



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

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QA: N/A

JUN 13 1994

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

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT WEEKLY HIGHLIGHTS FOR THE WEEK
ENDING MAY 20, 1994 (SCP: N/A)

I. FORECAST SIGNIFICANT EVENTS

Site Characterization Testing

Drilling will continue at SD-9 and SD-12 boreholes. Video logging will occur in the hydrochemistry/radial boreholes in the Exploratory Studies Facility Alcove 1. Excavation and mapping of the test block at Fran Ridge will continue. Borehole work overs in preparation for testing will continue.

Suitability and Licensing

Present a paper entitled "Repository Program Licensing Approach," at the International High-Level Radioactive Waste Management Conference.

Public Outreach and Institutional Activities

The Stakeholders' Meeting, sponsored by the U.S. Department of Energy to discuss issues related to the Yucca Mountain Site Characterization Project, will be held in Las Vegas, Nevada, May 21, 1994. There will be a number of discussions, including a project update and in-depth and open dialogue about the process of site suitability evaluation.

The Fifth International High-Level Radioactive Waste Management Conference will be held in Las Vegas, May 22-26, 1994.

The U.S. Department of Energy Science Center Steering Committee will meet at the Las Vegas Yucca Mountain Science Center May 27, 1994. The committee will discuss suggestions from stakeholders and other interested parties for programs, exhibits, and other ideas to be considered for the change of the Yucca Mountain Science Center to the U.S. Department of Energy Science Center.

II. CRITICAL ITEM STATUS - YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT

Site Characterization Activities

Exploratory Studies Facility

Continued two shift, six days-a-week assembly of the tunnel boring machine at the Yucca Mountain Site Characterization Project. Completed assembly of the main bearing and lower forward shield components and started on upper forward shield section and Trailing Car No. 5. In addition, completed assembly consisting of installation of the drive motors - side and top, dust shield/tow cylinders, and wedge cylinders. Began assembly of bridge beam fit up and welding, assembly of Decks 1-5, and installation of the ventilation and conveyor.

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Completed cleanup of starter tunnel invert.

Completed work on Canyon Substation.

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

Design

Conducted 90 percent Design Review Meeting and began comment resolution for Design Package 2C. Continuing design activities for Design Packages 1D, 8A, and the Integrated Data and Control System.

Site Characterization Testing

Exploratory drilling operations progress is summarized as follows:

<u>Borehole</u>	<u>Current Core Depth 05/20/94</u>	<u>Current Ream Depth 05/20/94</u>	<u>Total Planned Depth</u>
UZ-14	667.8 meters (2,223.6 feet)	433.30 meters (1,421.6 feet)	609.6 meters (2,000 feet)
SD-9	5.1 meters (16.7 feet)		
SD-12	219.7 meters (720.7 feet)	219.7 meters (720.7 feet)	701.04 meters (2,300 feet)

Regarding Borehole UZ-14, the Stratmaster drilling rig was demobilized. The U.S. Geological Survey performed water level monitoring.

Regarding Job Package 94-04, SD-12 Borehole, the bottom of the borehole is presently in the Topopah Spring (TSW₂) unit.

Regarding Job Package 94-06, SD-9 Borehole, the bottom of the borehole is currently in the Tiva Canyon (PTn) unit.

Regarding Trench NRT-1, a percolation test was taken at the north end of the trench. Plate load bearing tests are planned to follow immediately.

The CME-850 drilling rig was moved onto existing Borehole USW UZ-7. Cleaning of the borehole is in preparation for installation of testing instruments.

Conducted one core examination at the Sample Management Facility for principal investigators from Sandia National Laboratories. Staff created 77 specimens from core samples for analysis by principal investigators.

The Sample Management Facility processed core and cuttings from drilling activities.

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	Cl-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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Environmental Safety and Health Programs

The first quarter, calendar year 1994, Ambient Air Monitoring Report for State Air Quality Permit Number 2693 was submitted to the State of Nevada. Fulfillment of this permit requirement allows uninterrupted surface-disturbing activities to continue.

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

Staff scientists participated in the 90 percent Design Review of Exploratory Studies Facility Design Package 2C, including a presentation addressing environmental and safety issues to the U.S. Department of Energy, U.S. Department of Energy/Headquarters, U.S. Nuclear Regulatory Commission, and affected units of local government.

Large Block Test

The top of the large block was sawed off square and rock support was reinstalled. Geologic fracture mapping is currently in progress.

Site Characterization Plan/Study Plan Status

No study plans were approved by the Yucca Mountain Site Characterization Office.

