



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Reply to:
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Las Vegas, NV 89101

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TO: Joseph Holonich, Director, HLPD, M/S 4 H 3
FROM: Sr. On-Site Licensing Representatives Office, Las Vegas
DATE: JULY 7, 1993
SUBJECT: OFFICE OF GEOLOGIC DISPOSAL (OGD) WEEKLY HIGHLIGHTS FOR THE
WEEK ENDING JULY 2, 1993

Please find enclosed the above-referenced report.

There is nothing requiring specific management attention in the report.

cc: w/enc.: Charlotte Abrams, M/S 4 H 3
Rosetta Virgilio, M/S 3 D 23
Dean Kunihiro, Region 5

JSP:nan
Enclosure as stated

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

WBS 1.2.9.2
QA: N/A

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Lake H. Barrett, Acting Director, Civilian Radioactive Waste Management,
HQ (RW-1) FORS
THRU: Linda M. Smith, Acting Associate Director, OGD

OFFICE OF GEOLOGIC DISPOSAL (OGD) WEEKLY HIGHLIGHTS FOR THE WEEK ENDING
JULY 2, 1993 (SCP: N/A)

I. FORECAST SIGNIFICANT EVENTS

A. Site Characterization Activities

Exploratory Studies Facility (ESF)

Design activities will continue in preparation for 90 percent design reviews in July and August 1993.

Construction will continue in the Starter Tunnel, including placement of shotcrete, installation of cement grouted pattern bolts, and excavation of the pilot drift and north and south slashes.

Surface-Based Testing (SBT)

Exploratory drilling operations will continue at NRG-4 and UZ-14. Backfilling of GSF test pits south of A road will continue. Geologic mapping and sampling will continue in the ESF Starter Tunnel beyond Station 1+20 in the crown drift and slash cuts as the excavation continues. Downhole geophysical work will be done at NRG-6 and UZ-16. Environmental survey work will continue at the N-39 site. Pad construction will begin at the NRG-2B site. Review of benching and scaffold erection at Bare Mountain Trench II is scheduled for June 29, 1993.

Field Operations

Future activities are planned for Job Package (JP) 92-21, C-Hole Complex Pump Test, with a combined management and independent technical review for electrical work planned.

The next JPs expected are for NRG-2B and SRG-5.

B. Public Outreach and Institutional Activities

Max Powell will be giving a general overview of the YMP with new work status to 200 members of the National Congress of American Indians in Green Bay, Wisconsin, on June 29, 1993.

Wolfgang Repke will be attending the State/Local Government Planning Group meeting in Ely, Nevada, on June 29, 1993.

Michael Voegele will be giving a technical presentation to approximately 50 attendees of the 34th U. S. Symposium on Rock Mechanics in Madison, Wisconsin, on June 29, 1993.

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II. CRITICAL ITEM STATUS - YMP

A. Site Characterization Activities

ESF

Excavation continues on the Tunnel Boring Machine (TBM) Starter Tunnel at the North Portal area. The pilot drift and the north and south slashes are in approximately 37.5 meters as of June 25, 1993.

On JP 92-20, ESF North Portal Pad and Facilities, Reynolds Electrical & Engineering Co., Inc. (REECo), continued grading and compacting the second lift of aggregate base coarse on the north ESF access road. They continued work on the drainage channel and removal of the topsoil at the concrete batch plant site. Shotcrete application and grouting of pattern bolts also continued. In preparation of the continuing advancement of the pilot drift, 20 feet of spiling were completed. The faces of the pilot drift and the north and south slashes are at 00+37.5 meters (1+23 feet).

Regarding ESF, the tunnel was mapped from 1+00 to 1+20 on June 23, 1993. Shotcreting was performed June 23-24, 1993, and rockbolting on June 25, 1993.

The following milestones represent the near-term plan for ESF activities:

Award Subcontract for Underground Construction	June 1993
Begin 90 Percent Design Review, Package 2A	July 19, 1993
Begin 90 Percent Design Review, Package 1B	August 2, 1993
Complete 60 Meters of TBM Starter Tunnel	September 20, 1993

Design

The 50 percent management and independent technical reviews of Design Package 1B (Surface Facilities, North Portal) and Design Package 2 (North Ramp - Surface to Topopah Spring Level) are nearing completion. The final comment resolution process is in progress. Only a small number of comments remain to be resolved.

