Related to YMP	Las Vegas, NV	G. Fasano

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
J. <u>Educational Interactions</u> (Continued)			
Wednesday, March 23	Fremont Junior High School - Geology - Career Day	Las Vegas, NV	J. Peck
Wednesday, March 23	Bridger Middle School - Environmental Issues Related to YMP	Las Vegas, NV	T. Pysto
Thursday, March 24	C. P. Squires Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Friday, March 25	Thurman White Middle School - Fossils	Henderson, NV	A. Gil
Friday, March 25	Thurman White Middle School - Native American Culture	Henderson, NV	R. Arnold
Tuesday, April 5	Science and Mountains Teacher Workshop	Las Vegas, NV	E. Harle
Wednesday, April 6	C. P. Squires Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Wednesday, April 6	C. P. Squires Elementary School - Geology	Las Vegas, NV	J. Sizemore M. d'Ouille
Thursday, April 7	Science and Mountains Teacher Workshop	Las Vegas, NV	E. Harle
Thursday, April 7	C. P. Squires Elementary School - Geology	Las Vegas, NV	J. Sizemore M. d'Ouille
Saturday, April 9	Girl Scouts - Geology Merit Badge Workshop	Las Vegas, NV	Various

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<u>Date</u>	<u>Event</u>	<u>Location</u>
K. <u>Exhibits Scheduled</u>		
Saturday, March 19	Public Open House (P)	Las Vegas, NV
Monday- Wednesday, March 21-23	Geological Society of America - Cordilleran Section	San Bernardino, CA
Thursday, March 24	Green Valley Civic Association Network	Henderson, NV
Thursday- Sunday, April 7-10	Clark County Fair	Logandale, NV
<u>Date</u>	<u>Event</u>	<u>Escorts</u>
L. <u>Tours Scheduled</u>		
Tuesday, March 8	St. Cloud State University (MN)	TBD
Wednesday, March 9	YMP Orientation	TBD
Thursday, March 10	Laughlin High School	TBD
Friday, March 11	Power Nuclear Reactor Cooperative - Japan	TBD
Monday, March 14	Power Nuclear Reactor Cooperative - Japan	TBD
Monday, March 14	UK NIREX	TBD
Tuesday, March 15	Jewish War Veterans	TBD
Wednesday, March 16	Fremont Middle School	TBD
Saturday, March 19	Public Open House (P)	Various Escorts
Monday, March 21	Nuclear Waste Technical Review Board	W. Dixon
Tuesday, March 22	Boulder City Bureau of Reclamation	TBD

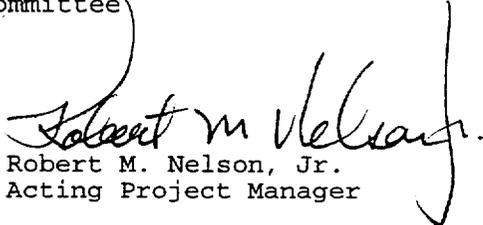
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<u>Date</u>	<u>Event</u>	<u>Escorts</u>
L. <u>Tours Scheduled</u> (Continued)		
Wednesday, March 23	LLNL Science and Engineering Research Semester Students	TBD
Wednesday, March 23	Fremont Middle School	TBD
Thursday, March 31	National Council, State Garden Club Specific Region Convention	TBD
Friday, April 1,	National Association of Regulatory Utility Commissioners	TBD
Tuesday, April 5	W. Mac Lyon Middle School	TBD
Wednesday, April 6	YMP Orientation	TBD
Thursday, April 7	Southern States Energy Board Advisory Committee on Radioactive Materials Transportation	TBD
Friday, April 8	State of Nevada Technical Review Committee	TBD

YMP:CLH-2409


Robert M. Nelson, Jr.
Acting Project Manager

INFORMATION COPY



Reynolds Electrical & Engineering Co., Inc.

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

IN REPLY REFER TO

580-01-320

WBS 1.2.9.1

QA: N/A

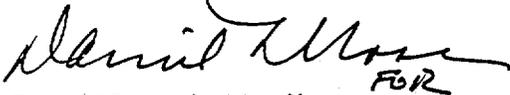
MAR 15 1994

Robert M. Nelson, Jr.
Acting 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 (YMP) PROGRESS REPORT (SCP: N/A)

Enclosed is the February YMP Progress Report for Reynolds Electrical & Engineering Co., Inc.'s participation in the YMP. The Variance Explanations (Variance Analysis Reports) are not enclosed and will be submitted under separate cover.

If you have any questions, please contact Dean L. Knight at 794-7400.


FOR

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

RFP:SEW:L9491:mff

Enclosures

1. Progress Report (9 pages)
2. Cost/Full-Time Equivalent Report (1 page)

cy w/encls.

Information Services Center, M/S 408
M. M. Martin, M&O, M/S 423

cy w/encl. 1

See page 2

REECO

AN EBC COMPANY

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

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT (YMP)

FEBRUARY 1994 - PROGRESS REPORT

Reeco has no reportable Level 0 or Level 1 Milestones.

WASTE PACKAGE (1.2.2)

PROGRESS DURING REPORTING PERIOD:

WBS 1.2.2.2.4

Task: Fran Ridge Prototype Saw Support (Job Package 93-10)

Supported sawing activities as required; provided wiremen, operators, laborers, and equipment to support moving the generators and positioning the rock cutting saw, and leveled the surface of the rock around the test block.

DELIVERABLES:

None.

ISSUES AND CONCERNS:

None.

SITE (1.2.3)

PROGRESS DURING REPORTING PERIOD:

WBS 1.2.3.5

Task: USW UZ-14 Drilling (Job Package 92-17)

Started moving in the Stratmaster Drill Rig, February 11, 1994. Drilled anchor holes and cemented in anchors for guy lines, rigged-up Stratmaster 100 and associated equipment. Broke out and cleaned CHD 134 core rod. Expect to begin coring operations March 1, 1994.