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	3
Awaiting Comment Resolution	4	3
In Verification Audit	7	1
Awaiting Yucca Mountain Site		
Characterization Office Approval	0	0
Awaiting Submission to		
U.S. Nuclear Regulatory Commission...	0	0
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	24

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U.S. Nuclear Regulatory Commission Comments Status:

Received Comments from U.S. Nuclear Regulatory
Commission 31
Responses Transmitted from U.S. Department of Energy
to U.S. Nuclear Regulatory Commission..... 25

III. GENERAL INFORMATION ITEMS

Regarding nonmetallic barrier concepts, Lawrence Livermore National Laboratory staff met with representatives of WESGO Technical Ceramics (WESGO) in Belmont, California, to discuss the fabrication of large ceramic containers for waste disposal. WESGO is currently capable of reliable manufacturing of such containers using 96.5 percent aluminum oxide, assuming that a multipiece design with appropriate seals could be used. WESGO has been producing ceramic parts in various shapes and sizes for approximately 40 years. Their return rate averages less than 1 percent of finished parts shipped, with some dependence on shape. At least one of their furnaces appears large enough to handle a full sized part for the Yucca Mountain Site Characterization Project.

On May 16, 1994, the Los Alamos National Laboratory Technical Project Officer presented a talk entitled, "Overview: Yucca Mountain Project," to the External Review Committee reviewing the Los Alamos National Laboratory Earth and Environmental Sciences Division. Presentations to the External Review Committee were also made by several Los Alamos National Laboratory principal investigators. Other presentations included "Paleogeothermal and Paleohydrologic Conditions in Silicic Tuff from Yucca Mountain, Nevada;" "Unsaturated Zone Flow and Transport Simulations at Yucca Mountain;" "Radionuclide Migration in the Saturated Zone Beneath Yucca Mountain;" and "Volcanic Risk Assessment for Disposal of High-Level Radioactive Waste at the Potential Yucca Mountain Site, Southern Nevada."

U.S. Geological Survey staff performed a technical review of geological and structural mapping data from Antler Ridge Pavement 1 and the drainage channel above the Exploratory Studies Facility North Portal. Significant progress continues to be made toward meeting the July 1994 milestone on stratigraphic criteria for Yucca Mountain. Preparations began for training needs and a Job Safety Analysis for upcoming geologic mapping in the Exploratory Studies Facility behind the tunnel boring machine.

U.S. Geological Survey tectonics personnel were in Crater Flat for photogrammetric mapping on trenches across the Windy Wash Fault. Final field reviews of maps and logs of the Stagecoach Road Fault trenches were completed. Preliminary logging and mapping of the Alice Ridge trench across the Paintbrush Canyon Fault is continuing.

The Yucca Mountain Site Characterization Project-U.S. Geological Survey Quality Assurance Office is conducting an internal audit of Criteria 4 (Procurement Document Control) and Criteria 7 (Control of Purchased Items and Services) in the Denver, Colorado, area. The Quality Assurance office is also conducting an external audit of Certified Balance Service, Inc., in Englewood, Colorado, to assess their qualifications to continue as an Approved Supplier for calibration of scales and balances.

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Regarding Saturated Zone Studies, staff is continuing to measure a slow rise in the water level in USW UZ-14 on a daily basis. Lawrence Livermore National Laboratory equipment had been used to monitor water levels in the borehole during drilling operations.

Regarding Unsaturated Zone Studies, personnel successfully predicted washout zones behind the casing in Borehole UE-25 UZN-85 from wireline logs. The casing was removed from this borehole and washout zones were confirmed with a downhole video camera.

Staff coordinated and participated in a scoping meeting for the June 13-14, 1994, Nuclear Waste Technical Review Board Structural Geology & Geoengineering Panel meeting to be held in Las Vegas. The scoping meeting was held in Las Vegas on May 17, 1994 and a dry run was scheduled for June 9, 1994 in Las Vegas. The focus of the meeting is improving the efficiency of underground exploration and Exploratory Studies Facility construction.

Suitability and licensing staff coordinated and participated in a scoping meeting for the July 11-13, 1994, Nuclear Waste Technical Review Board Full Board meeting in Albuquerque, New Mexico, May 16, 1994. The focus of the meeting is the Yucca Mountain Site Characterization Office's studies in radionuclide transport and the transportation program. A briefing will also be made to the Board on the new U.S. Department of Energy Administrative Funding Proposal. This briefing is in response to formal questions presented by the Nuclear Waste Technical Review Board to the U.S. Department of Energy regarding this new proposal.

