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Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
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QA: N/A

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FIELD TEST COORDINATION REPORT FOR THE WEEK ENDING JULY 4, 1997

The enclosure 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.

C-HOLE COMPLEX HYDRAULIC INTERFERENCE TESTING

The U.S. Geological Survey (USGS) received permission from the State of Nevada to inject up to 4 kilograms of the tracer pyridone into borehole C#1. The tracer was injected on January 9, 1997. Sampling and analysis of the water pumped from C#3 continues. Pyridone concentration has "peaked" and is now tailing or leveling off. The injection tubing has been removed from C#1 and C#2. Pumping and sampling is now expected to continue through July 1997. Tracer testing helps to understand flow in the saturated zone and yields data to help model the travel of radionuclides in the saturated zone.

ENGINEERED BARRIER - LARGE BLOCK TEST

Lawrence Livermore National Laboratory continues the thermal testing at the Large Block. Temperature readings taken on June 26, 1997, from probes near the heater plane of the block were 97.6°C and 98.7°C. The temperature has decreased due to recent equipment malfunctions that have since been repaired. Additional insulation was added to the block on July 3, 1997, to try to speed up heating of the block to target temperature. The Large Block Test will yield information on movement of water under thermal load, geochemistry of refluxing water, and biological organism (microbe) activity.

EXPLORATORY STUDIES FACILITY (ESF) TESTING

The Tunnel Boring Machine has been removed from the tunnel and is being disassembled at the South Portal.

Data collection in support of construction monitoring continues. Reviews of the mapping are now in progress. Some mapping remains to be completed in Alcoves 6 and 7 and for the Niche studies.

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ESF Alcove 5 (Thermal Testing Facility Access/Observation Drift, Connecting Drift, and Heated Drift):

Installation of instrumentation such as wing heaters, multi-point borehole extensometers, and others is continuing in the Heated Drift Test (HDT).

The HDT will heat approximately 15,000 cubic meters of the rock of the repository horizon to a temperature of 100°C or greater in order to investigate the coupled processes under thermal loading.

ESF Alcove 5 (Thermomechanical Alcove):
The Single Heater Test (SHT) started on schedule on August 26, 1996. The instruments, except the water chemistry probes, are reported to be working properly and data are being collected. The SHT will heat approximately 25 cubic meters of rock to 100°C or greater. The heater was turned off at 1:30 p.m. on Wednesday, May 28, 1997. The instruments will now be monitored during a six-to-nine month cool down period.

No new temperature readings have been received as of the date of this report.

The purpose of this test is to understand heat related processes and measure physical parameters. Some of these processes include heat transfer (conduction and convection), moisture movement, and geochemical changes (water chemistry changes due to heating of the rock). In addition, the results from the SHT will provide guidance for instrumentation and conducting the Drift Scale Test in Alcove 5. The results will be available for the Viability Assessment (VA) design; specifically, thermal properties, deformation of the rock at elevated temperatures, and performance of rock bolts at elevated temperatures.

ESF Alcove 6 (Northern Ghost Dance Fault Alcove):
The USGS air permeability testing is continuing in the boreholes in Alcove 6. The USGS will be performing Hydrologic Properties of Faults testing in the boreholes for approximately the next four months.

ESF Alcove 7 (Southern Ghost Dance Fault Alcove):
The USGS successfully installed the Seamist system in the borehole in Alcove 7, across the splay of the Ghost Dance Fault. Gas sampling is continuing in the alcove.

Niche Drift Study (Niche #1):
Excavation of the niche started on Wednesday, June 18, 1997, and was completed on June 25, 1997. The niche has been sealed to prevent loss of moisture. Drilling of boreholes in the niche is expected to begin next week.

Niche #2
Testing of air permeability and cross hole tracer testing is underway in the seven boreholes drilled in and around the outline of Niche #2.

Niche studies are part of the Risk Reduction Strategy for VA and focus on unsaturated zone hydrology and hydrochemistry testing.

Drilling of Moisture Study boreholes in the non-welded units (Ptn) started on Wednesday, June 25, 1997. Twenty holes are planned in the North Ramp. The following holes were completed this week:

Hole Name	Start	Finish	Depth (m)	Location
ESF-NR-MOISTSTDY #9	6/27/97	6/30/97	2.1 m	08+23
ESF-NR-MOISTSTDY #8	6/30/97	6/30/97	2.1 m	08+70
ESF-NR-MOISTSTDY #8a	6/30/97	6/30/97	2.1 m	08+69
ESF-NR-MOISTSTDY #10	6/30/97	6/30/97	2.1 m	08+80
ESF-NR-MOISTSTDY #11	6/30/97	7/1/97	2.1 m	08+92
ESF-NR-MOISTSTDY #12	7/1/97	7/1/97	2.1 m	09+57
ESF-NR-MOISTSTDY #13	7/1/97	7/1/97	2.1 m	10+08
ESF-NR-MOISTSTDY #14	7/1/97	7/1/97	2.1 m	10+48
ESF-NR-MOISTSTDY #15	7/1/97	07/1/97	2.1 m	10+54
ESF-NR-MOISTSTDY #17	7/1/97	7/1/97	2.1 m	10+70
ESF-NR-MOISTSTDY #16	7/1/97	7/1/97	2.1 m	10+69

The following holes were drilled in Alcove 4 as part of the moisture Study. Alcove 4 is at the contact of the Lower Paintbrush tuffs.

Hole Name	Start	Finish	Depth (m)	Location
ESF-LPCA-MOISTSTDY #1	7/2/97	7/2/97	2.1 m	Lower
ESF-LPCA-MOISTSTDY #2	7/2/97	7/2/97	2.1 m	Middle
ESF-LPCA-MOISTSTDY #3	7/2/97	7/2/97	2.1 m	Upper

This completes the moisture study holes planned for the North Ramp area. Additional moisture study holes will be drilled in the nonwelded units in the South Ramp. Core from the moisture studies boreholes will be analyzed for saturation, porosity, and other moisture related characteristics.

If you have any questions, please contact me at 295-7825.

Drew H. Coleman
Field Test Coordination
Assistant Manager for Licensing

AML:DHC-1889

Enclosure:
Site Characterization Field
Activities in Progress

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Records Processing Center = "12"

Site Characterization Field Activities in Progress

SCP ACTIVITY	TITLE	ACTIVITY
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), surfaceof 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)

Site Characterization Field Activities in Progress Continued

SCP ACTIVITY	TITLE	ACTIVITY
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