



Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
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APR 23 1996

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FIELD TEST COORDINATION REPORT FOR THE WEEK ENDING APRIL 12, 1996
(SCPB: N/A)

Enclosure 2 lists site characterization field activities that are currently active. Many of these are ongoing monitoring and mapping activities; therefore, only those activities having significant status change are addressed below.

BOREHOLE USW G-2 AQUIFER TEST

A second pump test was started at 9 a.m. on Monday, April 8, 1996. Pumping is planned to run for ten days, followed by monitoring of fluid-level recovery for an indeterminate period. The pumping rate is approximately 58 gallons per minute. The fluid level had been drawn down 80 feet as of 2 p.m., Friday, April 12, 1996, and the drawdown curve is very similar to that obtained from the 55-hour pump test. The longer duration test may yield information on boundary conditions and a better understanding of the steep hydraulic gradient present at the north end of Yucca Mountain, Nevada.

C-HOLE COMPLEX HYDRAULIC INTERFERENCE TESTING

The U.S. Geological Survey and drill crews removed the pump and instruments from C#3. The pump was replaced and the pump and instruments reconfigured to provide higher volume outflow than for the previous test. Injection tubing will be installed in C#1 following installation of the pump and instruments in C#3. The work is in preparation for the next round of tracer testing. Further testing using both conservative and non-conservative tracers is planned to begin on or about May 1, 1996.

BOREHOLE USW SD-7 TEMPORARY INSTRUMENTATION

The Seamist system for pneumatic testing was installed on Tuesday, April 2, 1996, and is continuing to collect baseline data. The monitoring system allows pneumatic testing prior to and during passage of the Tunnel Boring Machine (TBM) as it excavates the southern part of the Exploratory Studies Facility (ESF) Main Drift.

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ESF TESTING

As of 8 a.m., Friday, April 12, 1996, the TBM had reached approximate station 48+66.3 meters. Data collection in support of construction monitoring continues. Geologic mapping and sampling were completed to approximate station 47+49 meters. Preliminary tunnel stratigraphy identified to date is summarized in Enclosure 1.

ESF Alcove 3 (Upper Paintbrush Tuff [non-welded] Contact):

Hydrochemistry testing was completed on Thursday, April 4, 1996. Instrumentation for air permeability testing is currently being installed in the two test boreholes. The testing will investigate pneumatic and hydrologic properties of the lithologic contact between the Tiva Canyon welded units and the Paintbrush bedded units.

ESF Alcove 5 (Thermal Testing Facility Access/Observation Drift):

Excavation of the Thermal Testing Facility/Observation Drift was initiated January 19, 1996, and had progressed to approximately 53.2 meters from tunnel centerline as of 8 a.m., Friday, March 8, 1996, when it was halted in order to excavate the Thermomechanical Alcove (TMA). The TMA excavation was substantially completed this week with the TMA at 24.2 meters and the TMA extension excavated to 12.2 meters. Some additional excavation may still be needed to bring the TMA to grade. Excavation of the Thermal Testing Facility/Observation Drift should resume next week. Total design length of the Thermal Testing Facility is 130 meters. This facility will be used for testing in-situ thermomechanical properties in the potential repository host rock.

Drilling of instrumentation holes continued in the TMA. All nine planned holes in the north wall of the TMA block are now complete. Drilling of instrumentation holes in the west and south walls of the block will begin in the near future.

If you have any questions, please contact either W. Arch Girdley at 794-1934 or Drew H. Coleman at 295-7926.



W. Arch Girdley, Team Leader
Field Test Coordination
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AMSP:WAG-1578

Enclosures:

1. Tunnel Stratigraphy
2. Site Characterization Field
Activities in Progress

ESF TUNNEL STRATIGRAPHY*

STATION

0+00 to 0+99.5m	Tiva Canyon crystal poor upper lithophysal zone. <u>Alcove #1</u> (centerline station intersection): 0+42.5
0+99.5 to 1+90m	Tiva Canyon crystal poor middle nonlithophysal zone <u>Alcove #2</u> (centerline station intersection): 1+68.2
1+90 to 1+99.5m	Tiva Canyon crystal poor lower lithophysal zone.
1+99.5 to 2+02m	Bow Ridge fault zone (placing Pre-Ranier Mesa Tuff against Tiva Canyon Tuff)
2+02 to 2+20m	pre-Ranier Mesa Tuff
2+20	Fault (4.3m offset)***
2+20 to 2+63.5m	pre-Ranier Mesa Tuff
2+63.5 to 3+37m	Tuff "X"
3+37 to 3+49.5m	pre-Tuff "X"
3+49.5 to 3+59.5m	Tiva Canyon vitric zone
3+59.5 to 4+30m	Tiva Canyon crystal rich nonlithophysal zone
4+30m	Fault (~10m offset)***
4+30 to 4+34	Tiva Canyon crystal rich nonlithophysal zone
4+34 to 4+39m	Tiva Canyon crystal rich lithophysal zone
4+39 to 5+50m	Tiva Canyon crystal poor upper lithophysal zone
5+50m	Fault (~5m offset)***
5+50 to 5+53	Tiva Canyon crystal poor upper lithophysal zone
5+53 to 5+87m	Tiva Canyon crystal poor middle nonlithophysal zone