SBT

Work on Shallow Seismic Refraction Survey in the Windy Wash area of Crater Flat commenced on June 23, 1993. On JP 93-2A, NRG-4, drilling continues with the Failing 1500 rig. The NRG-4 was hammer drilled from 178.96 feet on June 21, 1993, to 365.0 feet on June 24, 1993, swing shift. Coring began at 365 feet on June 25, 1993. On June 22, 1993, a new casing shoe was set at 178.96 feet. Three deviation surveys have been taken. The first at 90 feet was 0 degrees 45 minutes, the second at 197 feet was 0 degrees 30 minutes, and the third at 300 feet was 0 degrees 27 minutes from vertical.

On JP 92-17, UZ-14 drilling with the LM-300 drill rig, Borehole UZ-14 was cored from 821.9 feet to 881.89 feet by noon June 25, 1993; it

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was reamed from 815.9 feet to 878 feet. Considerable time was spent this week finding and fixing leaks in the circulation system. Mechanical failure of weld was identified on the fourth joint of the dual wall at 2:15 p.m. on June 25, 1993. Fishing operations will be performed on June 28, 1993.

SMF

The SMF laid out 1503 feet of core from Boreholes UE-25 NRG-2, NRG-2A, NRG-3, NRG-5, UE-25 RF-3, RF-8, and USW GU-3 for examinations conducted by CRWMS/M&O and USGS.

Specimens were shipped to USGS, Los Alamos National Laboratory (Los Alamos), and Sandia National Laboratory (SNL) and an additional 136 specimens were removed from core samples.

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

SCP ACTIVITY	TITLE	COMMENTS
8.3.1.3.2.1	Mineralogy, Petrology & Rock Chemistry of Transport Pathways	Outcrop sampling
8.3.1.3.2.2	Mineralogic & Geochemical Alteration	Outcrop sampling
8.3.1.4.2.2	Structural Features within Site Area	Surface mapping, ESF mapping
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	Test pits, trenching, ramp exploration holes
8.3.1.17.4.2	Location & Recency of Faulting Near Prospective Surface Facilities	Trench mapping
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
8.3.1.17.4.10	Geodetic Leveling	Traversing
8.3.1.17.4.6	Quaternary Faulting within Site Area	Trench mapping
8.3.1.2.1.1	Precipitation & Meteorological Monitoring for Regional Hydrology	Ongoing measurements
8.3.1.2.1.2	Runoff & Streamflow	Ongoing measurements
8.3.1.2.2.1	Unsaturated Zone Infiltration	Drilling/logging of neutron-access holes; ponding tests
8.3.1.2.2.2	Water Movement Tracer Tests	Cl-36 measurements
8.3.1.2.2.3	Percolation in Unsaturated Zone	UZ drilling/testing
8.3.1.2.2.4	Characterization of YM Percolation in UZ-ESF Investigation	Perched water
8.3.1.2.2.6	Gaseous Phase Movement in Unsaturated Zone	UZ drilling/testing
8.3.1.2.2.7	Unsaturated Zone Hydrochemistry	UZ drilling/testing
8.3.1.2.3.1	Site Saturated Zone Groundwater Flow System	Ongoing monitoring
8.3.1.2.3.2	Saturated Zone Hydrochemistry	Ongoing sampling
8.3.1.15.1.8	In Situ Design Verification	Construction monitoring/testing

Environmental Field Programs

Approval was received from the Nevada Division of Environmental Protection to inject tracers into Drillholes SRG-5/SD11 and NRG-2B.

Comments from DOE/HQ were resolved and the final Annual Site Environmental Report was issued to the Office of Environment, Safety and Health, as required by DOE Order 5400.1.

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Six environmental compliance surveillances were conducted at the Yucca Mountain (YM), Nevada site to ensure that site characterization activities are being performed in compliance with permit and programmatic requirements.

Six female desert tortoises were X-rayed to determine egg production. Two new nests were located.

Heater Block Test

Draft Study Plan (SP) 8.3.4.2.4.4 was revised to include the large block test scope of work.

Regulatory Interactions

Site Characterization Progress Report (PR)

The PR 8 is still in concurrence at DOE/HQ.

MGDS Annotated Outline (AO)

Comments on the U.S. Nuclear Regulatory Commission's (NRC)'s Draft Format and Content Regulatory Guide (FCRG) for the License Application for a Mined Geologic Repository have been consolidated in preparation for transmittal to the NRC in late July 1993. Comments are in two groups: suggestions on the appropriateness or accuracy of the FCRG itself; and comments on Appendix A of the FCRG, which is NRC's cross-index between the regulations in 10 CFR 60 and sections of the FCRG.

Technical Analysis

Technical Analysis Branch staff attended the Office of Civilian Radioactive Waste Management (OCRWM) Licensing Workshop on June 22, 1993, and Contractor Training for Engineers and Project Managers June 24-25, 1993.

