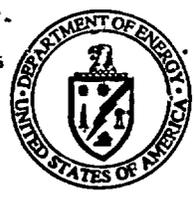


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Daniel A. Dreyfus, Director, Civilian Radioactive Waste Management,
HQ (RW-1) FORS

YUCCA MOUNTAIN SITE CHARACTERIZATION OFFICE WEEKLY HIGHLIGHTS FOR THE WEEK
ENDING JUNE 10, 1994 (SCPB: N/A)

I. FORECAST SIGNIFICANT EVENTS

Suitability and Licensing

The revised input for the semiannual Site Characterization Progress Report Number 10 was completed and revised draft material will be available next week for on-site interactive meetings scheduled for June 20-24, 1994, in Las Vegas, Nevada. This review is being held to encourage cross-discipline integration and to improve overall quality of the document with representatives attending from all the Yucca Mountain Site Characterization Project participants, Yucca Mountain Site Characterization Office Assistant Managers, and U.S. Department of Energy/Headquarters.

Exploratory Studies Facility

Complete placement of work slabs at tunnel liner segment precast yard.
Continued two shift, six days-a-week assembly of the tunnel boring machine.

II. CRITICAL ITEM STATUS - YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT

Construction

Regarding Job Package 92-20, Exploratory Studies Facility North Portal Pad and Facilities, resumed two shift, six days-a-week assembly of the tunnel boring machine. Continued assembly operations in support of the tunnel boring machine involved assembly of the following: hydraulic/lube circuits, installing of components and ventilation system on gantry cars 1-5, welding on side/top gripper shoes to forward shield assembly, and wiring of electric drive motors. Completed welding of the bridge beam.

The following milestone represents the near-term plan for Exploratory Studies Facility activities: Begin tunnel boring machine operations on August 8, 1994.

Completed placement of the mud slab in the starter tunnel invert.
Began forming and placement of invert slab in the starter tunnel.

Continued final grading and backfilling in the box cut area in preparation for extending the tunnel boring machine runway to the starter tunnel portal.

Continued construction of the subsurface waste water, sanitary sewer, and fire/potable water lines on the North Portal Pad. Continue backfilling of utility trenches.

Continue placement of work slabs at tunnel liner segment precast yard.

Completed certification of the concrete batch plant.

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Resume backfilling water line trench along H Road after successful pressure test of water line last week.

Completed construction on the temporary power system on the North Portal pad.

Extending conduits to the underground power center at the starter tunnel portal.

Suitability and Licensing

A Document Action Request was approved and conversion began of the Civilian Radioactive Waste Management System Management and Operating Contractor document currently titled "MGDS Annotated Outline Skeleton Text for the Preparation of a License Application," to a Yucca Mountain Site Characterization Project document (YMP-94-05 Revision 0), newly entitled "MGDS License Application Annotated Outline." The Mined Geologic Disposal System License Application Annotated Outline, Revision 0, will be submitted to the U.S. Nuclear Regulatory Commission in November 1994.

Site Characterization Testing

Exploratory drilling operations progress is summarized as follows:

<u>Borehole</u>	<u>Current Core Depth 06/10/94</u>	<u>Current Ream Depth 06/10/94</u>	<u>Total Planned Depth</u>
SD-9	223.9 meters (734.7 feet)		
SD-12	270.1 meters (886.1 feet)	261.2 meters (856.9 feet)	701.04 meters (2,300 feet)

Regarding Borehole UZ-14, the U.S. Geological Survey Saturated Zone Studies group continue measuring rising water levels in this borehole. The water table is now at 1,909 feet, rising approximately 2 feet per day.

Regarding Job Package 94-04, SD-12 Borehole, current drilling is in the middle nonlithophysal zone of the Topopah Springs (TSw₂) member.

Regarding Job Package 94-06, SD-9 Borehole, current drilling is in the upper lithophysal zone of the Topopah Springs member.

A wet zone was found in Borehole NRG-7/7A at the base of the Topopah Spring Vitrophone that correlates with water found in UZ-14.

Completed composite borehole logs for Boreholes USW NRG-7/7A, UE-25 NRG-2C and 2D.