Task: Work Program USW NRG-7/7A (Job Package 93-15)

Presently coring at 1,445 feet with 6 $\frac{5}{8}$ inch odex casing at 302 feet.

Task: UE-25 NRG-2C and NRG-2D, - Phase 1 (Job Package 94-03)

Set and cemented 10 $\frac{3}{4}$ inch casing at 10 feet with Texoma Auger Rig on NRG-2C and NRG-2D. Moved in CME-850 Drill Rig. Hammer drilled 9 $\frac{1}{2}$ inch hole to 50.01 feet on NRG-2C, and hammer drilled 9 $\frac{1}{2}$ inch hole to 38.14 feet on NRG-2D. Installed air tight lockable cap on both holes. Phase I completed on February 10, 1994. No REEC support is required for Phase II.

Task: Work Program USW SD-12 (Job Package 94-04)

Cored and drilled surface hole from surface to 50 feet. Set and cemented 16-inch casing at 50 feet on February 10, 1994. Presently coring at 125.56 feet with 12 $\frac{1}{4}$ inch hole reamed to 120.50 feet.

Task: Maintenance & Operations

Continued to provide technical support, equipment checks, and repairs to the USGS Integrated Data Acquisition System (IDAS) Prototype System.

DELIVERABLES:

<u>Deliverable</u>	<u>Due Date</u>	<u>Expected Date</u>	<u>Completed Date</u>	<u>Comments</u>
Drilling of SD-12 Borehole				Operations ongoing.
Drilling of NRG-7/7A Borehole				Operations ongoing. Expected completion early March 1994.
Drilling of Ramp Boreholes NRG-8A, 8B, 8C				No activity at this time.
Drilling of Ramp Boreholes NRG-2C and NRG-2D, Phase I				Phase I Completed February 10, 1994.
Drilling of SD-9 Borehole				Expected start date March 1994.
Support testing and completion on UZ-16 and UZ-14				Testing support ongoing on UZ-16. Stratmaster rigged up on UZ-14. Expect to start drilling/coring operations first week of March.
Support pump testing activities at the C-Hole Complex				Phase 1. Completed January 21, 1994.
Drilling of UZ-7A Borehole				No activity at this time.

ISSUES AND CONCERNS:

None.

EXPLORATORY STUDIES (1.2.6)

PROGRESS DURING REPORTING PERIOD:

WBS 1.2.6.1

Task: Exploratory Studies Facility (ESF)

Continued administrative support for ESF activities to include planning, scheduling, and management.

Task: ESF North Portal Pad & Facilities (Job Package 92-20)

Dry Core Drilling in Test Alcove #1: Supported LANL and USGS representatives lay out dry core drilling locations; supported underground drillers assemble drilling platform, dust collector and water and oil separator; spaded invert of Test Alcove No. 1 in order to set drilling platform at the correct elevation; finished setting up the dry core drilling; installed and pull tested two lifting fixtures; drilled core hole HC#1LL to a depth of 33 M (100 ft), supported USGS mappers to begin mapping the core hole.

Trenches and Duct Bank: Cleaned and graded previously machine excavated duct bank and manholes, trenches, and pits by hand; continued bending reinforcing steel for duct banks; poured first slab Manhole PF to Manhole PG; continued setting rebar frames and conduits in place; began encasing conduits in concrete; received and set-in place four electrical manholes; began backfilling over previously poured conduit encasement.

Additional Grading ESF Pad: Scarified and compacted existing ground and placed one foot of new fill material in revised grade section of ESF Pad east of Switchgear Building; continued placing and compacting additional fill east of Switchgear Building where stockpile was located.

Water line - J-13 to Booster: Continued placing and compacting sand bedding material; hauled sand bedding material from A-1 Shaker Plant to job site; completed pipe installation from J-13 to booster pump; began placing street fill over pipe in road crossing to top of Yucca Mountain; pipe installed to Station 338+40; continued placing and compacting first cover over pipe.

Batch Plant Set-Up: Poured 16 cubic yards of concrete for columns; stripped foundation slab and column forms; backfilled footing slabs; continued excavating power trench; poured concrete thrust blocks for water line feeding plant; began erection and wiring of the concrete plant.

Screen Plant: Continued screening and manufacturing select fill material; setup new Kohlberg shaker plant screen and began manufacturing sand bedding.

Starter Tunnel Rockbolts/Shotcrete: Continued supporting RSN Materials Test Lab personnel obtaining core samples of fibercrete; pull-tested four pattern rockbolts - all rockbolts passed; completed double plating pattern rockbolts; supported wire hang electrical panels; repaired holes left in the selected pattern rockbolts under the direction of REECo QC - all rockbolts passed.

Test Alcove #1 Excavation: Supported USGS mappers and RSN surveyors as required; supported SNLA install extensometers and convergence pins and take extensometer readings; installed 10 1.5-foot split set rockbolts and 26 10-foot split set rockbolts and hung 7 wraps of 2-inch wire; continued supporting RSN personnel obtaining core samples of fibercrete.

Task: Construction of C-Well Complex (Job Package 92-21)

C-Well Discharge Pipeline: Mobilized equipment and material; made practice weld with fusing welding machine; strung 795 M (2,606 ft.) of 6-inch diameter pipe from C-Well to H-Road; began fuse welding pipe together approximately 610 M (2,000 ft.).

NRT-1 Trench, Slot & Trail: Excavated 3- by 10- x 60-foot slot in NRT-1 trench with JB 992D LC Backhoe; moved shoring jacks to location and ordered shoring plywood; installed shoring in trench slot.