The Branch Chief made a presentation concerning the performance assessment (PA) process and results to the National Academy of Science's (NAS) Board on Radioactive Waste Management on June 24, 1993, and participated in the Lawrence Livermore National Laboratory (LLNL) Lessons program for teachers in science on June 23, 1994.

The PA staff continued preparations for the PA Thermal Modeling meeting and for the Nuclear Waste Technical Review Board (NWTRB) Full Board Meeting. They also attended a meeting on the ground-water travel time (GWTT) issue, and continued work on the issue resolution effort on methods to assess the GWTT. A data exchange at LLNL completed the problem definition for thermal loading calculations for the Total System PA.

Site Characterization Plan/SP Status

One new SP was submitted to YMPO this week: SP 8.3.1.5.1.1, "Characterization of Modern Regional Climate." No new SPs were approved by YMPO this week. The NRC completed Phase I review of SP 8.3.1.2.3.3, "Saturated Zone Hydrologic System Synthesis and Modeling."

STUDY PLAN BREAKDOWN

	Initial Plans	Major Revisions
Not Submitted to YMPO	39	0
In Screening Review	1	0
In YMPO Review	1	0
Awaiting Comment Resolution	3	4
In Verification Audit	6	4
Awaiting YMPO Approval	2	0
Awaiting Submission to the NRC	0	0
Awaiting NRC Phase 1 Review	9	1
Accepted by NRC	43	4
Totals	104	13
Total Submitted to NRC	52	5

State of Nevada Comments Status:

Received Comments from the State of Nevada.....18
 Responses Transmitted to the State of Nevada18

NRC Comments Status:

Received Comments from NRC21
 Responses Transmitted from DOE to NRC19

C. Quality Assurance (QA) Implementation

The REECO Audit YMP-93-12 was conducted June 21-25, 1993. Surveillance 93-026 of USGS Calibration of Measuring and Test Equipment is scheduled for June 29-30, 1993.

Waste Isolation Evaluations Review

A flowchart of the processes involved in performing and reviewing the waste isolation evaluations was finalized and is being used for review of three selected SBT activities.

D. Public Outreach and Institutional Activities

Gave a geological basis for safe nuclear waste disposal presentation to 16 individuals participating in the American Nuclear Society (ANS) Teacher Workshop on June 19, 1993, in San Diego, California.

Gave a general overview of the YMP and a geology presentation to Girl Scouts and leaders of the Frontier Girl Scouts Council on June 20, 1993, in Las Vegas, Nevada.

The twenty-eighth Public Open House tour of YM was conducted on June 19, 1993, for 133 people.

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Two other tours to YM were conducted for NAS.

The Yucca Mountain Lecture Series, "Shake, Rattle and Roll for Gold," was presented on June 20, 1993, at the Pahrump YMIO, and on June 22, 1993, at the Las Vegas YMIO.

Provided a Native American Indian Cultural presentation at Citibank Child Care on June 23, 1993, in Las Vegas.

Project Manager Carl Gertz provided a general overview of the YMP to 100 members of the ANS in San Diego on June 23, 1993. On June 24, 1993, Carl Gertz spoke to 50 members of the NAS Board on Radioactive Waste Management in Las Vegas.

Gave a YMP overview to 100 employees of the Diablo Canyon Nuclear Power Plant in Avila Beach, California, on June 25, 1993.

Supported exhibits at Teen Fair and Expo June 25-26, 1993, in Las Vegas. Participated in the initiation of a Las Vegas Chamber of Commerce Business/Education curriculum program.

Attended the International High-Level Radioactive Waste Management Conference Steering Committee Meeting in San Diego on June 24, 1993.

III. AVD

MGDS

Verification review of SP 8.3.1.8.5.2, Revision 0, "Characterization of Igneous Intrusive Features," was completed.

IV. GENERAL INFORMATION ITEMS

Calculations were performed and a formal document was written on Issue No. MPC-005 dealing with the lifetime prediction of neutron absorbers in the MPC.

The carbon steel tubing string removed from Well WH-5 on the north side of YM was examined. The 1100-meter-long string, which was used as a conduit for an instrument package, was in place for over 10 years and included almost 400 meters of exposure below the water table. The section exposed above the water table had little corrosion, but the immersed section showed abundant corrosion products, apparently ferric oxide. Samples will be obtained for characterization to determine the corrosion penetration of the steel, the pattern of attack (generalized or localized), and the nature of the corrosion products. This information will be incorporated in the evaluation of steel as an overpack material in different waste package designs being considered by the project.