Completed revisions to Borehole Prognoses for USW SD-7 (Revision 1), USW SD-9 (Revision 3), and USW SD-12 (Revision 2).

Completed six sample examinations at the Sample Management Facility for the U.S. Geological Survey and Los Alamos National Laboratory.

Provided 303 specimens from core samples for analysis by principal investigators.

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

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SITE CHARACTERIZATION PLAN ACTIVITY	TITLE	COMMENTS
8.3.1.3.2.1	Mineralogy, Petrology & Rock Chemistry of Transport Pathways	Exploratory Studies Facility sampling
8.3.1.3.2.2	Mineralogic & Geochemical Alteration	Exploratory Studies Facility sampling
8.3.1.4.2.1	Characterization of Vertical/Lateral Distribution of Stratigraphic Units in Site Area	Ongoing core logging
8.3.1.4.2.2	Structural Features within Site Area	Surface and Exploratory Studies Facility mapping
8.3.1.4.3.1	Systematic Acquisition of Site Specific Subsurface Information	Systematic drilling/testing
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	Trenching and ramp exploration holes
8.3.1.17.4.2	Location & Recency of Faulting Near Prospective Surface Facilities	Trench logging
8.3.1.17.4.3	Quaternary Faulting within 100 km of Yucca Mountain	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 logging
8.3.1.2.1.1	Precipitation & Meteorological Monitoring for Regional Hydrology	Ongoing measurements
8.3.1.2.1.2	Runoff & Streamflow	Ongoing measurements
8.3.1.2.1.3	Regional Groundwater Flow System	Ongoing monitoring
8.3.1.2.2.1	Unsaturated Zone Infiltration	Logging of neutron-access holes; ponding tests
8.3.1.2.2.2	Water Movement Tracer Tests	C1-36 measurements (surface-based testing drillholes, Exploratory Studies Facility)
8.3.1.2.2.3	Percolation in the Unsaturated Zone	Unsaturated zone drilling/testing
8.3.1.2.2.4	Characterization of Unsaturated Zone (Exploratory Studies Facility)	Hydrochemistry/radial boreholes testing
8.3.1.2.2.6	Gaseous Phase Movement in Unsaturated Zone	Unsaturated Zone drilling/testing
8.3.1.2.2.7	Unsaturated Zone Hydrochemistry	Unsaturated Zone drilling/testing
8.3.1.2.3.1	Site Saturated Zone Groundwater Flow System	Ongoing monitoring, C-Well testing
8.3.1.2.3.2	Saturated Zone Hydrochemistry	Ongoing monitoring
8.3.1.15.1.8	In Situ Design Verification	Construction monitoring/testing
8.3.4.2.4.4	Engineered Barrier System Field Test	Preparation of Fran Ridge Test Block

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Large Block Test

Excavating continues around the large block. Sandia National Laboratories is mapping three die test zones. This work is approximately 75 percent completed.

Site Characterization Plan/Study Plan Status

No study plans were approved by the Yucca Mountain Site Characterization Office. The U.S. Nuclear Regulatory Commission has completed a technical review of Study Plan 8.3.1.8.5.1, Revision 1, "Characterization of Volcanic Features." The review resulted in seven comments and nine questions. This review does not change the numbers reported in the following breakdown because Revision 1 of this study plan was not being carried as a "major revision."

STUDY PLAN BREAKDOWN

	Initial Plans	Major Revisions
Not Submitted to Yucca Mountain Site		
Characterization Office	32	0
In Screening Review	0	0
In Yucca Mountain Site		
Characterization Office Review	2	2
Awaiting Comment Resolution	3	4
In Verification Audit	6	0
Awaiting Yucca Mountain Site		
Characterization Office Approval	2	0
Awaiting Submission to		
U.S. Nuclear Regulatory Commission...	0	1
Awaiting U.S. Nuclear Regulatory		
Commission Initial Review	9	6
Accepted by U.S. Nuclear Regulatory		
Commission	50	6
Totals	104	19
Total Submitted to U.S. Nuclear		
Regulatory Commission	59	12

State of Nevada Comments Status:

Received Comments from the State of Nevada.....	32
Responses Transmitted to the State of Nevada	29

U.S. Nuclear Regulatory Commission Comments Status:

Received Comments from U.S. Nuclear Regulatory	
Commission	32
Responses Transmitted from U.S. Department of Energy	
to U.S. Nuclear Regulatory Commission.....	27

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Environmental Safety and Health Programs

Fourteen environmental compliance and safety surveillances were conducted at the Yucca Mountain, Nevada, site ensuring compliance with permit and programmatic requirements.

