



*with 10/30/92  
with letter*

**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

**OCT 27 1992**

John W. Bartlett, Director, Civilian Radioactive Waste Management,  
HQ (RW-1) FORS

OFFICE OF GEOLOGIC DISPOSAL (OGD) WEEKLY HIGHLIGHTS FOR THE WEEK ENDING  
OCTOBER 16, 1992

I. CRITICAL ITEM STATUS - YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT  
(YMP)

A. Site Characterization Planning

Field Operations

The Site Manager and Field Operations Center (FOC) staff participated in and provided logistical support for three major tours this reporting period.

As of October 13, 1992, Reynolds Electrical & Engineering Co., Inc. (REECo), had cored and reamed the UZ-16 borehole to a depth of 839.20 feet and 838 feet, respectively. Regarding neutron access borehole USW UZN-35, they cored to a depth of 14.74 feet and reamed to 11.93 feet. Drilling was completed at USW UZN-32; the total depth is 207 feet.

The Site Manager and FOC staff finalized the operations and logistical support needed for the Public Open House Tour on October 17, 1992. It is estimated that approximately 400 people will visit the site.

The Site Manager received the Notice to Proceed from Carl Gertz, Project Manager, for Job Package (JP) 92-10, NRG-6 Access Road and Drill Pad.

The Site Manager has prepared a JP authorization letter for the primary participants of this week: REECo, Raytheon Services Nevada (RSN), and U.S. Geological Survey (USGS). Work is anticipated to begin on or about October 19, 1992.

*102*



OCT 27 1992

Sample Management Facility

Processing of core and recovery of core and cuttings from UE25 UZ-16 continued. Twenty-eight core specimens from UE25 UZ-16 were transferred to USGS. The Sample Overview Committee was supported on October 15, 1992.

Site Investigations

Regarding borehole UZ-16, special reaming procedures are still in effect to minimize build-up of borehole inclination. Inclination appears to be holding between 2.0 and 2.1 degrees.

Quaternary Faulting Within the Site Area Investigations

Geologic mapping, sampling, and interpretation continued on trench excavations and pavement clearings at Busted Butte, Stagecoach Road, and Crater Flat.

Soil and Rock Properties

Geologic logging and density testing in the Phase II test pits continued.

Volcanism

Additional excavation at the Lathrop Wells cinder cone began on October 16, 1992. Examination, documentation, and interpretation of geologic conditions exposed during these excavations will be performed concurrently with excavation operations. This is due to the instability of the excavation slopes and previous inabilities to preserve the excavation walls intact.

Midway Valley

Final mapping of the long trench, MWV-T5 continued.

Technical Analysis

The Nuclear Waste Technical Review Board (NWTB) held a meeting in Las Vegas, Nevada, October 14-15, 1992. The performance Assessment Team (AT) made presentations on Source Terms used in recent Total System Performance Assessments. Abraham Van Luik (Civilian Radioactive Waste Management System Management and Operating Contractor [CRWMS M&O]) made a presentation on Thermal Loading Studies.



OCT 27 1992

Claudia Newbury (Yucca Mountain Site Characterization Project Office [YMPO]) and Holly Dockery (Sandia National Laboratories [SNL]) participated in the Fourth International Symposium on the Stripa Project of the Organization for Economic Cooperation and Development/Nuclear Energy Agency, which was held in Sweden. Claudia Newbury then visited the Mol Underground Research Laboratory in Brussels.

### Regulatory Interactions

Members of the Regulatory Interactions Branch gave presentations to Steve Goldberg, a representative of the U.S. Office of Management and Budget. Susan Jones' (YMPO) presentation was regarding Licensing Initiative.

### Issue Resolution

A preliminary draft of the planned Topical Report on Erosion is in internal review at USGS and Los Alamos National Laboratory (Los Alamos). The YMPO review will begin in early November 1992, with a video-conference scheduled for November 6, 1992.

### Advisory Committee on Nuclear Waste (ACNW) Interactions

The ACNW is holding meetings at the St. Tropez Hotel in Las Vegas October 20-21, 1992. Preparation of YMP presentations for the ACNW Natural Resource Working Group meeting on October 20, 1992, is nearing completion. The YMP will also be providing presentations at the ACNW 47th Meeting on October 21, 1992. The ACNW will view the Geographic Information System (GIS) and Remote Sensing Laboratory on October 22, 1992. A tour of Yucca Mountain, Nevada, is planned for October 23, 1992. The tour will include briefings at X-tunnel, Yucca Mountain crest, the LM-300 drill rig, the Ghost Dance Fault, and new work at trenches near Exile Hill.

### Topical Report on Erosion

The Topical Report on Erosion is undergoing an internal review by YMPO, USGS, and Los Alamos staff. The report will be submitted for formal review by mid-November 1992. High-quality field photographs of various outcrops relative to the report were acquired in a field session with Charles Harrington, Los Alamos, and a photographer from Johnson Controls on October 14, 1992, for use as plates in the report. USGS and Los Alamos staffs continued compiling data tables for the calcite-silica working paper and archiving data records and references into the Local Record Center that supports the paper.

### Exploratory Studies Facility (ESF) Task Force Activities

The verification process is continuing with some unresolved comments regarding the Independent Technical Review of the 90 percent complete ESF Design Package 1A,



OCT 27 1992

Site Characterization Plan (SCP) Study Plan (SP) Status

Two new SPs were submitted to YMPO this week: SP 8.3.1.8.5.2, "Characterization of Intrusive Igneous Features," and SP 8.3.1.15.2.2, "Characterization of the Site Ambient Thermal Conditions."

## STUDY PLAN BREAKDOWN

---

|   |    |
|---|----|
| In Screening Review .....   | 2  |
| In YMPO and U.S. Department of Energy<br>(DOE)/Headquarters (HQ) Review ..... | 0  |
| Awaiting Comment Resolution .....   | 12 |
| Awaiting Author Revision .....  | 5  |
| In YMPO/HQ Verification Audit .....   | 4  |
| Preparing to Submit or Awaiting YMPO Approval .....                           | 6  |
| Awaiting Submission to the U.S. Nuclear<br>Regulatory Commission (NRC) .....  | 0  |
| NRC Phase 1 Review .....  | 15 |
| NRC Acceptance .....  | 28 |
| Total .....   | 72 |

---

## SCP/SP Status:

---

|   |     |
|---|-----|
| Total SPs Assigned to Cover 106 Studies ..... | 103 |
| SPs Not Yet Submitted for Review .....        | 36  |
| SPs Submitted for Initial Review .....        | 67  |
| Revised SPs Submitted for Review .....        | 5   |
| Total SPs Submitted for Review .....          | 72  |

---

## State of Nevada Comments Status:

---

|  |    |
|--|----|
| Received Comments from the State of Nevada .....   | 10 |
| Responses Transmitted to the State of Nevada ..... | 9  |

---

## NRC Comments Status:

---

|  |    |
|--|----|
| Received Comments from NRC .....               | 18 |
| Responses Transmitted from OGD to DOE/HQ ..... | 11 |

---



OCT 27 1992

**B. Project Planning and Control**

The participant Planning and Control System (PACS) cost/schedule status data for September 1992 was received and uploaded from the participant work stations to PACS. The new data was calculated through the PACS rollup in all participant data bases. The participant data was combined in the central PACS project-level data base.