Los Alamos National Laboratory reported that calcite separations and sample preparation are underway on calcite-bearing fractures from the lower portion of drill core UZ-16. Because the Nuclear Waste Technical Review Board has specified an interest in the origin, movement, and retardation of colloids, staff will make a presentation on natural analog studies at Yucca Mountain pertinent to colloid transport under repository hydrothermal conditions.

Technical and Management Support Services staff prepared the Functional Requirements Document for Ghost Dance Fault trenching activities, for inclusion in Job Package 94-09 and revised the Functional Requirements Document for SD-7 Drill Pad.

The Assessment Team revised Corrective Action Response of YM-94-012 was approved by the Quality Assurance Division. The Determination of Importance Plan started into Quality Assurance Procedure 6.2 review.

The Determination of Importance and Grading Enhancement Management Plan cancellation has been approved by the Yucca Mountain Site Characterization Office and the Quality Assurance Division.

A Document Action Request to initiate Revision 3 of the Q-List is being prepared. This revision involves the Exploratory Studies Facility Starter Tunnel and the North Ramp.

IV. PUBLIC OUTREACH AND INSTITUTIONAL ACTIVITIES

A "Neighborhood Dialogue," cosponsored by the State of Nevada, Nye County, and the Yucca Mountain Site Characterization Project, was held at the Bob Ruud Community Center in Pahrump, Nevada, May 18, 1994. Approximately 22 people attended.

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Various Yucca Mountain Site Characterization Project staff gave presentations on the role of Nevada's scientific and engineering community in the Yucca Mountain suitability study in Las Vegas, May 17-18, 1994. Approximately 150 people were in attendance.

A general Yucca Mountain Site Characterization Project overview with a discussion on Quality Assurance was given to 130 guests at the Spring Quality Supervisors Conference, May 18, 1994, in Pittsburgh, Pennsylvania.

Three fifth-grade classes toured the Las Vegas Yucca Mountain Science Center and attended presentations on energy and geology. These included a class of 60 students from Herbert Derfelt Elementary School, on May 17, 1994; and two classes of 60 students each from Vail Pittman Elementary School, May 18-19, 1994.

A presentation on Native American Culture was given to 35 students at Valley High School, on May 20, 1994, in Las Vegas. Two educational presentations on chemistry were given to 20 students at Ruby Thomas Elementary School, on May 18, 1994; and to 20 students at Fitzgerald Prime Six School, on May 19, 1994, in Las Vegas. A "Yucca Mountain Johnny" presentation was given to 105 students at C. P. Squires Elementary School, in Las Vegas, on May 19, 1994. Other educational activities included a Mathematics Across the Curriculum Workshop on May 19, 1994, in Reno, Nevada; and a workshop on Natural Analogs, May 20-21, 1994, in Las Vegas, with a total of approximately 100 people attending these two workshops.

A "Career Day '94" was held for 85 students at Ira J. Earl Elementary School, in Las Vegas, on May 19, 1994.

Tours to Yucca Mountain were conducted on May 17, 1994, for 44 guests of Active Adult Tours; on May 19, 1994, for 12 guests from White Pine County; and on May 20, 1994, for 10 guests from the Nye County Nuclear Waste Repository Office. A school tour was also conducted on May 19, 1994, for 120 students from Western High School.

Yucca Mountain Site Characterization Project staff produced and placed announcements in two Nevada newspapers, providing information about the May speaker series program at the Pahrump and Las Vegas Yucca Mountain Science Centers. The announcements list times, dates, and locations for hydrologist Alan Flint's presentation on "The Science of Measuring and Tracking Water."

Yucca Mountain Site Characterization Project staff attended the Clark County Steering Committee meeting in Las Vegas, on May 19, 1994, at the University of Nevada, Las Vegas.

Yucca Mountain Site Characterization Project staff finalized production of a video on the Exploratory Studies Facility.

Staff completed 30 external information requests. This was accomplished by providing written responses to written and verbal queries and/or by supplying existing literature.

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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 or Theresa Hirsch at (702) 794-7759 for additional information. Exhibits are coordinated by Joanna Magruder at (702) 794-7056, Neighborhood Dialogues are coordinated by Theresa Hirsch at (702) 794-7759, 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>Yucca Mountain Site Characterization Project Contact</u>
A. <u>Stakeholders' Meetings</u>			
Friday, June 10	Affected Units of Government (P)	Las Vegas, NV	R. Nelson
B. <u>U.S. Department of Energy/Headquarters Meetings</u>			
Thursday, June 9	Office of Civilian Radioactive Waste Management - Director's Program Review (P)	Video- conference	R. Nelson
C. <u>Civilian Radioactive Waste Management System Management and Operating Contractor/U.S. Department of Energy Meetings</u>			
No significant meetings to report.			
D. <u>Internal and U.S. Department of Energy/Nevada Operations Office (NV) Meetings</u>			
No significant meetings to report.			
E. <u>U.S. Nuclear Regulatory Commission Interactions</u>			
Monday- Tuesday June 20-21	U.S. Nuclear Regulatory Commission Technical Exchange: Total System Performance Assessment	Rockville, MD	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