Presentations are being given at the Zeolite '93 conference in Boise, Idaho, June 21-25, 1993. Talks or poster presentations were provided on the importance of zeolites at YM, on fracture zeolites, on thermodynamic modeling of zeolite stability, and on the use of potassium/argon (K/Ar) dating methods on zeolites.

Processing of samples collected from Quaternary basalt centers in March 1993 were completed; the ages of the samples will be determined using

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the cosmogenic helium method. Clast size distribution data were obtained for two tephra-fall sheets from the Lathrop Wells volcanic center.

A report entitled, "Kinetics of Silica-Phase Transitions," was published as a Los Alamos report. In this report, a model is presented for the transition of metastable silica phases to quartz at YM. The rates of the transition reactions are dependent on temperature, pressure, degree of supersaturation, and pH.

Preliminary results of studies of sorption of neptunium onto iron oxides coated with organics indicate that the sorption of neptunium onto iron oxide minerals is relatively interdependent of organic coatings.

A shallow seismic refraction profile was conducted across the southern Windy Wash Fault. The profile will contain the amount of offset on a three million-year-old Basalt flow that is cut by the Windy Wash Fault. Data from the profile will be used to calculate a long-term displacement rate on the Windy Wash Fault and to correlate the offset basalt flow with flows in southern Crater Flat.

The staff completed mapping the Paintbrush Fault to the southern end of the northeast quadrant.

A road cut has been proposed to intersect several faults within the Ghost Dance Fault zone on south flank of Antler Ridge. The location of the road was staked and the environmental study boundary was located on the site. The USGS field crew met with DOE personnel to discuss details of the road cut construction.

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 Jacqueline Brandt at (702) 794-7896 or Theresa Hirsch at (702) 794-7759 for additional information. Exhibits and Public Update Meetings are coordinated by Joanna Magruder at (702) 794-7056, 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>YMPO Contact</u>
A.	<u>DOE/HQ Meetings</u>		
	No significant meetings to report.		
B.	<u>CRWMS M&O/DOE Meetings</u>		
	No significant meetings to report.		
C.	<u>Internal and DOE/NV Meetings</u>		
Wednesday, July 21	NV Monthly Program Review	Las Vegas, NV	L. Smith/ C. Gertz

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
E. <u>NWTRB Interactions (Continued)</u>			
Tuesday- Friday, October 19-22	NWTRB Full Board Meeting (P)	Las Vegas, NV	J. Cooper
Monday- Tuesday, November 1-2	NWTRB Joint T&S/ EBS Panel Workshop (P)	TBD	J. Cooper
Monday- Wednesday, January 10-12, 1994	NWTRB Full Board Meeting (P) (Tentative)	Arlington, VA	J. Cooper
Monday- Wednesday, April 11-13, 1994	NWTRB Full Board Meeting (P) (Tentative)	Reno, NV	J. Cooper
Monday- Wednesday, July 11-13, 1994	NWTRB Full Board Meeting (P) (Tentative)	Denver, CO	J. Cooper
Wednesday- Friday, October 12-14 1994	NWTRB Full Board Meeting (P) (Tentative)	Las Vegas, NV	J. Cooper
F. <u>Advisory Committee on Nuclear Waste (ACNW) Interactions</u>			
Wednesday- Thursday, July 21-22	ACNW 55th Meeting (P)	TBD	A. Gil
Wednesday- Thursday, August 25-26	ACNW 56th Meeting (P)	TBD	A. Gil
Wednesday- Thursday, September 29-30	ACNW 57th Meeting (P)	TBD	A. Gil
Wednesday- Thursday, October 27-28	ACNW 58th Meeting (P)	Las Vegas, NV	A. Gil
Monday- Tuesday, November 22-23	ACNW 59th Meeting (P)	TBD	A. Gil

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<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
F. <u>ACNW Interactions (Continued)</u>			
Wednesday- Thursday, December 15-16	ACNW 60th Meeting (P)	TBD	A. Gil

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>YMPO Contact</u>
G. <u>NAS Interactions</u>			
Thursday- Friday, August 26-27	NAS Committee on YM Standards-Alternative Formulations of a Risk-Based Standard	Las Vegas, NV	S. Jones