The September 1992 status and Cost Performance Reports from the participant data bases were produced for distribution to the participants.

Fiscal year 1993 planning data was consolidated for distribution to the participants.

**C. Quality Assurance Implementation****Determination of Importance and Grading Enhancement****Quality (Q) List and Q-List Procedure Development**

The AT is reviewing a preliminary draft of the Items Important to Safety (IITS) report entitled, "Preclosure Radiological Safety Evaluation Exploratory Studies Facility." They are also reviewing the report, "Disturbance Criteria for Items Important to Waste Isolation: A Methodology and an Application to Unconsolidated Surficial Deposits, SLTR92-0004." SNL continues with internal reviews of the IITS report, which is scheduled for submittal to YMPO on October 28, 1992.

**D. Public Outreach and Institutional Activities**

A Girl Scouts Geology Badge Workshop was sponsored by YMP at the Las Vegas Yucca Mountain Information Office (YMIO) on October 10, 1992. Sixty Girl Scouts and 13 leaders attended the hands-on workshop where they learned about: rocks and minerals from Linda Linden, Technical and Management Support Services, (T&MSS); hydrology and how water affects the earth's surface from Claudia Newbury; earthquakes and types of faults from Martha Pendleton, CRWMS M&O; fossils from April Gil, YMPO; and volcanoes from Jeanne Cooper, YMPO.

Richard Arnold (a consultant) gave an educational presentation to the Girl Scouts of America at Calico Basin, Nevada, on October 10, 1992. Approximately 100 Girl Scouts attended the presentation, the majority of whom ranged in ages from 6-9 years old.



OCT 27 1992

Staff from the Institutional and External Affairs (IEA) exhibit program and Rural Outreach program arranged for a YMP exhibit to be displayed at the Naval Air Station Fallon Air Show on October 11, 1992, in Fallon, Nevada. IEA and CRWMS M&O personnel staffed the exhibit which was visited by approximately 400 people. A YMP exhibit was also displayed at the Boy Scouts Expo '92, October 16-17, 1992, in Las Vegas. The YMP exhibit was displayed in addition to an exhibit with information relating to the Boy Scouts Merit Badge Workshop coordinated through the YMP educational programs. Approximately 300 people visited the booth.

The IEA staff met with Mineral County, Nevada, representatives to discuss public information materials and badging procedures for access to Yucca Mountain.

IEA staff accompanied the Nevada Campaign Manager with the Clinton/Gore campaign on a tour of Yucca Mountain on October 13, 1992. Carl Gertz gave a technical presentation to Steve Goldberg, Office of Management and Budget, on October 13, 1992, in Las Vegas.

Tours to Yucca Mountain were conducted for 65 guests of Senior Tripsters on October 13, 1992; for 25 science and engineering students from Lawrence Livermore National Laboratory (LLNL) on October 14, 1992; and for 25 guests of the Boulder City Senior Center on October 15, 1992. A tour was also conducted on October 15, 1992, for 15 guests of the United States and United Kingdom Defense Coordinators. Carl Gertz gave a pretour briefing to this group.

Carl Gertz gave a technical presentation to Under Secretary Hugo Pomrehn on October 16, 1992, in Las Vegas. He also escorted the Under Secretary on a tour to Yucca Mountain which included approximately 90 guests of the NWTB and accompanying key state and local government leaders on October 16, 1992.

Carl Gertz provided a technical presentation to the American Society of Civil Engineers and National Society of Professional Engineers on October 14, 1992, in Las Vegas. Approximately 70 people attended. He also gave a technical presentation to the NWTB on the YMP 1993 budget on October 15, 1992.

Beatrice Reilly, T&MSS, gave a general overview presentation to the Kiwanis Club of Las Vegas on October 14, 1992. Approximately 30 people attended. Thomas Bjerstedt, YMP, gave a technical presentation with an emphasis on geology to the Society of American Military Engineers. Approximately 25 people attended his presentation at Nellis Air Force Base in Las Vegas on October 15, 1992.



OCT 27 1992

Effie Harle, T&MSS, provided educational presentations to approximately 120 third grade students at Fong Elementary School in Las Vegas on October 14, 1992. James Blink, LLNL, gave educational presentations on energy to approximately 60 students in three sixth grade classes and one eleventh grade class at the Meadows School in Las Vegas on October 16, 1992.

Dale Van Natta, CRWMS M&O, met with A. C. Robison, YMPO, and Eric Lundgaard, YMPO, on October 14, 1992, to plan the preparation of a project business precis. Dale Van Natta also met with Dale Foust, CRWMS M&O, on October 13, 1992, and with A. C. Robison on October 14, 1992, to outline CRWMS M&O outreach and public affairs activities for 1993.

The Science Bowl Committee met at the Las Vegas YMIO on October 15, 1992. The Science Bowl is scheduled for February 26-28, 1993.

The IEA staff coordinated briefing materials and assisted CRWMS M&O staff with logistics for a presentation to the American Institute of Hydrology national meeting on October 21, 1992, in Portland, Oregon.

## II. ANALYSIS & VERIFICATION DIVISION

On October 13, 1992, the staff participated in the Thermal Load Task Force, Corrosion Team meeting in Las Vegas. They attended the NWTRB Full Board Meeting October 14-15, 1992, and participated in the NWTRB tour of Yucca Mountain on October 16, 1992. Topics addressed at the board meeting included Source Term for Performance Assessment, spent-fuel testing, and the YMPO budget.

The staff participated in the Geochemistry Integration Team (GIT) Teleconference on October 13, 1992. Topics discussed included: the White Paper on Importance of Geochemistry to the Site Characterization Program, the GIT review of the Thermal Loading Task Force report, and an update on Performance Assessment presentations.

## III. GENERAL INFORMATION ITEMS

### Los Alamos

The caisson experiment (Work Breakdown Structure 1.2.1.4.6) progressed this week. The filling of the caisson began at the Environmental Science Facility at Los Alamos.



OCT 27 1992

USGS

Modeling of vertical seismic profiling for the C-complex and P-1 drillholes was completed.

The U.S. Bureau of Reclamation led the effort to deepen the Fran Ridge test pit to a depth of 20 feet with two drill/blast rounds.

Field work was conducted to complete the map of Quaternary fault characteristics in and around Yucca Mountain.

The USGS staff conferred with the YMPO staff regarding environmental permits for installation of flow gages in washes on the eastern slope of Yucca Mountain.

Continuous water-level data from wells UE-25p#1 and USW E-6 were examined for effects of recent aftershocks from the Little Skull Mountain earthquake; negligible response was found.

CRWMS M&O

The final Advanced Conceptual Design Work Plan was submitted to YMPO for signature.

YMP

YMPO reviewers for acceptance of the design documents developed for the start of ESF construction have submitted their comments. None are expected to affect the start of construction which is scheduled for November 30, 1992.

