



**Department of Energy**  
Office of Civilian Radioactive Waste Management  
Yucca Mountain Site Characterization Office  
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**APR 30 1996**

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**FIELD TEST COORDINATION REPORT FOR THE WEEK ENDING APRIL 26, 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 that started Monday, April 8, 1996, was shut off on Thursday, April 25, 1996, (17 days, compared to 55 hours for the first test). The pumping rate was approximately 58 gallons per minute throughout the test. Fluid level was drawn down 124.5 feet. Recovery of the water level is now being monitored and is expected to require several weeks to return to its pre-test level. The longer duration test may yield additional information on permeable zones and boundary conditions, as well as yielding a better understanding of the steep hydraulic gradient present at the north end of Yucca Mountain, Nevada.

**C-HOLE COMPLEX HYDRAULIC INTERFERENCE TESTING**

Test equipment installation for the next round of tracer testing was completed. Testing with both conservative and non-conservative tracers is expected to begin on or about May 6, 1996.

**EXPLORATORY STUDIES FACILITY (ESF) TESTING**

The Tunnel Boring Machine resumed excavating on Monday, April 22, 1996, and progressed to station 49+52.2 as of 3 p.m., Friday, April 26, 1996. Instrument installation and data collection in support of construction monitoring continues. Geologic mapping and sampling were completed to approximate station 48+43 meters. Preliminary tunnel stratigraphy identified to date is summarized in Enclosure 1.

9606030018 960430  
PDR WASTE  
WM-11 PDR

YMP-5

102.8  
WM-11  
N4403

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

Air permeability (Air-K) testing in the two boreholes continued this week. 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 resumed on April 17, 1996, and had progressed to approximate station 0+66.5 meters from tunnel centerline as of 8 a.m., Friday, April 26, 1996. 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 holes in support of thermal testing in the Thermomechanical Alcove resumed on the eastern wall of the block. Borehole ESF-TMA-H-1 was core drilled to 7.0 meters and the section from 0 to 1.87 meters was reamed to about 20 centimeter diameter to accommodate the heater element.

**ESF Alcove 6 (Northern Ghost Dance Alcove):**

Excavation of the Northern Ghost Dance Alcove is expected to begin on Saturday, April 27, 1996. This facility will be used to investigate the properties of the Ghost Dance fault in the vicinity of the potential repository.

If you have any questions, please contact either W. Arch Girdley at 794-1438 or Drew H. Coleman at 295-7926.

*W. A. Girdley*

W. Arch Girdley, Team Leader

Field Test Coordination

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AMSP:WAG-1656

**Enclosures:**

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

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Multiple Addressees

-3-

cc w/encls:

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## **ESF TUNNEL STRATIGRAPHY\***

### **STATION**

0+00 to 0+99.5m	Tiva Canyon crystal poor upper lithophysal zone.  <b><u>Alcove #1</u></b> (centerline station intersection): 0+42.5
0+99.5 to 1+90m	Tiva Canyon crystal poor middle nonlithophysal zone  <b><u>Alcove #2</u></b> (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

### ESF 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 <sup>36</sup> 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