A trapping session was initiated to monitor small mammal populations in support of site characterization effects studies.

III. GENERAL INFORMATION ITEMS

Lawrence Livermore National Laboratory staff attended a National Academy of Sciences Committee meeting on the Technical Bases for Yucca Mountain Standards and responded to the committee's questions on carbon-14.

Los Alamos National Laboratory staff gave a presentation about the Yucca Mountain Site Characterization Project to students from the Colorado School of Mines who are attending a program in conjunction with the Los Alamos National Laboratory Hot Dry Rock Program.

Los Alamos National Laboratory forwarded geochemistry input for the Proposed Program Technical Site Suitability evaluation in response to a request from the Yucca Mountain Site Characterization Office. This input will be followed as an example for other Yucca Mountain Site Characterization Project participants.

Los Alamos National Laboratory principal investigators began work on developing work scopes and major milestones to meet a 2001 license application date. This is a follow-up to the recently completed work in planning for a 1998 site suitability report. In order to plan for a 2001 license application, the previously-defined milestones for this period are being reevaluated and revised to supply information needed to meet the requirements of 10 CFR 60.21 and 10 CFR 60.122.

Technical review of the LA-MS report "Petrography, Mineralogy, and Chemistry of Calcite-Silica Deposits at Exile Hill, Nevada, in Comparison with Local Spring Deposits," continued throughout this week (Los Alamos National Laboratory Milestone LA3376).

The draft LA-MS report summarizing fracture mineralogy at Yucca Mountain (Los Alamos National Laboratory Milestone 3371) is being revised. Additional fracture samples from the Crater Flat Tuff in Boreholes USW G-3 and UE-25b-1H were analyzed by X-ray diffraction for inclusion in this report.

Yucca Mountain Site Characterization Project staff attended a participant meeting on June 8, 1994, of the Sample Overview Committee, at the Sample Management Facility, Area 25, Nevada Test Site. The purpose of the meeting was to review and either approve or reject requests relating to core and cuttings such as Specimen Removal Requests and sample handling and packaging requirements. While on site, they also examined core from USW SD-12.

The numerical code TOUGH2 was used by Sandia National Laboratories to perform simulations of unsaturated nonisothermal flow experiments. Numerical results showed the development of liquid-phase and gas-phase convective cells in the saturated regions and unsaturated regions, respectively. Currently, experiments are being planned with varying permeability fields to investigate the effects of heterogeneity on nonisothermal flow.

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The Licensing Team Leader visited the Ward Valley proposed Low-Level Radioactive Waste Site to observe site operations and discuss their license application and licensing progress with the U.S. Ecology Manager of the Southwestern Compact Region. This license application closely parallels the Mined Geologic Disposal System annotated outline of the license application. Good examples were provided of the level of detail and style needed for a license application describing geologic processes versus those processes described in a reactor license application.

Technical and Management Support Services finalized modifications to Field Operating Instructions 4702, "Job Package Field Management Reporting," and was submitted for approval and comments.

Technical and Management Support Services modified the Functional Requirements Document for the Ghost Dance Fault Trenches based on the additional requirements identified by the Waste Isolation Impact Evaluation.

Technical and Management Support Services prepared draft Functional Requirements Document for USW SRG-3 drill pad and access road.

Technical and Management Support Services prepared draft Site Manager's input to Job Package 94-17, "USW SRG-3 Drill Pad and Access Road."

Technical and Management Support Services completed fiscal year 1996 Budget Validation for work breakdown structure 1.2.7 Test Facilities.