IV. 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 handled by the Speakers Bureau; contact Linda Artis at (702) 794-7896 or Theresa Hirsch at (702) 794-7759 for additional information. Exhibits are handled by Kevin Rohrer at (702) 794-7769, Public Update Meetings are handled by Joanna Magruder at (702) 794-7056, and tours are handled by Carleen Hill at (702) 794-7375.

| <u>Date</u>               | <u>Event</u>                        | <u>Location</u>   | <u>YMPO Contact</u> |
|---------------------------|-------------------------------------|-------------------|---------------------|
| A. <u>DOE/HQ Meetings</u> |                                     |                   |                     |
| Monday,<br>October 19     | Dry Run Pre-ESAAB<br>to ESAAB Staff | Washington,<br>DC | C. Gertz            |
| Monday,<br>October 26     | Program Management<br>Meeting       | Washington,<br>DC | C. Gertz            |



OCT 27 1992

| <u>Date</u>  | <u>Event</u>  | <u>Location</u>    | <u>YMPO Contact</u> |
|--|---|--------------------|---------------------|
| <b>B. <u>CRWMS M&amp;O/DOE Meetings</u></b>          |   |                    |                     |
| Wednesday,<br>October 28                             | CRWMS M&O<br>Program Review   | Vienna,<br>VA      | C. Gertz            |
| <b>C. <u>Internal and DOE/NV Meetings</u></b>        |   |                    |                     |
| Wednesday,<br>October 21                             | NV Monthly<br>Program Review  | Las Vegas,<br>NV   | C. Gertz            |
| Friday,<br>October 23                                | Technical Project<br>Officers Meeting                                 | Las Vegas,<br>NV   | C. Gertz            |
| Friday,<br>October 23                                | Planning and<br>Budget Meeting  | Las Vegas,<br>NV   | C. Gertz            |
| Friday,<br>November 20                               | State of<br>the Project   | Las Vegas,<br>NV   | C. Gertz            |
| <b>D. <u>NRC Interactions</u></b>                    |   |                    |                     |
| Thursday,<br>October 29                              | Technical Exchange -<br>Functional Analysis<br>of 10 CFR 60 (P)       | San Antonio,<br>TX | T. Bjerstedt        |
| TBD  | Interaction Planning<br>Meeting (P)                                   | Rockville,<br>MD   | T. Bjerstedt        |
| Monday-<br>Tuesday,<br>December 14-15                | Technical Exchange -<br>Total System<br>Performance<br>Assessment (P) | Rockville,<br>MD   | T. Bjerstedt        |
| TBD 1993   | Technical Exchange -<br>Volcanism (P)                                 | Albuquerque,<br>NM | T. Bjerstedt        |
| <b>E. <u>NWTRB Interactions</u></b>                  |   |                    |                     |
| Wednesday-<br>Thursday,<br>October 14-15             | NWTRB Full Board<br>Meeting   | Las Vegas,<br>NV   | J. Cooper           |
| Wednesday-<br>Friday,<br>November 4-6<br>(Tentative) | NWTRB SG&G Panel<br>Meeting (P)                                       | Denver,<br>CO      | J. Cooper           |



OCT 27 1992

| <u>Date</u>                                     | <u>Event</u>                             | <u>Location</u>    | <u>YMPO Contact</u> |
|---|--|--------------------|---------------------|
| <b>E. <u>NWTRB Interactions</u> (Continued)</b> |  |                    |                     |
| Wednesday-Friday,<br>November 18-20             | Workshop on<br>Expert Judgment (P)       | Albuquerque,<br>NM | A. Simmons          |
| Tuesday-Wednesday,<br>January 5-6,<br>1993      | NWTRB Full Board<br>Meeting (P)          | Arlington,<br>VA   | J. Cooper           |
| February or<br>March 1993<br>TBD                | NWTRB HG&G Panel<br>Meeting (P)          | TBD                | J. Cooper           |
| Tuesday-Friday,<br>April 20-23,<br>1993         | NWTRB Full Board<br>Meeting (P)          | Reno,<br>NV        | J. Cooper           |
| Tuesday,<br>June 1, 1993                        | NWTRB International<br>Trip              | TBD                | J. Cooper           |
| Monday-Thursday,<br>July 12-15,<br>1993         | NWTRB Full Board<br>Meeting (P)          | Denver,<br>CO      | J. Cooper           |
| Tuesday-Friday,<br>October 19-22,<br>1993       | NWTRB Full Board<br>Meeting (P)          | Las Vegas,<br>NV   | J. Cooper           |
| <b>F. <u>ACNW Interactions</u></b>              |  |                    |                     |
| Tuesday,<br>October 20                          | ACNW WG on Human<br>Intrusion (P)        | Las Vegas,<br>NV   | A. Gil              |
| Wednesday,<br>October 21                        | ACNW 47th Meeting (P)                    | Las Vegas,<br>NV   | A. Gil              |
| Thursday,<br>October 22                         | ACNW GIS Tour (P)                        | Las Vegas,<br>NV   | A. Gil              |
| Friday,<br>October 23                           | ACNW Yucca Mountain<br>and NTS Tours (P) | Las Vegas,<br>NV   | A. Gil              |



OCT 27 1992

| <u>Date</u>                                    | <u>Event</u>  | <u>Location</u>  | <u>YMPO Contact</u>    |
|--|---|------------------|------------------------|
| <b>F. <u>ACNW Interactions</u> (Continued)</b> |   |                  |                        |
| Monday-<br>Tuesday,<br>November 16-17          | ACNW 48th Meeting (P)   | Bethesda,<br>MD  | A. Gil                 |
| Wednesday,<br>November 18                      | ACNW WG Climate (P)   | Bethesda,<br>MD  | A. Gil                 |
| Wednesday,<br>December 16                      | ACNW WG on PA -<br>Phase 2 HLW Inter-<br>active PA by NRC (P) | Bethesda,<br>MD  | A. Gil                 |
| Thursday-<br>Friday,<br>December 17-18         | ACNW 49th Meeting (P)   | Bethesda,<br>MD  | A. Gil                 |
| <b>G. <u>State and Public Interactions</u></b> |   |                  |                        |
| Monday,<br>October 19                          | REECo Partners<br>in Education                                | Las Vegas,<br>NV | T. Kaish<br>J. Hartley |
| Tuesday,<br>October 20                         | American Nuclear<br>Society (ANS)                             | Las Vegas,<br>NV | C. Gertz               |
| Tuesday,<br>October 20                         | Burkholder Junior<br>High School                              | Las Vegas,<br>NV | J. Blink               |
| Wednesday,<br>October 21                       | ACNW  | Las Vegas,<br>NV | C. Gertz<br>M. Voegele |
| Wednesday,<br>October 21                       | Bonanza High School   | Las Vegas,<br>NV | T. Kaish               |
| Wednesday,<br>October 21                       | REECo Partners<br>in Education                                | Las Vegas,<br>NV | R. Arnold<br>T. Pysto  |
| Wednesday,<br>October 21                       | American Institute<br>of Hydrology                            | Portland,<br>OR  | J. Younker             |
| Thursday,<br>October 22                        | Fong Elementary<br>School                                     | Las Vegas,<br>NV | R. Arnold              |
| Thursday,<br>October 22                        | Las Vegas Chamber of<br>Commerce                              | Las Vegas,<br>NV | C. Gertz               |
| Saturday,<br>October 24                        | Girl Scouts of<br>America                                     | Las Vegas,<br>NV | R. Arnold              |