Procurement Actions

A Sources Sought Synopsis for a Chlorine Injection System was issued on February 7, 1994. Actionable Purchasing Requisition received in Procurement on February 24, 1994. The package calls for a Technical Proposal; however, there was no acceptable evaluation criteria provided. In addition, there is ambiguity in the matter of submittals. This has been brought to the attention of the Control Department who is coordinating action with the A-E.

RFP 16-BG-94 for a Surface Conveyor System: Extended proposal closing indefinitely at the request of the user. A memorandum is being sent to the Control Department which points out A-E delays in the rewrite of specifications and changing of drawings for this requirement. This has great potential of being a problem down the line. By untimely action on the part of the design engineer, a portion of the project may slip or cause alternate methods of performance. If we do not get immediate action on this major design change, Procurement may not be able to recover this lost time and respond to the customer's needs.

RFP 32-BG-94 for Precast Concrete Utility Boxes: (5 each) and Precast Concrete Vaults (11 each): Best delivery date is March 23, 1994.

RFP 40-BG-94 for Precast Concrete Manhole Components: Delivery date is February 28, 1994.

RFP 54-BG-94 for Subsurface Switchgear: Closed on February 14, 1994. Thirteen proposals were received. In reviewing the proposals received, the M&O A-E has determined that the specifications must be revised and clarifications must be obtained before a final evaluation can be accomplished. Letters to the offerors have been prepared and coordinated through the A-E, asking for revised cost proposals, if necessary, and establishing a new closing date of March 21, 1994.

RFP 63-MM-94 for Water Storage Tank: Closed on February 11, 1994. One proposal was received. Cost and Pricing data was received from the vendor on February 25, 1994. The file was forwarded to the REECo Procurement Department Price Analyst for audit and evaluation. Additional information/clarification of data from the offeror was requested. Analysis will be completed by March 9, 1994.

RFP 83-BG-94 for Rotary Drill Rig: Issued on February 2, 1994, with a closing date of March 14, 1994. A request has been sent to the Control Department to provide answers to offerors' query/request for clarifications. They are coordinating this with the A-E and will provide this information to the Procurement Section on March 8, 1994.

924-YCA-01-3, Tunnel Boring Machine: On schedule. Modification No. 3 to change the configuration for the erector/drill platform cylinders was issued on February 18, 1994. Initial spares listing was received on February 24, 1994.

DELIVERABLES:

Completion of the 69KV power line to the ESF is changed from February 10, 1994, and is now projected for April 6, 1994.

ISSUES AND CONCERNS:

No programmatic impact is expected from the delay of the 69KV power line.

TEST FACILITIES (1.2.7)

PROGRESS DURING REPORTING PERIOD:

Task: Field Operations Support

Continued support services to participants and maintenance of YMP utilized facilities, utilities, equipment, and roads in Area 25.

Continued logistical and tour support for DOE Yucca Mountain Site (YMSO) staff. Fifteen tours and one Open House were held during this period. Support included, but was not limited to, arrangements for buses, registration of guests, coordination of lunches/beverages, medical service, furniture, and mechanical service. Continued preparations for upcoming tours.

DELIVERABLES:

None.

ISSUES AND CONCERNS:

None.

PROJECT MANAGEMENT (1.2.9)

PROGRESS DURING REPORTING PERIOD:

WBS 1.2.9

Task: Technical Project Office Management/Project Control

Continued normal administrative level of effort support. Continued status and update of Planning and Control System (PACS); supported ESF construction and drilling activities; and, completed cost estimates as required.

DELIVERABLES:

None.

ISSUES AND CONCERNS:

None.

QUALITY ASSURANCE (1.2.11)

PROGRESS DURING REPORTING PERIOD:

WBS 1.2.11

Task: Quality Assurance (QA)

Conducted REECo Audit No. REECo-004-94 of Work Planning and Control. The audit resulted in identifying one corrective action concerning material control and three deficiency notices concerning construction records.

Conducted REECo Surveillance SR-004-94 for Construction and Tunneling Services, Inc. (CTS) and its subcontractors EBCO Industries, LTD and Nicholson Manufacturing Company. The purpose was to verify QA and contractual compliance in the fabrication of the Tunnel Boring Machine (TBM). Welding process and controls, inspection methods and documentation, identification and control of item, and control of nonconformance were evaluated. The results indicate that CTS is progressing satisfactorily with the TBM contract.

DELIVERABLES:

Additional procedural clarifications are underway to resolve DOE QA comments concerning QARD implementation. These actions are to be completed by March 4, 1994. Activities in support of Work Package/Work Authorization Directive FY94 are ongoing.

ISSUES AND CONCERNS:

None.

ENVIRONMENT, SAFETY & HEALTH (1.2.13)

PROGRESS DURING REPORTING PERIOD:

WBS 1.2.13

Task: Safety & Occupational Health

Provided medical, occupational safety, industrial hygiene, and fire protection support.

Full Industrial Hygiene services continue to be provided for the Yucca Mountain Project. Daily work activities are evaluated and monitored for health hazard concerns.

Air quality and relative humidity measurements were taken in the work areas of the North Portal Starter Tunnel (NPST) and the Test Alcove #1. These measurements were taken during dry-core drilling of radial borehole HC-1, RSN surveying operations in the Test Alcove, USGS preparation and TV video logging operations of HC-1, line-up preparation of the core drill rig for radial borehole HC-3, and other routine tunnel/alcove construction work.

Measured noise levels during dry-core drilling at the Test Alcove face, HC-1 lower left borehole; in support of the Los Alamos National Laboratory (LANL) Hydrochemistry Test in the Exploratory Studies Facility (ESF) North Ramp Starter Alcove #1. During drilling, noise levels were 88 to 89 DBA at the operator's position, 86 DBA at the tracer-gas tanks, and 83 DBA at the Industrial Hygiene table. During core-pipe removal to check the drill bit, noise levels were 105 to 108 DBA, 100 DBA, and 98 DBA, respectively. Personnel wore hearing protection.

