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

AUG 0 3 1994

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

YUCCA MOUNTAIN SITE CHARACTERIZATION OFFICE WEEKLY HIGHLIGHTS FOR THE WEEK ENDING JULY 22, 1994 (SCPB: N/A)

I. FORECAST SIGNIFICANT EVENTS

Site Characterization Testing

Construction of a drill pad for Borehole SD-7 will continue. Drilling will continue at Borehole SD-12. Sample collection will continue at the Fran Ridge test block. Borehole workovers in preparation for testing may continue. Cleaning of the Ghost Dance Fault trenches to prepare them for geologic logging may begin. Air permeability testing will continue in Borehole UE-25 NRG-7/7A.

Exploratory Studies Facility

Two shift, six days-a-week assembly of the tunnel boring machine will continue. Forward movement of the tunnel boring machine to the starter tunnel face will be completed and gantry car 5 will be added to its train.

II. CRITICAL ITEM STATUS - YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT

A. Site Characterization Activities

1. Exploratory Studies Facility

Continue installing ventilation in the test alcove. Installing rock bolts to reinforce the brow of the starter tunnel face.

YMP-5

9408110338 940803
PDR WASTE
WM-11
PDR

102.8
WM-11
NH03 1/0

2. Construction

Regarding Job Package 92-20, Exploratory Studies Facility North Portal Pad and Facilities, continued two shift, six days-a-week assembly operations of the tunnel boring machine. Continued welding cutter head segments and installing and testing hydraulic/lube circuits. Completed assembly and welding of roof shield. Continued prewalk tests for the tunnel boring machine. Moving the tunnel boring machine forward approximately 21 meters to add gantry cars 4 and 5 to its train. Continued preparations for the Readiness Review for start of tunnel boring machine operations.

Completed the last concrete pour for the slide at the muck car dump. Installation of the tripper at the muck car dump continues.

Continued construction of the subsurface waste water, and fire/potable water lines on the North Portal Pad.

Backfilling duct bank trenches and pulling wire. Preparing emplacement of concrete in switchgear building cable trench.

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

3. Design

Complete the baselining of the cost impact for implementation of Design Package 2C and a change in scope of the Integrated Data and Control System by the Yucca Mountain Site Characterization Office Change Control Board. Design activities continue for Design Packages 8A and the Integrated Data and Control System.

B. Site Characterization Testing

Exploratory drilling operations progress is summarized as follows:

Borehole	Current Core Depth 07/22/94	Current Ream Depth 07/22/94	Total Planned Depth
SD-9	453.9 meters (1489.2 feet)		646.2 meters (2,120 feet)
SD-12	353.8 meters (1160.8 feet)	338.6 meters (1112.0 feet)	701.04 meters (2,300 feet)

Regarding Job Package 94-04, SD-12 Borehole, the bottom of the borehole is presently in the Topopah Spring (TSw_2) unit.

Regarding Job Package 94-06, SD-9 Borehole, drilling is on hiatus pending water level measurements and discussions on how best to proceed. The bottom of the borehole is in the Calico Hills tuff (CHn_1) unit.

Regarding Job Package 93-15, Borehole NRG-7/7A, gas permeability testing by the U.S. Geological Survey continues.

Regarding the Stagecoach Road Fault shallow Borehole SR-1, a CME-850 auger drilling rig was mobilized to the site and rigged up. Auger soil sampling progressed to a depth of 1.8 meters (6.5 feet).

Completed processing 13 core sample examinations at the Sample Management Facility for the U.S. Geological Survey, Los Alamos National Laboratory, and Sandia National Laboratories.

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

AUG 0 3 1994

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

1. Large Block Test

Collection of rock samples from the upper 10 feet of the excavation is complete. Excavation of the block to final depth is now in progress.

2. 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	1	1
Awaiting Comment Resolution	4	5
In Verification Audit	5	0
Awaiting Yucca Mountain Site Characterization Office Approval	1	0
Awaiting Submission to U.S. Nuclear Regulatory Commission	1	0
Awaiting U.S. Nuclear Regulatory Commission Initial Review	10	7
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	32

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	28

3. Environmental Safety and Health Programs

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

III. GENERAL INFORMATION ITEMS

Regarding Lawrence Livermore National Laboratory efforts towards characterization of the effects of man-made materials on chemical and mineralogical changes in the postemplacement environment, the Diesel Exhaust study is underway. Sampling was conducted in N-tunnel, EQ 3/6 simulations have begun, and planning to add microbial effects to the study is underway. Results are required by August 1994, to support a diesel versus electric decision for the Exploratory Studies Facility.

Los Alamos National Laboratory hosted a meeting on Hydrology planning and guidance for fiscal year 1995. Russell Patterson (Yucca Mountain Site Characterization Office Hydrology team leader) and Jerry Farley (Civilian Radioactive Waste Management System Management and Operating Contractor) presented guidance for hydrology tasks in fiscal year 1995 as part of the Proposed Program Approach. The following presentations were made: "Site Saturated Zone Groundwater Flow System," "Water Movement Tracer Tests," "Diffusion Tests in the ESF," and "Gaseous Phase Movement in the Unsaturated Zone."

Los Alamos National Laboratory prepared draft responses to technical review comments on the geochemistry sections of the fiscal year 1993 Thermal Loading Systems Study Final Report. This report was prepared by TRW Environmental Safety Systems Inc., with input from mineralogy-petrology personnel on the possible retardation effects of mineralogic changes in the far field.

Optical analysis began on five microautoradiographs for the trace minerals studies. These microautoradiographs should clarify the sites of Pu sorption on samples of devitrified tuff from the Topopah Spring Member, vitric Calico Hills Formation, zeolitized Calico Hills Formation, zeolitized Prow Pass Member of the Crater Flat Tuff, and devitrified Prow Pass Member.