| <u>Date</u>  | <u>Event</u>  | <u>Location</u>        | <u>YMPO Contact</u>    |
|--|---|------------------------|------------------------|
| <b>G. <u>State and Public Interactions</u> (Continued)</b> |   |                        |                        |
| Monday,<br>October 26                                      | Japanese Atomic<br>Industrial Forum                         | Las Vegas,<br>NV       | TBD                    |
| Tuesday,<br>October 27                                     | Yucca Mountain<br>Lecture Series (P)                        | Las Vegas,<br>NV       | B. Crowe               |
| Tuesday,<br>October 27                                     | Robert Taylor<br>Elementary School                          | Henderson,<br>NV       | J. Blink<br>S. Wheeler |
| Thursday,<br>October 29                                    | Yucca Mountain<br>Lecture Series (P)                        | Pahrump,<br>NV         | B. Crowe               |
| Thursday,<br>October 29                                    | Mendoza Elementary<br>School                                | Las Vegas,<br>NV       | R. Arnold              |
| Friday,<br>October 30                                      | Colorado School<br>of Mines                                 | Golden,<br>CO          | C. Gertz               |
| Friday,<br>October 30                                      | KNPB-Channel 5<br>Panel Discussion                          | Reno,<br>NV            | C. Gertz               |
| Monday-<br>Tuesday,<br>November 2-3                        | Kermit Booker Sixth<br>Grade Center                         | Las Vegas,<br>NV       | J. Blink               |
| Wednesday,<br>November 4                                   | Annual DOE Safety<br>Conference                             | Orlando,<br>FL         | R. Baumeister          |
| Thursday,<br>November 5                                    | University of<br>Waterloo, Department<br>of Earth Sciences  | Ontario,<br>Canada     | D. Tepper              |
| Saturday,<br>November 7                                    | Nevada State Science<br>Teachers' Conference                | Las Vegas,<br>NV       | E. Harle               |
| Monday,<br>November 9                                      | Public Update<br>Meeting (P)                                | Amargosa<br>Valley, NV | C. Gertz               |
| Tuesday,<br>November 10                                    | Public Update<br>Meeting (P)                                | Las Vegas,<br>NV       | C. Gertz               |
| Tuesday,<br>November 10                                    | Cornell University,<br>Department of<br>Geological Sciences | Ithaca,<br>NY          | D. Tepper              |
| Thursday,<br>November 12                                   | Public Update<br>Meeting (P)                                | Reno,<br>NV            | C. Gertz               |



OCT 27 1992

| <u>Date</u>  | <u>Event</u>                                | <u>Location</u>   | <u>YMPO Contact</u> |
|--|---|-------------------|---------------------|
| <b>G. <u>State and Public Interactions (Continued)</u></b> |   |                   |                     |
| Friday,<br>November 13                                     | Madison 6th Grade<br>Center                 | Las Vegas,<br>NV  | R. Arnold           |
| Tuesday,<br>November 17                                    | Yucca Mountain<br>Lecture Series (P)        | Beatty,<br>NV     | R. Saunders         |
| Tuesday,<br>November 17                                    | Lake Mead National<br>Park Service          | Henderson,<br>NV  | R. Arnold           |
| Wednesday,<br>November 18                                  | American Association<br>of University Women | Las Vegas,<br>NV  | M. Powell           |
| Thursday,<br>November 19                                   | Yucca Mountain<br>Lecture Series (P)        | Las Vegas,<br>NV  | R. Saunders         |
| Thursday,<br>November 19                                   | Archael Nevada                              | Las Vegas,<br>NV  | R. Arnold           |
| Wednesday,<br>December 2                                   | Court Continuation<br>School                | Las Vegas,<br>NV  | R. Arnold           |
| Thursday,<br>January 14,<br>1993                           | ANS   | Parsippany,<br>NJ | C. Gertz            |

**H. Exhibits Scheduled**

|                                       |                                    |                        |
|---------------------------------------|------------------------------------|------------------------|
| Saturday,<br>October 17               | Public Open House (P)              | Las Vegas,<br>NV       |
| Sunday-<br>Thursday,<br>October 18-22 | American Mining<br>Congress        | Las Vegas,<br>NV       |
| Friday-<br>Sunday,<br>October 23-25   | Fairshow 92                        | North Las Vegas,<br>NV |
| Monday-<br>Thursday,<br>October 26-29 | Geological Society<br>of America   | Cincinnati,<br>OH      |
| Friday-<br>Saturday,<br>November 6-7  | Nevada State<br>Science Conference | Las Vegas,<br>NV       |



OCT 27 1992

| <u>Date</u>                                     | <u>Event</u>                      | <u>Location</u>        |
|---|-----------------------------------|------------------------|
| <b>H. <u>Exhibits Scheduled</u> (Continued)</b> |                                   |                        |
| Monday,<br>November 9                           | Public Update<br>Meeting (P)      | Amargosa Valley,<br>NV |
| Tuesday,<br>November 10                         | Public Update<br>Meeting (P)      | Las Vegas,<br>NV       |
| Thursday,<br>November 12                        | Public Update<br>Meeting. (P)     | Reno,<br>NV            |
| Tuesday-<br>Thursday,<br>November 17-19         | ANS Winter Meeting                | Chicago,<br>IL         |
| Wednesday,<br>November 18                       | Public Open House (P)             | Las Vegas,<br>NV       |
| Thursday-<br>Saturday,<br>November 19-21        | Nevada Association<br>of Counties | Fallon,<br>NV          |
| Friday,<br>November 20                          | State of the Project<br>Meeting   | Las Vegas,<br>NV       |
| Monday-<br>Friday,<br>December 7-11             | American Geophysical<br>Union     | San Francisco,<br>CA   |
| Saturday,<br>December 12                        | Public Open House (P)             | Las Vegas,<br>NV       |
| <u>Date</u>                                     | <u>Event</u>                      | <u>Escorts</u>         |

**I. Tours Scheduled**

|                         |   |                 |
|-------------------------|---|-----------------|
| Saturday,<br>October 17 | Public Open House (P)                         | Various Escorts |
| Tuesday,<br>October 20  | Tonopah High School<br>& Beatty Middle School | TBD             |
| Tuesday,<br>October 20  | Federal Personnel<br>Branch of DOE/NV         | M. Powell       |
| Friday,<br>October 23   | ACNW  | TBD             |



OCT 27 1992

| <u>Date</u>                           | <u>Event</u>   | <u>Escorts</u>  |
|---------------------------------------|--|-----------------|
| I. <u>Tours Scheduled</u> (Continued) |  |                 |
| Friday,<br>October 23                 | Japan Nuclear Safety<br>Research Association<br>on HLW | TBD             |
| Tuesday,<br>October 27                | Quail Estates West                                     | TBD             |
| Wednesday,<br>October 28              | Southern NV Retired<br>Teachers' Association           | TBD             |
| Tuesday,<br>November 3                | Thurman White Middle<br>School                         | TBD             |
| Thursday,<br>November 5               | Thurman White Middle<br>School                         | TBD             |
| <del>Friday,<br/>November 6</del>     | NRC Commissioner<br>DePlanque                          | C. Gertz        |
| Saturday,<br>November 7               | Republican Senators<br>Nevada                          | D. Bradford     |
| Tuesday,<br>November 10               | Thurman White Middle<br>School                         | TBD             |
| Thursday,<br>November 12              | Thurman White Middle<br>School                         | TBD             |
| Friday,<br>November 13                | Boy Scouts<br>of America                               | M. Penovich     |
| Wednesday,<br>November 18             | Public Open House (P)                                  | Various Escorts |
| Thursday,<br>November 19              | Pahrump Middle School                                  | TBD             |
| Monday,<br>November 23                | Palo Verde Nuclear<br>Power Station                    | TBD             |
| Tuesday,<br>December 1                | Paradise Christian<br>Academy                          | TBD             |
| Thursday,<br>December 3               | Pahrump Middle School                                  | TBD             |