Measured air quality during entry inside a silo (confined space) at the Batch Plant for the removal/retrieval of equipment/parts. No problems noted.

DELIVERABLES:

None.

ISSUES AND CONCERNS:

None.

SUPPORT SERVICES (1.2.15)

PROGRESS DURING REPORTING PERIOD:

WBS 1.2.15

Task: Administrative Support and Training

Continued to provide procurement, logistical, and information management administrative level of effort support; continued support services to various YMP participants.

Staffed the YMP technical information display at the conference of the Society for Mining, Metallurgy & Exploration in Albuquerque, New Mexico, and the Waste Management '94 Conference in Tucson, Arizona; participated in the American Nuclear Society (ANS) technical paper review session in preparation for their annual meeting to be held in June of 1994; participated in the Professionals and Youth Building a Commitment (PAYBAC) program at Woodbury and Dale H. Robison Middle schools; and served as a Rules' Judge in the 1994 DOE Regional Science Bowl.

Task: Site Characterization Plan (SCP) Reference Library and Database

Continued distribution and database maintenance for the SCP and Progress Reports. Distributed one copy of the SCP.

DELIVERABLES:

None.

ISSUES AND CONCERNS:

None.

INFORMATION COPY



Reynolds Electrical & Engineering Co., Inc.

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

IN REPLY REFER TO:

580-01-340
MAR 21 1994

WBS 1.2.9.1
QA: N/A

Robert M. Nelson, Jr.
Acting 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 (YMP) PROGRESS
REPORT VARIANCE ANALYSIS REPORT (SCP: N/A)

Enclosed are the Variance Analysis Reports for the February YMP Progress Report as stated in our Letter Number 580-01-320, subject above, dated March 15, 1994.

If you have any questions, please contact Dean L. Knight at 794-7400.

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

RFP:DLK:L9498:mff

Enclosure
Variance Analysis Reports (30 pages)

cy: See page 2

TOTAL QUALITY IS OUR BUSINESS

REEC_o
AN  EG&G COMPANY

**Yucca Mountain Site Characterization Project
 Variance Analysis Report
 Status Thru: 28 February 1994**

PARTICIPANT: REECO PEM: Long

WBS: 1.2.3.5.1

WBS TITLE: Sample Management Facility

P&S ACCOUNT: OR351

FY 1994 Cumulative to Date										FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI		BAC	EAC	VAC	VAC%	IEAC	ICPI
0	0	0	0	0.0	0.0	0	0.0	0.0		361	536	-175	-48.5	508	64.9

Analysis

Cumulative Cost Variance:

Cumulative Schedule Variance:

Variance At Complete: Fiscal Year 1994 budget for support of the Sample Management Facility was baselined below the projected cost to provide this service through the Fiscal Year. To continue support of this facility through the end of the Fiscal Year is estimated to require and additional \$175K.

Daniel Mass 3/21/94
 FOR RFP

 P&S ACCOUNT MANAGER DATE

Daniel Mass 3/21/94
 FOR RFP

 TPO DATE

**Yucca Mountain Site Characterization Project
 Variance Analysis Report
 Status Thru: 28 February 1994**

PARTICIPANT: KHECO PFM: LONG WBS: 1.2.3.5.3.5

WBS TITLE: UX, Vert. and Seis. Prof., & Prot Drillholes and Tests

P&S ACCOUNT: OR555

FY 1994 Cumulative to Date									FY 1994 at Completion					
BAC	EAC	VAC	EV	EVZ	SPI	EV	CVZ	CP1	BAC	EAC	VAC	EVZ	LEAF	TP1
0.0	0.0	0.0	0.0	0.0	0.0	143	32.6	148.4	0	0	0	0.0	0	0.0

Analysis

Cumulative Cost Variance: Drilling progress was inhibited due to field conditions encountered requiring a scope of work change to address water investigation and cementing operations. The cost of this activity is revised to reflect a modified scope of work. In addition, an accounting adjustment of \$70K was credited to the account.

Cumulative Schedule Variance:

Variance At Complete:

[Signature] 5/18/94
 P&S ACCOUNT MANAGER DATE

[Signature] 3/28/94
 TPO DATE FOR RFP

**Yucca Mountain Site Characterization Project
 Variance Analysis Report
 Status Thru: 28 February 1994**

PARTICIPANT: REECO PEM: LONG WBS: 1.2.3.5.3.11

WBS TITLE: Multiple Well Interference Tests at C-Hole Complex

P&S ACCOUNT: OR353B

FY 1994 Cumulative to Date										FY 1994 at Completion					
BCWS	BCMP	ACWP	SV	SVZ	SPI	CV	CVZ	CPI		BAC	EAC	VAC	VACZ	IEAC	TCPI
549.0	389.0	474.0	-160.0	-29.1	0.0	-85.0	-21.9	82.1							

Analysis

Cumulative Cost Variance: Procurement of the Variable Speed Controller did not cost in February. Design specifications and criteria to initiate procurement is not released by the A-E for this activity.

Cumulative Schedule Variance: Construction of the Discharge Pipeline started later than planned due to impacts from design resolution issued to meet testing requirements. Completion of the discharge Pipeline will not be completed according to schedule due to the spreading basin design modifications which is not released for construction. Procurement of the Variable Speed Controller and Pump Cable have not been initiated due to lack of issued criteria from the A-E.