ESE TUNNEL STRATIGRAPHY CONTINUED*

5+87 to 6+19m	Tiva Canyon crystal poor lower lithophysal zone
6+19 to 7+00m	Tiva Canyon crystal poor lower nonlithophysal zone
7+00m	Fault (~20m? offset)***
7+00 to 7+77m	Tiva Canyon crystal poor lower nonlithophysal zone. <u>Alcove #3</u> (centerline station intersection): 7+54.
7+77 to 8+69m	Tiva Canyon crystal poor vitric zone
8+69 to 9+12m	Bedded tuffs (including thin Yucca Mountain member)
9+12 to 10+20m	Pah Canyon Member.
10+20 to 10+51.5m	Pre-Pah Canyon tuffs <u>Alcove #4</u> (centerline station intersection): 10+27.8
10+51.5 to 11+93m	Topopah Spring crystal rich vitric zone
11+93 to 17+17m	Topopah Spring crystal rich nonlithophysal zone
17+17 to 17+97m	Topopah Spring crystal rich lithophysal zone
17+97 to 27+20m	Topopah Spring crystal poor upper lithophysal zone
27+20 to 35+93m	Topopah Spring crystal poor middle nonlithophysal zone <u>Alcove #5</u> (centerline station intersection): 28+27
35+93m	Sundance fault (most prominent fault plane, minor fracturing reported between Stations 35+85 and 36+40)
35+93 to face	Topopah Spring crystal poor middle nonlithophysal zone

* All stations given are referenced to the right springline unless otherwise noted. Station 0+00 is located at coordinates N765352.7, E569814.4.

** Indicates that contact is preliminary and has not been verified.

*** Only faults with greater than 4 meters offset are noted on the table.

Site Characterization Field Activities in Progress

<u>SCP ACTIVITY</u>	<u>TITLE</u>	<u>ACTIVITY</u>
8.3.1.3.2.1	Mineralogy, Petrology, and Rock Chemistry of Transport Pathways	ESF Sampling, Borehole Sampling
8.3.1.3.2.2	Mineralogic and Geochemical Alteration	ESF Sampling, Borehole Sampling
8.3.1.4.2.2	Structural Features Within Site Area	Surface & ESF Mapping
8.3.1.17.4.3	Quaternary Faulting Within 100 km of Yucca Mtn.	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 and Meteorological Monitoring for Regional Hydrology	Ongoing Measurements
8.3.1.2.1.2	Runoff and Streamflow	Ongoing Measurements
8.3.1.4.2.1	Characterization of Vertical/Lateral Distribution Stratigraphic Units in Site Area	Core Logging (all boreholes), surface of geophysical surveys
8.3.1.2.1.3	Regional Groundwater Flow System	Ongoing monitoring
8.3.1.2.2.1	Unsaturated Zone Infiltration	Shallow borehole neutron logging
8.3.1.2.2.2	Water Movement Tracer Tests	Cl ³⁶ measurements (SBT drillholes, ESF)

Activities in Progress Continued

<u>SCP ACTIVITY</u>	<u>TITLE</u>	<u>ACTIVITY</u>
8.3.1.2.2.4	Characterization of Unsaturated Zone (ESF)	Hydrochemistry/Radial Boreholes testing
8.3.1.2.2.6	Gaseous Phase Movement in the Unsaturated Zone	Pneumatic pathways monitoring
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
8.3.1.4.3.1	Systematic Acquisition of Site Specific Subsurface Information	Core logging
8.3.1.15.1.8	In Situ Design verification	Construction monitoring/testing
8.3.1.9.2.1	Natural Resource Assessment of Yucca Mountain	Rock sampling
8.3.1.3.4.2	Biological Sorption and Transport	Sampling in ESF
8.3.1.19.5.1	Engineered Barrier System Field Tests	Sampling in ESF

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