OCT 27 1992

| <u>Date</u>                           | <u>Event</u>                         | <u>Escorts</u>  |
|---------------------------------------|--------------------------------------|-----------------|
| I. <u>Tours Scheduled</u> (Continued) |                                      |                 |
| Thursday,<br>December 3               | TRB/State of Nevada<br>Environmental | W. Dixon        |
| Monday,<br>December 7                 | UNLV Cooperative<br>Agreement Group  | M. Powell       |
| Saturday,<br>December 12              | Public Open House (P)                | Various Escorts |
| Saturday,<br>January 16, 1993         | Public Open House (P)                | Various Escorts |
| Wednesday,<br>January 20, 1993        | Tonopah Middle School                | TBD             |
| Saturday,<br>February 20, 1993        | Public Open House (P)                | Various Escorts |
| Wednesday,<br>February 24, 1993       | Tonopah Middle School                | TBD             |
| Thursday,<br>March 11, 1993           | Meadows School                       | TBD             |
| Thursday,<br>March 18, 1993           | Gabs School                          | TBD             |
| Tuesday,<br>April 20, 1993            | Round Mountain<br>High School        | TBD             |

YMP:VFI-492

  
Carl P. Gertz  
Project Manager





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

WBS 1.2.3.5  
QA: N/A

**OCT 27 1992**

Carl H. Johnson, State of Nevada, Carson City, NV  
Phillip Niedzielski-Eichner, Nye County, Chantilly, VA  
Dennis A. Bechtel, Clark County, Las Vegas, NV  
Albert C. Douglas, City of Las Vegas, Las Vegas, NV  
~~Philip S. Justus, NRC, Las Vegas, NV~~

**DAILY OPERATIONS REPORTS AND WEEKLY INTERACTIONS CALENDAR**

Enclosed for your information are copies of the Daily Operations Reports for Yucca Mountain Site Characterization Project drill holes UE-25 UZ16, USW UZ N35, and USW UZ N32 (enclosure 1). These reports were prepared by Raytheon Services Nevada and cover October 12-16, 1992.

A copy of the Weekly Interactions Calendar (enclosure 2) is enclosed for your information. It includes a section providing the status of boreholes, trenches, and test pits.

A copy of the field test coordinator's report (enclosure 3) summarizing activities of the previous week and forecasting the activities planned for the current week is also included for your information.

If you need additional information regarding these reports, please contact Uel S. Clanton at (702) 794-7943.

*Charles M. Newbury*  
for: Russell Dyer, Director  
Regulatory & Site Evaluation Division

RSER:USC-582

**Enclosures:**

1. Daily Operations Reports
2. Weekly Interactions Calendar
3. Field Test Coordinator's Report



**RAYTHEON SERVICES NEVADA  
DAILY OPERATIONS REPORT  
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30

Date: October 19, 1992

Page: 1 of 1

Job Package No.: 92-03

Station: UE-25 UZ16

Drill Rig: LM300

Activity: Reaming

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

**REPORT FOR: October 16, 1992 (Rig Day 93)**

| HOURS<br>FROM - TO | OPERATIONS DESCRIPTION  |
|--------------------|---|
| 0800 - 0822        | Service and warm up equipment.  |
| 0822 - 1010        | Trip out of the hole with dual wall drill pipe. Lay down BHA.                   |
| 1010 - 1130        | Make up tri-cone ream bit assembly, and trip in hole with dual wall drill pipe. |
| 1130 - 1200        | Lunch   |
| 1200 - 1225        | Trip in hole with dual wall drill pipe.   |
| 1225 - 1600        | Ream cycle #62 from 839.20' - 851.74'.  |
| 1600 - 1630        | Shut down and secure rig.   |

NOTE: Tri-cone ream bit assembly includes a deep hole adapter sub.

|          |                     |           |
|----------|---------------------|-----------|
| CORING:  | Average air rate    | N/A SCFM  |
|          | Average vacuum rate | N/A SCFM  |
| REAMING: | Average air rate    | 705 SCFM  |
|          | Average vacuum rate | 1382 SCFM |

|                |               |                |           |
|----------------|---------------|----------------|-----------|
| Ending Depth:  | Cored 859.23' | Reamed 851.74' | Drilled 0 |
| Daily Footage: | Cored 00.00'  | Reamed 12.54'  | Drilled 0 |

Drilling Rep: Dick Sowards, REECO

A/E Rep: Richard Wright and David Putnam, RSN

Personnel On Site: 2-RSN; 9-REECO; 2-USGS; 2-SMF; 1-DOE.

Visitors On Site: RSN - Cunningham, Wright, Ricks; DOE - Clanton, White.

Field Report Prepared By: David Putnam  
Office Report Prepared By: Richard Wright

ENCLOSURE 1



**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs  
Date: October 19, 1992  
Page: 1 of 1

Job Package No.: 91-9, Phase 2 Revision 4

Station: USW UZ N35

Drill Rig: CME-850

Activity: Coring

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately  $\pm 100'$ . 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

**REPORT FOR: October 16, 1992 (Rig Day 4)**

**HOURS  
FROM - TO**

**OPERATIONS DESCRIPTION**

|             |  |
|-------------|--|
| 0800 - 0830 | Service and start up rig and equipment.  |
| 0830 - 0915 | Obtain and replace broken regulator to SF6 Injection gas.  |
| 0915 - 0936 | Core run #20 from 52.72' - 54.82' (13 mins) 1.9' Rec.  |
| 0936 - 1003 | Pull out of hole with coring assembly. Trip in hole with Odex hammer. Rig up to ream.  |
| 1003 - 1027 | Ream cycle #8 from 45.16' - 54.82' (24 mins).  |
| 1027 - 1048 | Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rig up to core. Run RSN #41, serial #2S29254, a Christensen Impregnated bit with a 5 row jagged face and 10 airways 1/8"W x 1/4"D. |
| 1048 - 1115 | Shut down compressor and lubricate (maintenance).  |
| 1115 - 1133 | Core run #21 from 54.82' - 56.91' (11 mins) 1.1' Rec.  |
| 1133 - 1151 | Shut down and repair compressor (still having problem overheating).  |
| 1151 - 1201 | Begin core run #22.  |
| 1201 - 1231 | Lunch.   |
| 1231 - 1250 | Core run #22 from 56.91' - 59.83' (14 mins) 2.3' Rec.  |
| 1250 - 1306 | Core run #23 from 59.83' - 64.83' (16 mins) 3.7' Rec.  |
| 1306 - 1326 | Shut down for tour.  |
| 1326 - 1334 | Pull core #23 from hole.   |
| 1334 - 1412 | Core run #24 from 64.83' - 69.73' (21 mins) 4.4' Rec.  |
| 1412 - 1437 | Pull out of hole with coring assembly. Trip in hole with Odex hammer. Rig up to ream.  |
| 1437 - 1520 | Ream cycle #9 from 54.82' - 69.73' (43 mins).  |
| 1520 - 1540 | Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rerun RSN #41.   |
| 1540 - 1600 | Core run #25 from 69.73' - 73.32' (10 mins) 1.5' Rec.  |
| 1600 - 1630 | Shut down and secure rig.  |

Average Air Rates: Coring 445 SCFM  
Reaming 314 SCFM

|                |              |               |            |
|----------------|--------------|---------------|------------|
| Ending Depth:  | Cored 73.32' | Reamed 69.73' | Drilled 0' |
| Daily Footage: | Cored 20.60' | Reamed 24.57' | Drilled 0' |

Drilling Rep: Neal Walker, REEC Co

A/E Rep: James Anthony

Personnel On Site: 1-RSN; 4-REEC Co; 1-USGS; 4-SMF; 2-Visitors

Visitors On Site: RSN - Cunningham, Ricks.