Variance At Complete:

[Signature] 3/18/94
 P&S ACCOUNT MANAGER DATE

[Signature] 3/21/94
 TPO FOR RFP DATE

Yucca Mountain Site Characterization Project
 Variance Analysis Report
 Status Thru: 28 February 1994

PARTICIPANT: REECO PEM: Long

WBS: 1.2.3.5.3.22

WBS TITLE: In Situ Strs. Drillhole & Tests, and Qua. Flt. Trenches

P&S ACCOUNT: 0R353M

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCMS	BCMP	ACMP	SV	SVZ	SPI	CV	CVZ	CPI	BAC	EAC	VAC	VACZ	IEAC	TCPI
0	0	0	0	0.0	0.0	0	0.0	0.0	129	79	50	38.8	67	100.0

Analysis

Cumulative Cost Variance:

Cumulative Schedule Variance:

Variance At Complete: The \$50K identified as the Estimate at Completion (EAC) includes Ghost Dance Fault Roadcuts (JP93-12), Alice Ridge Trenching (JP94-01), and Bare Mountain Trenching/Test Pits (JP92-12) per Test Plan T-92-17. The underrun from the baselined budget is available to fund test support activities that are not defined at this time and are not included in the EAC.

M Howard 3/18/94
 P&S ACCOUNT MANAGER DATE

Daniel Kloss 3/21/94
 TPO P&S RFP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECO PEM: WBS: 1.2.6.1.1
WBS TITLE: Management Planning and Technical Assessment
P&S ACCOUNT: OR611

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	TEAC	TCPI
399	392	212	0	0.0	0.0	180	45.9	184.9	2378	710	1668	70.1	1286	398.8

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TBM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 PACS upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECO.

Cumulative Cost Variance:

Unable to ramp-up personnel as originally planned and future staffing requirements have been revised for this fiscal year. A cost underrun is expected and will be reallocated within WBS 1.2.6 to support construction activities.

Cumulative Schedule Variance:

Variance At Complete:

A cost underrun of \$1,668K at completion is projected for this account. An underrun of \$270K is projected due to a reduction in projected staffing needs for Construction Department Management, Planning, and Technical Assessment. Funding of \$1,398K budgeted at risk for poorly defined activities to support TBM operation will be reallocated to support revised planning activities. The activities canceled or deferred are:

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECO **PEM:** **WBS: 1.2.6.1.1**
WBS TITLE: **Management Planning and Technical Assessment**
P&S ACCOUNT: **OR611**

Variance At Complete: (continued)

the ESF Subsurface Grounding Grid, Temporary Muck Haulage/Truck support of TBM operation, Temporary Diesel Generated Power, Off-Pad Power Transmission (69kv & 138kv) equipment, Test Alcove #1 Ground Support (steel sets), Temporary Portal Control/Change House Facility on pad, and Starter Tunnel Maintenance support with Mine Rescue capability.

M Howard *3/21/94*
P&S ACCOUNT MANAGER **DATE**

Robert Kline *3/21/94*
TPO **FOR RFP** **DATE**

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECO **PEM:** Gardiner **WBS:** 1.2.6.2.1.1
WBS TITLE: **First Access Area**
P&S ACCOUNT: **OR6211**

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VACS	LEAD	TSP1
0	0	0	0	0.0	0.0	0	0.0	0.0	143	301	-158	-110.5	59	21.1

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TBM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 PACS upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECO.

Cumulative Cost Variance:

Cumulative Schedule Variance:

Variance At Complete:

The projected overrun of \$158K at completion is due to revised planning increasing the scope of work under this account. Additional activities are placing compacted fill to grade on the ESF pad and installation of part of the Storm Drainage System. The overrun is offset by a projected underrun of \$44K to complete the Boxcut Highwall maintenance and monitoring.

M Howard 3/21/94
P&S ACCOUNT MANAGER **DATE**

David Allen 3/21/94
TPO **FOR RFP** **DATE**

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 18 FEB 94**

PARTICIPANT: REECO **PEM:** Gardiner **WBS:** 1.2.6.2.2.1
WBS TITLE: **Surface Util/Communications - First Access Area**
P&S ACCOUNT: **OR6221**

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	IEAC	TCPI
2095	555	979	-1540	-73.5	26.5	-424	-76.4	56.7	3288	5253	-1965	-59.8	5799	63.9

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TBM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 PACS upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECO.

Cumulative Cost Variance:

Cost to construct ductbanks are higher than budgeted. Costs are projected to increase due to increased material cost and batched concrete obtained from Area 1 instead of Area 25 batch plant. An error on the earned value for the Firewater and Potable Waterline resulted in an erroneous reportable variance for this activity.

Cumulative Schedule Variance:

Capital equipment panned to cost in November and February did not occur. This equipment is expected to cost beginning in March and is distributed through September 1994. Cost growth of \$343K is projected to secure capital equipment.

Construction of the ductbanks and sanitary sewer are behind schedule due to incomplete design releases and modifications to buried utility design. Delays to the start of buried utility construction coupled with design changes have led to replanning to recover the schedule.

Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 18 FEB 94

PARTICIPANT: REECO PEM: Gardiner WBS: 1.2.6.2.2.1
WBS TITLE: Surface Util/Communications - First Access Area
P&S ACCOUNT: OR6221

Variance At Complete: (continued)

A cost overrun of \$1,965K is projected at completion due to replanning the scope of work reported in the Estimate at Completion. The construction activities included in the revised planning are as follows:

- Firewater and Potable Water System installed on the ESP pad including concrete encasement under the railroad bed. Tie-in to the Traced Water System.
- Temporary Electrical Power Distribution on the pad including installation of the Subsurface Electrical Grounding Grid.
- Partial installation of the Ductbanks including the cable runs to power the Subsurface Electrical Power enclosure for TEM operation.
- Partial installation of the Sanitary Sewer System on the pad.

Baselined activities that will not be included in the revised scope of work are temporary communication and control cables and the Switchgear Building Electrical Transformer/Switchgear tie-in.