A six-member scientific peer review team from the U.S. Geological Survey Geologic Studies Program performed a review and technical assessment of geologic mapping along the Ghost Dance and Sundance Faults. Field mapping continued on the Mine Mountain Fault and in the old trench across the Ghost Dance Fault in Split Wash.

Regarding unsaturated zone studies, U.S. Geological Survey staff ran wireline geophysical logs in Borehole UE-25 UZ-16 for prototype and scoping measurements. Excavation of drilling air from the Exploratory Studies Facility radial boreholes continued and sampling will take place next week.

A dedicated phone line for data transmission was hooked up to the remote C Well site for the U.S. Geological Survey Saturated Zone Studies Group. Measurements continued on slowly rising water levels in USW UZ-14.

The U.S. Geological Survey Technical Project Officer gave a presentation on the status of Yucca Mountain unsaturated zone geochemistry studies in Nottingham, England.

The U.S. Geological Survey Quality Administrative Office completed an internal audit on three technical activities: (1) Stratigraphic Studies, (2) Geologic Mapping of Zonal Features, and (3) Geologic Mapping of The Exploratory Studies Facility and Drafts. The exit audit conducted this week resulted in three draft QDRs and several recommendations.

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IV. PUBLIC OUTREACH AND INSTITUTIONAL ACTIVITIES

Staff coordinated and attended the Affected Units of Government Meeting, June 10, 1994, in Las Vegas.

A presentation on Native American Culture was given to 25 guests of the Outdoor Education Committee in Las Vegas on June 5, 1994.

A Girl Scouts Geology Merit Badge Workshop was held at the Las Vegas Yucca Mountain Science Center on June 4, 1994. Thirty-five Girl Scouts earned their merit badges by learning about fossils, volcanoes, geology, and rocks and minerals.

Staff provided LESSONS Workshops for Nye County Teachers, June 6-10, 1994, in Mercury, Nevada. These workshops were on chemistry and biology, and each workshop was attended by 18 people.

Staff gave a presentation on making fossils at the Y.M.C.A. in Las Vegas, on June 9, 1994, with 60 students involved in hands-on activities.

Tours of Yucca Mountain were conducted on June 6, 1994, for Dr. Tara O'Toole, Assistant Secretary for Environment, Safety, and Health for the U.S. Department of Energy, and a guest; on June 7, 1994, for 35 guests from the University of Nevada, Reno, Cooperative Extension; on June 9, 1994, for 100 guests of the Transportation Coordination Group; and on June 10, 1994, for 4 guests from the Japan Electric Power Information Center.

Staff completed 39 external information requests which was accomplished by providing written responses to both written and verbal queries and by supplying current, existing literature.

Yucca Mountain Site Characterization Project staff attended the Transportation Coordination Group meeting June 7-8, 1994, in Las Vegas.

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 Lawrence Weekly at (702) 794-7896 for additional information. Exhibits are coordinated by Joanna Magruder at (702) 794-7056, Neighborhood Dialogues are coordinated by Lawrence Weekly at (702) 794-7896, and Tours are coordinated by Carleen Hill at (702) 794-7375.

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Yucca Mountain Site Characterization Project Contact</u>
A.	<u>Stakeholders' Meetings</u>		
	No significant meetings to report.		
B.	<u>U.S. Department of Energy/Headquarters Meetings</u>		
	No significant meetings to report.		