Field Report Prepared By: James Anthony  
Office Report Prepared By: James Anthony



OK  
File

**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30

Date: October 16, 1992

Page: 1 of 1

Job Package No.: 92-03

Station: UE-25 UZ16

Drill Rig: LM300

Activity: Pull out of hole with core assembly

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum.  
3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

**REPORT FOR: October 15, 1992 (Rig Day 92)**

| <b>HOURS<br/>FROM - TO</b> | <b>OPERATIONS DESCRIPTION</b>   |
|----------------------------|---|
| 0800 - 0848                | Service and warm up equipment. Moved last 4 joints of Drill System dual wall drill pipe off location. Moved in Valley Perforating dual wall drill pipe onto location. |
| 0848 - 1006                | Core run #192 from 839.20' - 842.53', (56 min.), Rec 2.5'   |
| 1006 - 1120                | Core run #193   |
| 1120 - 1150                | Lunch   |
| 1150 - 1252                | Core run #193 from 842.53' - 851.70', (116 min.), Rec 9.0'  |
| 1252 - 1339                | Core run #194 from 851.70' - 853.93', (26 min.), Rec 1.9'   |
| 1339 - 1357                | Core run #195 from 853.93' - 854.95', (18 min.), Rec 0.6'   |
| 1357 - 1510                | Core run #196 from 854.95' - 859.23', (47 min.), Rec 3.6'   |
| 1510 - 1600                | Pull out of hole with core assembly.  |
| 1600 - 1630                | Shut down and secure rig.   |

|                |                     |           |
|----------------|---------------------|-----------|
| <b>CORING:</b> | Average air rate    | 611 SCFM  |
|                | Average vacuum rate | 1110 SCFM |

|                 |                     |          |
|-----------------|---------------------|----------|
| <b>REAMING:</b> | Average air rate    | N/A SCFM |
|                 | Average vacuum rate | N/A SCFM |

|                       |                      |                       |                  |
|-----------------------|----------------------|-----------------------|------------------|
| <b>Ending Depth:</b>  | <b>Cored 859.23'</b> | <b>Reamed 839.20'</b> | <b>Drilled 0</b> |
| <b>Daily Footage:</b> | <b>Cored 20.03'</b>  | <b>Reamed 00.00'</b>  | <b>Drilled 0</b> |

**Drilling Rep:** Dick Sowards, REECO

**A/E Rep:** Richard Wright and David Putnam, RSN

**Personnel On Site:** 2-RSN; 10-REECO; 2-USGS; 3-SMF; 1-DOE

**Visitors On Site:** RSN - Lindquist, Cunningham, Clark; DOE - Williams, Tunnel; SAIC - Scroggins, Weeks, McCarthy, Moyer; REECO - Joyce, Spenia; WHC - Auten, Fecht; KEH - Foucault

**Field Report Prepared By:** Richard Wright  
**Office Report Prepared By:** Richard Wright



**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs  
Date: October 16, 1992  
Page: 1 of 1

Job Package No.: 91-9, Phase 2 Revision 4

Station: USW UZ N35

Drill Rig: CME-850

Activity: Coring

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately  $\pm 100'$ . 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

**REPORT FOR: October 15, 1992 (Rig Day 3)**

| HOURS<br>FROM - TO | OPERATIONS DESCRIPTION   |
|--------------------|--|
| 0800 - 0830        | Service and start up rig and equipment.  |
| 0830 - 0838        | Rig up to ream.  |
| 0838 - 0908        | Ream cycle #6 from 25.80' - 36.28' (30 mins).  |
| 0908 - 0920        | Blow hole clean.   |
| 0920 - 0954        | Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rig up to core. (Rerun RSN #40, a Longyear carbonado). |
| 0954 - 1014        | Core run #10 from 36.28' - 38.19' (11 mins) 1.2' Rec.  |
| 1014 - 1031        | Core run #11 from 38.19' - 39.82' (9 mins) 1.1' Rec.   |
| 1031 - 1050        | Core run #12 from 39.82' - 42.13' (11 mins) 1.2' Rec.  |
| 1050 - 1103        | Core run #13 from 42.13' - 43.22' (6 mins) 0.6' Rec.   |
| 1103 - 1120        | Core run #14 from 43.22' - 44.19' (5 mins) 0.8' Rec.   |
| 1120 - 1138        | Core run #15 from 44.19' - 45.16' (8 mins) 1.0' Rec.   |
| 1138 - 1200        | Pull out of the hole with coring assembly.   |
| 1200 - 1230        | Lunch.   |
| 1230 - 1247        | Trip in hole with Odex hammer. Rig up to ream.   |
| 1247 - 1322        | Ream cycle #7 from 36.28' - 45.16' (35 mins).  |
| 1322 - 1351        | Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rerun RSN #40.   |
| 1351 - 1418        | Core run #16 from 45.16' - 47.27' (16 mins) 2.0' Rec.  |
| 1418 - 1451        | Core run #17 from 47.27' - 49.26' (22 mins) 1.9' Rec.  |
| 1451 - 1518        | Core run #18 from 49.26' - 51.10' (14 mins) 1.2' Rec.  |
| 1518 - 1545        | Core run #19 from 51.10' - 52.72' (12 mins) 1.1' Rec.  |
| 1545 - 1600        | Trouble shoot problem with air compressor overheating.   |
| 1600 - 1630        | Shut down and secure rig.  |

Average Air Rates: Coring 316 SCFM  
Reaming 390 SCFM

|                |              |               |            |
|----------------|--------------|---------------|------------|
| Ending Depth:  | Cored 52.72' | Reamed 45.16' | Drilled 0' |
| Daily Footage: | Cored 16.44' | Reamed 19.36' | Drilled 0' |

Drilling Rep: Neal Walker, REECO

A/E Rep: James Anthony

Personnel On Site: 1-RSN; 4-REECO; 1-USGS; 4-SMF; 11-Visitors

Visitors On Site: RSN - Lindquist, Cunningham; DOE - Tunnell; SAIC - Weeks, McCarthy;  
REECO - Spenla, Edwards, Joyce; WHC - Auten, Fecht; KEH - Foucault.