<u><i>m. Howard</i></u>	<u>3/21/94</u>	<u><i>David H. Moore</i></u>	<u>3/20/94</u>
P&S ACCOUNT MANAGER	DATE	TPO	FOR RFP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECO **PHM:** **WBS: 1.2.6.2.2.4**
WBS TITLE: **Other Locations - Surface Util/Communications**
P&S ACCOUNT: **OR6224**

<u>FY 1994 Cumulative to Date</u>										<u>FY 1994 at Completion</u>					
<u>BCWS</u>	<u>BCWP</u>	<u>ACWP</u>	<u>SV</u>	<u>SV%</u>	<u>SPI</u>	<u>CV</u>	<u>CV%</u>	<u>CPI</u>		<u>BAC</u>	<u>EAC</u>	<u>VAC</u>	<u>VAC%</u>	<u>IEAC</u>	<u>TCPI</u>
655	616	1534	0	0.0	0.0	-918	-149.0	40.2		1712	2250	-538	-31.4	4259	153.1

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TBM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 PACS upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECO.

Cumulative Cost Variance:

Costs for excavation and installation of the waterline are higher than projected. The scope of work has increased costs for handling and stockpiling topsoil and subsoil, a larger trench width, and additional bedding sand quantities. The standup characteristics of the open trench are requiring additional effort to maintain than initially estimated. The cost estimate is revised increasing the cost by \$1,050K.

Cumulative Schedule Variance:

Variance At Complete:

A cost overrun of \$538K is projected at completion due to cost growth to install the waterline from J-13 Well to the Booster Pump Station and replanning the scope of work included under this account.

Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94

PARTICIPANT: REECo PEM: WBS: 1.2.6.2.2.4

WBS TITLE: ~~Other Investigations - Surface Soil/Communications~~

P&S ACCOUNT: OR6224

Variance at Completion: (continued)

Cost growth for the waterline is due to design changes and field conditions encountered during construction. The scope of work has increased costs for handling and stockpiling topsoil and subsoil, a larger trench width, and additional bedding sand quantities. The standup characteristics of the open trench are requiring additional effort to maintain than initially estimated. The cost estimate is revised increasing the projected cost at completion by \$1,050K.

The revised scope of work contributing to the Estimate at Completion is limited to the following activities:

- Installation of the Waterline from Well J-13 to the Booster Pump Station.
- Erect the two water storage tanks and tie-in the Chlorine Injection System.
- Procure the Booster Pump Station pumps, building, rebar and forbay tanks.
- Install the Subsurface Waste Water Line from the portal area to the edge of the ESF Pad.

M. Leonard
P&S ACCOUNT MANAGER

3/21/94
DATE

David R. Moore 3/21/94
TPO FOR RFP DATE

**Yucca Mountain Site Characterization Project
 Variance Analysis Report
 Status Thru: 28 FEB 94**

PARTICIPANT: REECO **PEM:** Replogle **WBS:** 1.2.6.2.2.5.1
WBS TITLE: Temporary Power Supply - 69KV Transmission Line
P&S ACCOUNT: 0R62251

FY 1994 Cumulative to Date									FY 1994 at Completion					
BQBS	BQBP	ACBP	SV	SVX	SPI	CV	CVX	CPI	BAC	EAC	VAC	VACX	TEAC	TCPI
612	612	835	0	0.0	0.0	-223	-36.4	73.3	882	840	42	4.8	1293	0.0

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TBM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 PACS upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECO.

Cumulative Cost Variance:

Cost growth to construct the 69Kv Transmission Line is currently estimated to increase \$228K and the projected cost to complete may increase another \$100K. The cost overrun at completion will be offset by deferring procurement of capital equipment planned in this account and reallocating the \$270K to fund construction of the powerline.

Cumulative Schedule Variance:

Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94

PARTICIPANT: REECO PEM: Replegle WBS: 1.2.6.2.2.5.1
WBS TITLE: Temporary Power Supply - 69KV Transmission Line
P&S ACCOUNT: OR62251

Variance At Complete:

Cost growth to construct the 69KV Transmission Line is currently estimated to increase \$228K and the projected cost to complete may increase another \$100K. The cost overrun at completion will be offset by deferring procurement of capital equipment planned in this account and reallocating the \$270K to fund construction of the powerline.

<u><i>M Howard</i></u>	<u>3/21/94</u>	<u><i>David Moore</i></u>	<u>3/21/94</u>
P&S ACCOUNT MANAGER	DATE	TPO	FOR RFP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECO **PEM:** Replogle **WBS:** 1.2.6.2.2.5.2
WBS TITLE: Permanent Power Supply - 138KV Transmission Line
P&S ACCOUNT: OR62252

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	IEAC	TCPI
295	0	0	-295	-100.0	0.0	0	0.0	0.0	411	90	321	78.1	0	456.7

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TEM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 PACS upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECO.

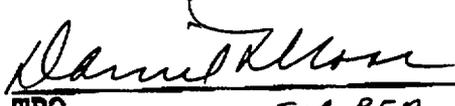
Cumulative Cost Variance:

Cumulative Schedule Variance:

Capital Equipment summary account expected costs in December did not occur. Capital requirements supporting the 138KV Transmission Line are under M&O review and have been deferred from FY94.

Variance At Complete:

The projected underrun of \$321K at completion will be allocated to fund revised planning activities.

	3/21/94		3/21/94
P&S ACCOUNT MANAGER	DATE	TPO	FOR RFP DATE

**Yucca Mountain Site Characterization Project
 Variance Analysis Report
 Status Thru: 28 FEB 94**

PARTICIPANT: REECO **PEM:** Gardiner **WBS:** 1.2.6.3.1.1
WBS TITLE: **Bldgs/Surface Facilities - First Access Area**
P&S ACCOUNT: **OR6311**

FY 1994 Cumulative to Date										FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	IEAC	TCPI	
2130	80	50	-2050	-96.2	3.8	0	0.0	0.0	2842	978	1864	65.6	1776	297.6	

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TEM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 P&S upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECO.