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Yucca Mountain
Site
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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Project Contact</u>
C. <u>Civilian Radioactive Waste Management System Management and Operating Contractor/U.S. Department of Energy Meetings</u>			
Wednesday, July 6	Civilian Radioactive Waste Management System Management and Operating Contractor - Program Management Review (P)	Video- conference	R. Nelson
D. <u>Internal and U.S. Department of Energy/Nevada Operations Office Meetings</u>			
No significant meetings to report.			
E. <u>U.S. Nuclear Regulatory Commission Interactions</u>			
Tuesday- Thursday July 26-28	U.S. Nuclear Regulatory Commission Interactions. Topics (TBD)	(TBD)	T. Bjerstedt
F. <u>Nuclear Waste Technical Review Board Interactions</u>			
Monday- Tuesday June 13-14	Nuclear Waste Technical Review Board SG&G Panel Meeting - Exploratory Studies Facility Update in Light of the Proposed Program Approach	Las Vegas, NV	J. Nesbit
Wednesday- Thursday June 15-16	Nuclear Waste Technical Review Board: Engineered Barrier System Panel Meeting; Tour of Hanford Site	Richland, WA	TBD
G. <u>Advisory Committee on Nuclear Waste Interactions</u>			
Wednesday- Thursday, June 22-23	65th Advisory Committee on Nuclear Waste Meeting on Topics (TBD) (P)	Bethesda, MD	A. Gil
H. <u>National Academy of Sciences Interactions</u>			
No significant interactions to report.			

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
I. <u>State and Public Interactions</u>			
Monday, June 13	Southeast Area Regulatory Utility Commissioners - How Yucca Mountain was Selected as a Possible Permanent Disposal Site	Charleston, SC	M. Blanchard
Tuesday, June 21	Yucca Mountain Speaker Series - "Walk Through Nevada History" (P)	Las Vegas, NV	R. Arnold C. Chairsell M. Johnson
Tuesday, June 21	Elko's Lion Club Brief Yucca Mountain Update with Major Emphasis on Transportation	Elko, NV	P. Standish
Friday, June 24	Teachers' Workshop - General Overview & Native American Culture	Palo Verde, AZ	R. Arnold G. Fasano
Sunday, June 26	Yucca Mountain Speaker Series - "Take a Hike With a Geologist" (P)	Pahrump, NV	J. Peck
J. <u>Educational Interactions</u>			
Monday- Thursday, June 13-23	LESSON Teacher Science Workshops	Las Vegas, NV	TBD
Monday, June 20	C.C. Ronnow Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
Tuesday, June 21	John F. Mendoza Elementary School - 5th Grade Tour - Geology	Las Vegas, NV	J. Sizemore M. d'Ouille
Tuesday, June 28	Hewetson Elementary School - "Yucca Mountain Johnny"	Las Vegas, NV	J. Hartley
<u>Date</u>	<u>Event</u>	<u>Location</u>	
K. <u>Exhibits Scheduled</u>			
Sunday- Tuesday, June 12-14	Southeast Area Regulatory Utility Commissioners	Charlotte, SC	

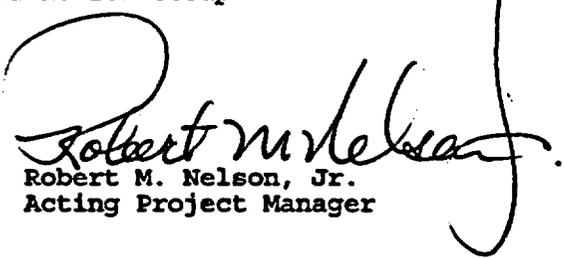
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<u>Date</u>	<u>Event</u>	<u>Location</u>
K. <u>Exhibits Scheduled</u> (continued)		
Sunday- Wednesday, June 12-15	American Association of Petroleum Geologists	Denver, CO
Friday- Sunday, June 17-19	Gridley Days	Austin, NV
Sunday- Wednesday, June 19-22	American Nuclear Society	New Orleans, LA
Wednesday, June 22	Yucca Mountain Open House and Tour	Las Vegas, NV
<u>Date</u>	<u>Event</u>	<u>Escorts</u>
L. <u>Tours Scheduled</u>		
Wednesday, June 15	U.S. Nuclear Regulatory Commission	P. Justus
Thursday, June 16	National Federation of Press Women	TBD
Tuesday, June 21	Babcock & Wilcox	TBD
Wednesday, June 22	Public Open House (P)	Various Escorts
Thursday, June 23	Nye County Nuclear Waste Repository Office	TBD
Thursday, June 23	Study Committee	TBD
Thursday, June 23	U.S. DOE Waste Acceptance Technical Review Group	TBD

AMSL:CLH-3909


Robert M. Nelson, Jr.
Acting Project Manager