Field Report Prepared By: James Anthony

Office Report Prepared By: James Anthony



# YUCCA MOUNTAIN SITE CHARACTERIZATION PROJE PRELIMINARY FIELD COMPOSITE BOREHOLE LOG

BOREHOLE ID: USW UZN-35  
 STUDY PLAN NO: 8.3.1.2.2.1  
 CORE SIZE: HX 2.4"  
 DRILL DATES: 10/13/92  
 GROUND ELEV: \_\_\_\_\_  
 COORDINATES: N: \_\_\_\_\_  
 E: \_\_\_\_\_

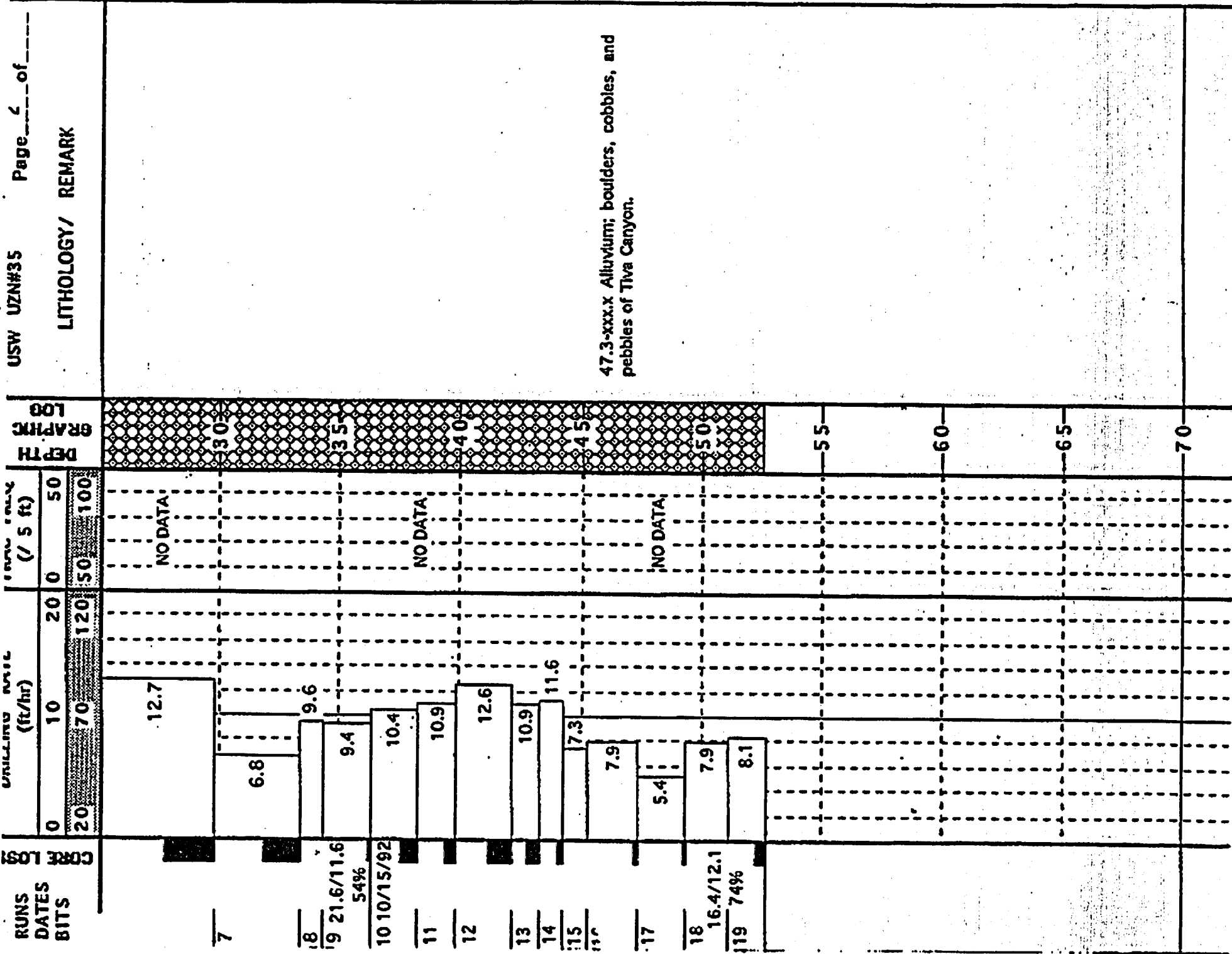
 ALLUVIUM  
 NON-WELDED  
 PARTIALLY WELDED  
 DENSELY WELDED  
 VITROPHYRE  
 BEDDED TUFF

TOTAL DEPTH: \_\_\_\_\_  
 ANGLE FROM VERT: 0 BEARING: NA

Logging by Drilling Support Division, Drilling Support and Sample Management Dept,

| RUNS<br>DATES<br>BITS | CORE LOSS | DRILLING RATE<br>(ft/hr) |      |     | FRAC FREQ<br>(/ 5 ft) |     | DEPTH<br>GRAPHIC<br>LOG | LITHOLOGY/ REMARK   |
|-----------------------|-----------|--------------------------|------|-----|-----------------------|-----|-------------------------|---|
|                       |           | 0                        | 10   | 20  | 0                     | 50  |                         |   |
|                       |           | 20                       | 70   | 120 | 50                    | 100 |                         |   |
| DC-1<br>3/13/92       |           |                          |      |     | NO DATA               |     |                         | 0.0-14.7 Alluvium; silt>cobbles>sand>pebbles,<br>grayish orange overburden, unconsolidated,<br>very few organics. |
| DC-2                  |           |                          |      |     |                       |     | 5                       |   |
| DC-3                  |           |                          |      |     |                       |     | 10                      |   |
| 1<br>14.7/11.4<br>78% |           | 7.3                      |      |     |                       |     |                         |   |
| 2<br>10/14/92         |           |                          | 10.8 |     |                       |     | 15                      | 14.7-47.3 Alluvium; cobbles and pebbles of<br>Tiva Canyon.  |
|                       |           | 9.7                      |      |     | NO DATA               |     |                         |   |
| 4                     |           | 6.5                      |      |     |                       |     | 20                      |   |
|                       |           | 7.6                      |      |     |                       |     |                         |   |
| 6                     |           | 12.7                     |      |     |                       |     | 25                      |   |







# **RAYTHEON SERVICES NEVADA**

October 16, 1992

## **UE-25 UZ-16 VSP-2**

Ending depths for October 15, 1992: ending depth cored 859.23', ending depth reamed 839.20'. At present, attempting to reduce and/or stabilize the drift angle by reaming the hole with a tri-cone bit. This method will be used for the next 100 feet from 759 to 859 feet. Last deviation survey at 839', found a deviation of 2 degrees and 5 minutes of vertical.

## **USGS NEUTRON ACCESS - PHASE 2**

### **USW UZ N32**

Final Report October 9, 1992: Total ending depth cored 207.41'

### **USW UZ N35**

Started drilling on October 13, 1992. Ending depths for October 15, 1992: ending depth cored 52.72', ending depth reamed 45.16'.

## **RAMP BOREHOLES**

### **NRG-6**

Modifying work program draft to include a PQ size core with Odex system. Work program is scheduled for review and comments on October 19, 1992.

### **NRG-2**

Providing comments to Job Package 92-19 for geophysical logging interface and borehole diagram.

## **BOREHOLE SECURITY**

Started securing boreholes from Borehole Security Program #1 on October 12, 1992. Modifying Borehole Security Program #2 & #3 to identify boreholes that require locks keyed individually and with master key.

## **C-HOLE COMPLEX (ANGLE HOLE)**

A meeting was held October 15, 1992 to discuss final details on drilling angle hole. Budget estimate for drilling is due October 23, 1992.

## **BOREHOLE PLUG AND ABANDONMENT**

Preparing preliminary work program to backfill boreholes.