Cumulative Cost Variance:

Cumulative Schedule Variance:

Procurement of capital equipment (surface conveyor) planned to cost in February 1994 did not occur. Current planning will defer the procurement into FY95.

Design for Switchgear Building foundation was released for construction on December 14, 1993 permitting the excavation activity (baselined in October 1993) to commence in January, 1994. Also, the ESF Pad layout is being modified for muck handling and enlargement which impacts placing a temporary Portal Control Fence. Erection of the Switchgear Building and Portal Control fencing will be replanned.

Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94

PARTICIPANT: REECO FEM: Gardiner WBS: 1.2.6.3.1.1
WBS TITLE: Bldgs/Surface Facilities - First Access Area
P&S ACCOUNT: OR6311

Variance At Complete:

A cost underrun of \$1,864K is projected at completion due to replanning which reduces the scope of work originally planned. The reduction in work planned is procurement of capital equipment (surface conveyor) which is deferred to FY95. Budget underrun will be allocated to meet replanning budget requirements.

McKerand 3/21/94
P&S ACCOUNT MANAGER DATE

Harriet Moore 3/21/94
TPO FOR RFP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECO PEM: Gonzalez WBS: 1.2.6.4.1
WBS TITLE: First Access Portal/Collar and Plant Setup
P&S ACCOUNT: OR641

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	EAC	EAC	VAC	VAC%	IEAC	TCPI
1301	1075	673	-226	-17.4	82.5	402	-37.4	159.7	1899	1637	262	18.1	1352	95.9

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved designs and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TBM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 PACS upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/MSFC, M&O-DE, and REECO.

Cumulative Cost Variance:

Cost underrun is due to completing excavation of the test alcove #1 below funding baselined and to a level of effort account included in the earned value, but not costed in the actual costs to date. The cost for the level of effort is expected to require funding identified in the baseline.

Cumulative Schedule Variance:

Installation of the Compressed Air System has been delayed pending design issuance. Current planning identifies a temporary compressed airline powered by refurbished Government-owned air compressors will be installed to support TBM operation. Therefore, the scope of work baselined for this activity will be deferred.

Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94

PARTICIPANT: REECO PEM: Gonzalez WBS: 1.2.6.4.1
WBS TITLE: First Access Portal/Collar and Plant Setup
P&S ACCOUNT: 0R641

Variance At Complete:

The underrun of \$362K projected at completion is due to replanning and reducing the scope of work originally planned. Activities not included in the revised plan are deferring procurement of Transfer Tower and associated equipment and deferring installation of the final Compressed Air Plant and Pipeline. Additional work included in the Estimate at Completion that were not in the baseline are support of the Rockbolt Testing program per FCR 94-087 and providing a temporary compressed air system. Funding underrun will be allocated to support replanning.

<u>Tom Howard</u>	<u>3/21/94</u>	<u>David Moore</u>	<u>3/21/94</u>
P&S ACCOUNT MANAGER	DATE	TPO	FOR RFP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECo **PEM:** Gonzalez **WBS:** 1.2.6.4.2
WBS TITLE: **First Access Topopah Springs Exc/Util/Equip**
P&S ACCOUNT: **OR642**

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	IEAC	TCPI
13185	9040	6325	-4145	-31.4	68.6	2715	30.0	142.9	0	0	0	0.0	0	0.0

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TBM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECo February 1994 PACS upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECo.

Cumulative Cost Variance:

Cost underrun is due to TBM subcontractor delay in mobilization of personnel supporting the start of field operations in Area 25. Current planning is to begin mobilization in March 1994. Field personnel training will commence in March 1994 with substantial training expected to occur in April 1994. This delay is not expected to impact the startup dates for tunnel excavation and would allow additional time for the finalization of the specifications and design for the surface layout and the subsurface work in the starter tunnel.

Due to postponement in mobilizing supervisory personnel at the Area 25 site, the Stage 2 Indirects for FY94 is expected to cost less than originally anticipated. This is not expected to affect the performance of the work scheduled for FY94 and has resulted in a cost savings.

Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94

PARTICIPANT: REECO PEN: Gonzalez WBS: 1.2.6.4.2
WBS TITLE: First Access Topopah Springs Exc/Util/Equip
P&S ACCOUNT: OR642

Cumulative Schedule Variance:

Approval of procurement of Capital Equipment was delayed due to changes in the scope of work and changes in the design requirements of the ESF, pending releases for early procurement, no commitments have been made to vendors for any Capital Equipment as of this time. Capital Equipment acquisition is presently expected to commence in late March 94 and continue through the remainder of the fiscal year. A substantial amount of Capital Equipment purchases have been canceled and some delayed until the next fiscal year. Hence the total value of capital equipment purchased in FY1994 is now expected to be substantially less than originally anticipated.

Procurement of Non-Capital equipment and materials required for TBM assembly was delayed pending an approved Stage 2 budget. Procurement activities did occur in February 94, but no commitments were made to vendors and no actual monies expended.

The precast segment activity originally anticipated as on-going for this period to Establish Yard Site is no longer relevant and was deleted. This is because it was decided to cast the segments on the NTS instead of at an off-site location in Las Vegas or Pahrump as originally envisioned. Hence no costs were incurred for Precast Segments during this period.