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	<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Yucca Mountain Site Characterization Project Contact</u>
G.	<u>Advisory Committee on Nuclear Waste Interactions</u>			
	Wednesday- Thursday, June 22-23	65th Advisory Committee on Nuclear Waste Meeting - Topic 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>			
	Tuesday, May 24	Yucca Mountain Speaker Series - "The Science of Measuring and Tracking Water" (P)	Las Vegas, NV	A. Flint
	Friday, May 27	U.S. Department of Energy Science Center Steering Committee Meeting - Upcoming Events	Las Vegas, NV	Various Yucca Mountain Site Characterization Project Staff
	Tuesday, May 31	Elko Lions Club - General Overview with Emphasis on Transportation	Elko, NV	P. Standish
	Sunday, June 5	Outdoor Education Committee - Tell Stories of Native Americans	Las Vegas, NV	R. Arnold
	Friday, June 10	Affected Units of Government Meeting	Las Vegas, NV	Various Yucca Mountain Site Characterization Project Staff
	Monday, June 13	Southeast Area Regulatory Utility Commissioners - How Yucca Mountain was Selected as a Possible Permanent Disposal Site	Charleston, SC	M. Blanchard

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
J. Educational Interactions			
Wednesday, May 25	Doris Hancock Elementary School - General Overview with Emphasis on Geology	Las Vegas, NV	J. Hartley
Tuesday, May 31	LESSON Teacher Workshop - Science Workshop	Nevada Test Site, NV	TBD
Tuesday, May 31	Captain Kidd's Sixth Grade - Native American Culture	Las Vegas, NV	R. Arnold
Wednesday- Friday, June 1-10	Nye County Workshop - TBD	Las Vegas, NV	TBD
Saturday, June 4	Girl Scouts - Geology Merit Badge Workshop	Las Vegas, NV	Various Yucca Mountain Site Characterization Staff
Monday- Thursday June 13-23	LESSON Teacher Workshops - Science Workshops	Las Vegas, NV	TBD

<u>Date</u>	<u>Event</u>	<u>Location</u>
K. Exhibits Scheduled		
Saturday, May 21	Armed Forces Day	Hawthorne, NV
Saturday, May 21	Yucca Mountain Open House/Tour	Las Vegas, NV
Sunday- Thursday, May 22-26	American Society for Quality Control Annual Quality Congress	Las Vegas, NV
Sunday- Thursday, May 22-26	International High-Level Radioactive Waste Management Conference	Las Vegas, NV
Friday- Monday, May 27-30	Jim Butler Days	Tonopah, NV
Sunday- Tuesday, June 12-14	Southeast Area Regulatory Utility Commissioners	Charlotte, NC
Sunday- Wednesday, June 12-15	American Association of Petroleum Geologists	Denver, CO

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<u>Date</u>	<u>Event</u>	<u>Escorts</u>
L. <u>Tours Scheduled</u>		
Saturday, May 21	Public Open House (P)	Various Escorts
Monday, May 23	American Society for Quality Control Conference	TBD
Tuesday, May 24	French Radioactive Waste Management Agency	TBD
Tuesday, May 24	Daniel Dreyfus	TBD
Tuesday, May 24	Brinley Middle School	TBD
Tuesday, May 24	Elderhostel Program	TBD
Wednesday, May 25	Meadows School	TBD
Thursday, May 26	Study Committee	TBD
Thursday, May 26	Garrett Middle School	TBD
Friday, May 27	International High-Level Radioactive Waste Management Conference	TBD

AMSL:CLH-3710



Robert M. Nelson, Jr.
Acting Project Manager

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cc:

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L. W. Bradshaw, Nye County, Tonopah, NV
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P. A. Niedzielski-Eichner, Nye County, Chantilly, VA
V. E. Poe, Mineral County, Hawthorne, NV
Jason Pitts, Lincoln County, Pioche, NV
Lander County Board of Commissioners, Battle Mountain, NV
Eureka County Board of Commissioners, Eureka, NV
J. D. Hoffman, Esmeralda County, Goldfield, NV
D. A. Bechtel, Clark County, Las Vegas, NV
Cyril Schank, Churchill County, Fallon, NV
B. R. Mettam, Inyo County, Independence, CA
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