Work continued on the ongoing study to characterize water behavior in smectite. Two Ca-exchanged smectites (SHCa-1 and API#21) and one K-exchanged smectite (Otay, California) were analyzed by X-ray diffraction under varied conditions of relative humidity (from 0 to 100 percent relative humidity and back to 0 percent relative humidity). In addition, six smectites (Na-, Ca-, K-exchanged SWy-1 and Succor Creek, OR) were also analyzed by thermogravimetric analysis to obtain water sorption/desorption isotherms going from 0 to 100 percent relative humidity and back to 0 percent relative humidity.

Los Alamos National Laboratory began measurement of reference intensity ratio standards on the Idaho National Engineering Laboratory, Idaho Falls, Idaho, diffractometer to determine if the system can be used for quantitative X-ray powder diffraction analyses on tiny amounts of samples (several mg in weight). Calibrations have been conducted with the standards mounted in 0.3 mm glass capillaries with a beam width of 4 mm. Results for the reference intensity ratio measurements are being compared with the same values obtained from the Siemens diffractometers and with calculated reference intensity ratio values. Preliminary results are favorable for silicate minerals (e.g., feldspars, zeolites, silica polymorphs) suggesting that the Idaho National Engineering Laboratory system can be used to obtain reasonably quantitative results on silicates.

Technical and Management Support Services completed the preparation of records package for Job Package 93-03A, "Drilling of NRG-5 Borehole." Submitted completed package to the Document Records Center and prepared proper paperwork to obsolete the Job Package.

IV. PUBLIC OUTREACH AND INSTITUTIONAL ACTIVITIES

A general Project overview was given to 25 people from Inyo County on July 20, 1994, in Las Vegas, Nevada. A general Yucca Mountain Site Characterization Project overview for youth was also given to 17 members of the University of Nevada, Las Vegas, Upward Bound Program on July 18, 1994, in Las Vegas.

A "Yucca Mountain Johnny" educational presentation was given to 75 people at the Pahrump Community Center in Pahrump, Nevada, on July 21, 1994.

Several tours to Yucca Mountain were coordinated and conducted. These included two tours on July 19, 1994, for a guest from the U.S. Nuclear Regulatory Commission and for 20 guests from the University of Nevada, Las Vegas, Upward Bound Program; two tours on July 20, for 30 guests from Inyo County and for two guests from the Las Vegas Review-Journal; and on July 21, 1994, for 35 guests from the Study Committee.

Yucca Mountain Site Characterization Project staff developed and distributed fliers and placed newspaper announcements for the upcoming Yucca Mountain Speaker Series meteorology presentation, "Rain or Shine, Have We Got Weather for You."

Staff completed 47 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 Lawrence Weekly at (702) 794-7896 for additional information. Exhibits are coordinated by Joanna Magruder at (702) 794-7056; and Tours are coordinated by Carleen Hill at (702) 794-7375.

Date	Event	Location	Yucca Mountain Site Characterization Project Contact

A. Stakeholders' Meetings

No significant meetings to report.

B. U.S. Department of Energy/Headquarters Meetings

No significant meetings to report.

C. Civilian Radioactive Waste Management System Management and Operating Contractor/U.S. Department of Energy Meetings

No significant meetings to report.

D. Internal and U.S. Department of Energy/Nevada Operations Office (NV) Meetings

No significant meetings to report.

Date	Event	Location	Yucca Mountain Site Characterization Project Contact
E. U.S. Nuclear Regulatory Commission Interactions			
Tuesday, July 26	Bimonthly DOE/NRC Manager's Meeting	Rockville, MD	T. Bjerstedt
Wednesday, July 27	Update of the Exploratory Studies Facility Activities - Design and Construction	Rockville, MD	T. Bjerstedt

F. Nuclear Waste Technical Review Board Interactions

No significant interactions to report.

G. Advisory Committee on Nuclear Waste Interactions

No significant interactions to report.

H. National Academy of Sciences Interactions

No significant interactions to report.

Date	Event	Location	Speaker
I. State and Public Interactions			
Monday, July 25	Pre-Audit Conference - Completed and Ongoing Scientific Work at the Site	Las Vegas, NV	R. Dyer
Tuesday, July 26	Yucca Mountain Speaker Series - "Rain or Shine, Have We Got Weather for You" (P)	Las Vegas, NV	D. Ambos
Tuesday, August 2	City of Las Vegas High-Level Waste Committee Meeting - Project Update	Las Vegas, NV	B. Nelson
Thursday, August 4	American Public Works Association - Project Update with emphasis on Transportation	Las Vegas, NV	P. Standish

Date	Event	Location	Speaker
J. Educational Interactions			
Wednesday, July 27	4-H T.E.C. - "Gee Whiz Science"	Las Vegas NV	J. Blink
Thursday, July 28	Ruby Thomas Elementary School - "Gee Whiz Science	Las Vegas, NV	J. Blink
Saturday, July 30	Visions in Culture - American Indian People of Southern Nevada	Las Vegas, NV	R. Arnold Various YMP Staff

Date	Event	Location
K. Exhibits Scheduled		
Saturday, July 23	Yucca Mountain Open House and Tour	Las Vegas NV
L. Tours Scheduled		
Saturday, July 23	Public Open House (P)	Various Escorts
Wednesday, July 27	International Accelerator Transmutation of Waste Conference	TBD
Tuesday, August 2	University of Missouri	TBD
Wednesday, August 3	Yucca Mountain Site Characterization Project Orientation	TBD

Robert M. Nelson, Jr.
Robert M. Nelson, Jr.
Acting Project Manager

AMSL:CLH-4365