Variance At Complete:

<u>Jim Howard</u>	<u>3/2/94</u>	<u>Robert Moore</u>	<u>3/21/94</u>
P&S ACCOUNT MANAGER	DATE	TPO	FOR RFP
			DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECO **PEM:** Waters **WBS:** 1.2.6.8.3
WBS TITLE: Oper/Env/Health & Safety Training
P&S ACCOUNT: OR683

FY 1994 Cumulative to Date										FY 1994 at Completion					
BCBS	BCRP	ACRP	SV	SV%	SPI	CV	CV%	CPI		BAC	EAC	VAC	VAC%	TEAC	ILPT
0	0	0	0	0.0	0.0	0	0.0	0.0		162	110	52	32.1	41	102.2

Analysis

The Fiscal Year (FY) 1994 baselined schedule and budget for WBS 1.2.6 has been evaluated with regard to current construction progress, status of approved design and advanced procurement activities, and current planning decisions. In order to meet the FY 1994 requirement to begin TBM operation, a revised schedule and budget distribution has been developed based on a scope of work other than originally established. The REECO February 1994 P&S upload reflects the revised plan and is reported by the Estimate At Completion (EAC). A mutual decision to report the revised plan was made between DOE/YMPO, M&O PE, and REECO.

Cumulative Cost Variance:

Cumulative Schedule Variance:

Variance At Complete:

Personnel training is less than planned and is projected to underrun \$52K at completion. The \$52K funding underrun will be reallocated to support revised planning activities.

DM Howard 3/21/94
P&S ACCOUNT MANAGER DATE

David L. ... 3/21/94
TPO FOR RFP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECO **PEM:** Wilson **WBS:** 1.2.7.5.1
WBS TITLE: **General Operations**
P&S ACCOUNT: **OR751**

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	IEAC	TCPI
314	314	433	0	0.0	0.0	-119	-37.9	72.5	785	960	-175	-22.3	1083	89.4

Analysis

Cumulative Cost Variance:

The cost of metered power budgeted from FY94 was based on an estimated unit cost of \$.07 per kilowatt-hour (kw-hr). The unit cost has increased from \$.07 to \$.10 or \$.11 kw-hr and is expected to remain at \$.10 to \$.12 kw-hr through the end of the fiscal year. The cumulative cost variance overrun of \$119K is due to the increased cost of power.

Cumulative Schedule Variance:

Variance At Complete:

It is estimated that additional funds of \$175K will be required for metered power for FY94 due to increased cost for power from \$.07 kw-hr to \$.10 or \$.12 kw-hr. Additional funds are required to provide metered power through the end of the fiscal year.

Harriet Moore 3/21/94

 P&S ACCOUNT MANAGER DATE
 FOR RPP

Harriet Moore 3/21/94

 TPO FOR RPP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECo **PEM:** Iorii **WBS:** 1.2.9.2.2
WBS TITLE: Participant Project Control
P&S ACCOUNT: OR922

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	IEAC	TCPI
0	0	0	0	0.0	0.0	0	0.0	0.0	1500	1727	-227	-15.1	1393	76.9

Analysis

Cumulative Cost Variance:

Cumulative Schedule Variance:

Variance At Complete:

A significant increase in the scope of work that was not budgeted for in early FY94 has occurred. This increased scope of work has necessitated an increase in staff to support the project's goals and the REECo Project Control Department's present and remaining work load for this FY. A C/SCR has been initiated to transfer funds within REECo from WBS 1.2.15.2 to 1.2.9.2.2. Once this change has been approved and included in the PACS input, the variance shown will be accounted for. The increased scope of work includes expanded and additional reporting requirements, an increase in the number of estimates and changes being processed, additional scheduling and integration efforts, and an increase in the complexity and number of procurements and early procurements. No project milestones will be impacted and no other participants were significantly affected. Expect no impact to the project with the implementation of the proposed C/SCR.

Bruce Hardin 3/15/94
P&S ACCOUNT MANAGER DATE

Adrian D. Moore 3/21/94
TPO FOR RFP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECo **PEM:** Wilson **WBS:** 1.2.13.2.2
WBS TITLE: Environment, Safety & Health - Medical
P&S ACCOUNT: ORD22

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	IEAC	TCPI
0	0	0	0	0.0	0.0	0	0.0	0.0	290	544	-254	-87.6	556	53.6

Analysis

Cumulative Cost Variance:

Cumulative Schedule Variance:

Variance At Complete:

Initial planning between REECo and the DOE Division Director for this P&S account were not appropriately incorporated into the FY94 Baseline. An additional \$254K is required to provide medical coverage for back shift coverage to support assembly of the TBM and maintain the schedule for starting TBM operations this fiscal year. A C/SCR to correct and rebaseline this P&S Account for \$85K was rejected.

Daniel Malone 3/21/94
P&S ACCOUNT MANAGER FOR RFP DATE

Daniel Malone 3/21/94
TPO FOR RFP DATE

**Yucca Mountain Site Characterization Project
Variance Analysis Report
Status Thru: 28 FEB 94**

PARTICIPANT: REECo PEM: Wilson WBS: 1.2.13.2.5
WBS TITLE: Occupational Safety & Health
P&S ACCOUNT: ORD25

FY 1994 Cumulative to Date									FY 1994 at Completion					
BCWS	BCWP	ACWP	SV	SV%	SPI	CV	CV%	CPI	BAC	EAC	VAC	VAC%	IEAC	TCPI
0	0	0	0	0.0	0.0	0	0.0	0.0	608	533	75	12.3	502	109.9

Analysis

Cumulative Cost Variance:

Cumulative Schedule Variance:

Variance At Complete:

Initial planning between REECo and the DOE Division Director for this P&S Account were not appropriately incorporated into the FY94 Baseline. The reduction of \$75K is reflected in the Estimate To Complete. No project milestones were impacted, and no other participants were significantly affected. Expect no impact to project. A C/SCR to correct and rebaseline this P&S Account for \$75K was processed and rejected. There will be no further corrective action.

David Ross 3/21/94
P&S ACCOUNT MANAGER DATE
FOR RFP

David Ross 3/21/94
TPO DATE
FOR RFP