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
H. <u>State and Public Interactions</u>			
Tuesday, July 6	Inyo County	Inyo, CA	C. Gertz
Tuesday, July 6	YMCA	Las Vegas, NV	R. Arnold
Tuesday, July 6	University of Georgia	Las Vegas, NV	J. Peck
Wednesday, July 7	University of California, Santa Barbara	Santa Barbara, CA	C. Gertz
Thursday, July 8	National Property Management Association	Las Vegas, NV	J. Peck
Monday, July 12	Washoe County Commission	Washoe County, NV	TBD
Tuesday- Wednesday, July 13-14	NWTRB	Denver, CO	C. Gertz
Thursday, July 15	Spring Valley Library	Las Vegas, NV	T. Bjerstedt
Friday, July 16	Loyal Order of the Moose	Pahrump, NV	J. Peck
Friday July 16	Fay Herron Elementary School	Las Vegas, NV	R. Arnold
Monday, July 19	Dorothy Eisenberg Elementary	Las Vegas, NV	J. Hartley
Monday, July 19	City of Las Vegas Yucca Mountain Nuclear Repository	Las Vegas, NV	C. Gertz

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Speaker</u>
H. <u>State and Public Interactions (Continued)</u>			
Wednesday, July 21	C. T. Sewell Elementary School	Las Vegas, NV	T. Kaish/ M. Griffin
Wednesday, July 28	ANS Teacher Workshop	Deerfield, MA	J. Peck
Monday, August 2	U.S. Council on Energy Awareness Energy Information Centers	Chicago, IL	C. Gertz
Thursday, August 12	Second International New Avenues in Risk and Crisis Management Conference	Las Vegas, NV	C. Gertz
Tuesday, August 17	1993 American Institute of Chemical Engineers Summer National Meeting	Seattle, WA	C. Gertz
Wednesday, August 18	Second International Mixed Waste Symposium	Baltimore, MD	C. Gertz
Wednesday- Thursday, September 1-2	C. P. Squires Elementary	N. Las Vegas, NV	R. Arnold
Monday- Tuesday, September 6-7	C. P. Squires Elementary	N. Las Vegas, NV	R. Arnold
Tuesday, September 7	International Atomic Energy Course	TBD	TBD
Friday, September 10	Public Gas Service Gas Company	TBD	TBD
Monday, September 13	Entergy Energy Corporation	Las Vegas, NV	TBD
Sunday, September 26	Children's Discovery Museum	Las Vegas, NV	R. Arnold
Monday, November 15	ANS	San Francisco, CA	TBD
Sunday, February 27, 1994	Waste Management Symposia	Tucson, AZ	TBD
Sunday, March 20, 1994	Risk Management Quarterly Association	San Diego, CA	TBD

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<u>Date</u>	<u>Event</u>	<u>Location</u>
I. Exhibits Scheduled		
Saturday, July 24	Public Open House (P)	Las Vegas, NV
Friday- Sunday, August 20-22	Home Show (P)	Las Vegas, NV
Saturday, August 21	Public Open House (P)	Las Vegas, NV
Tuesday- Monday, August 24-30	Nevada State Fair (P)	Reno, NV
Thursday- Tuesday, September 2-7	Elko County Fair (P)	Elko, NV
Thursday- Tuesday, September 2-7	Tri-County Fair (P)	Bishop, CA
Wednesday- Friday, September 15-17	Nevada League of Cities	Henderson, NV
Friday- Sunday, September 17-19	Harvest Day Festival (P)	Pahrump, NV
Saturday, September 25	Public Open House (P)	Las Vegas, NV
Tuesday- Saturday, September 28- October 2	Nevada Library Association	Elko, NV
Friday- Monday, October 1-11	Jaycee State Fair (P)	Las Vegas, NV
Saturday, November 6	Boy Scouts Expo	Las Vegas, NV

<u>Date</u>	<u>Event</u>	<u>Escorts</u>
J. Tours Scheduled		
Tuesday, July 6	University of Georgia	TBD
Friday, July 9	Harrisburg Area Geological Society	TBD

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<u>Date</u>	<u>Event</u>	<u>Escorts</u>
J. <u>Tours Scheduled (Continued)</u>		
Friday, July 16	International Safeguards Group	TBD
Saturday, July 24	Public Open House (P)	Various Escorts
Thursday, July 29	State of Minnesota Department of Public Service	TBD
Friday, August 6	Military Order of Laos	P. Carmack
Thursday, August 12	New York Power Authority	TBD
Monday, August 16	ANEC	TBD
Saturday, August 21	Public Open House (P)	Various Escorts
Monday, September 13	Senior Tripsters	TBD
Thursday, September 23	Waste Package Development Workshop	R. Fish
Saturday, September 25	Public Open House (P)	Various Escorts
Thursday, September 30	League of Women Voters	TBD


Carl P. Gertz
Project Manager

YMP:RVB-4871