## **TRACER GAS INJECTION SYSTEM**

Resolving equipment exchange and additional instruments. No date when system will be operational.

## **CSM - COMPARATIVE BIT TESTING PROGRAM**

Presentation and workshop for review by various Bit Manufacturers and other interested persons on October 23, 1992 at 10:00 am for presentation and 1:00 pm for workshop.

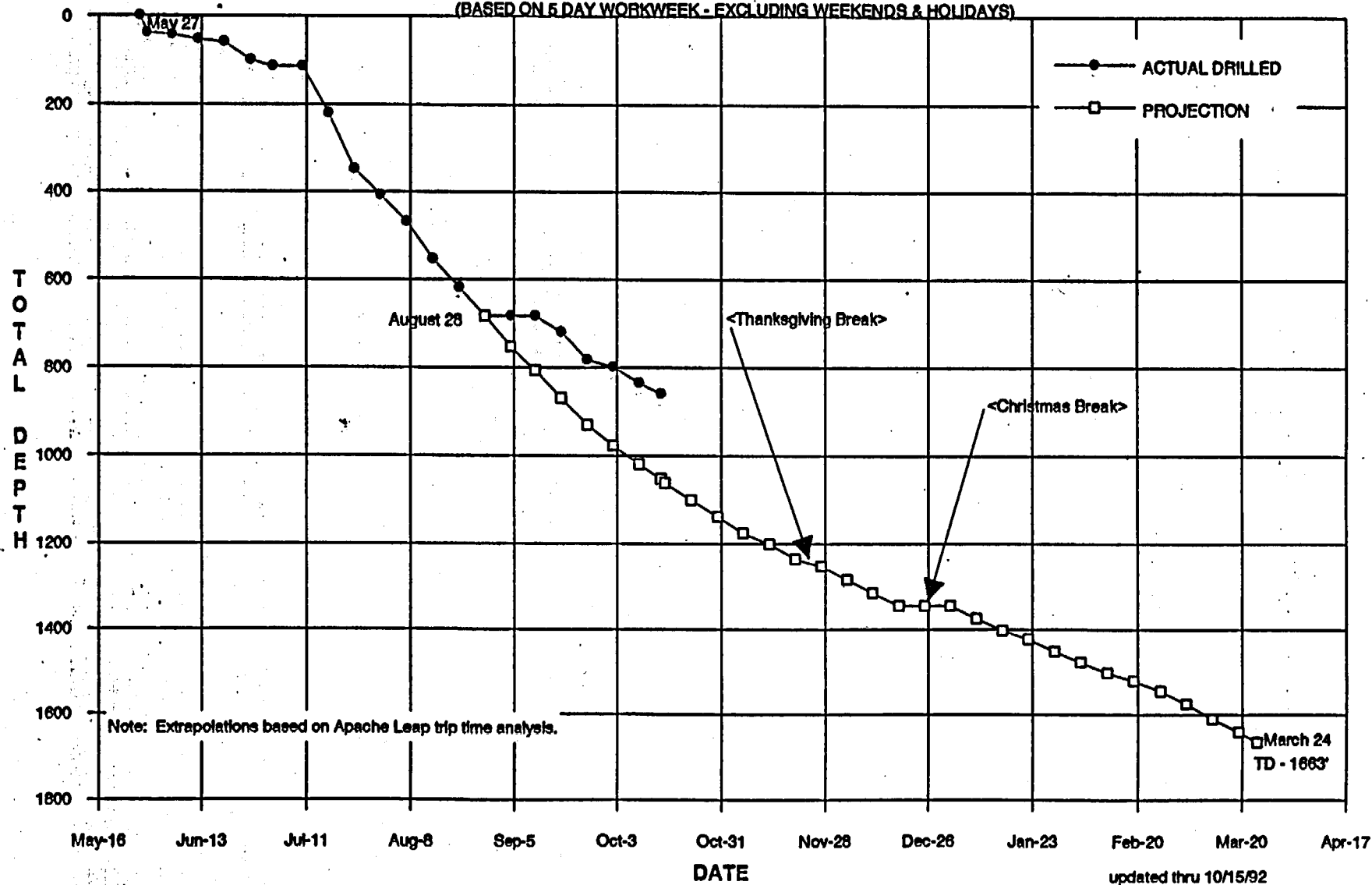


# UE-25 UZ16 DRILLING AND CORING PROJECTION

RAYTHEON SERVICES NEVADA

8 HOUR SHIFT -- 5 DAYS PER WEEK

(BASED ON 5 DAY WORKWEEK - EXCLUDING WEEKENDS & HOLIDAYS)





**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30

Date: October 15, 1992

Page: 1 of 1

Job Package No.: 92-03

Station: UE-25 UZ16

Drill Rig: LM300

Activity: Coring

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

**REPORT FOR: October 14, 1992 (Rig Day 91)**

| HOURS<br>FROM - TO | OPERATIONS DESCRIPTION   |
|--------------------|--|
| 0800 - 0825        | Service and warm up equipment.   |
| 0825 - 1000        | Complete ream cycle #61 to 839.20'.  |
| 1000 - 1035        | Rig up and run deviation survey at 839', found deviation to be 2 degrees 7 minutes from vertical with a 6 degree tool. |
| 1035 - 1200        | Pull out of the hole with dual-wall drill pipe.  |
| 1200 - 1230        | Lunch  |
| 1230 - 1450        | Remove tri-cone bit assembly and make up open-centered bit and trip in hole with dual-wall drill pipe.                 |
| 1450 - 1510        | Rig up and run deviation survey at 839', found deviation to be 2 degrees 5 minutes from vertical with a 6 degree tool. |
| 1510 - 1610        | Make up one stabilizer 24.33' above core bit, and trip in hole with coring assembly.                                   |
| 1610 - 1630        | Shut down and secure rig.  |

|          |                     |           |
|----------|---------------------|-----------|
| CORING:  | Average air rate    | N/A SCFM  |
|          | Average vacuum rate | N/A SCFM  |
| REAMING: | Average air rate    | 755 SCFM  |
|          | Average vacuum rate | 1296 SCFM |

|                |               |                |           |
|----------------|---------------|----------------|-----------|
| Ending Depth:  | Cored 839.20' | Reamed 839.20' | Drilled 0 |
| Daily Footage: | Cored 0.00'   | Reamed 1.22'   | Drilled 0 |

Drilling Rep: Dick Sowards, REECO  
A/E Rep: Richard Wright, RSN  
Personnel On Site: 2-RSN; 9-REECO; 2-USGS; 2-SMF  
Visitors On Site: RSN - Lindquist; REECO - Mason, Pritchett; DOE - Tunnell, White; SAIC - Heaney, Keele, Pitterle, Meyers, Pysto, Roesner  
Field Report Prepared By: Richard Wright  
Office Report Prepared By: Richard Wright



**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs  
Date: October 15, 1992  
Page: 1 of 1

Job Package No.: 91-9, Phase 2 Revision 4

Station: USW UZ N35

Drill Rig: CME-850

Activity: Reaming

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately  $\pm 100'$ . 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

**REPORT FOR: October 14, 1992 (Rig Day 2)**

| HOURS<br>FROM - TO | OPERATIONS DESCRIPTION   |
|--------------------|--|
| 0800 - 0830        | Service and start up rig and equipment.  |
| 0830 - 0845        | Rearrange equipment for better operations.   |
| 0845 - 0920        | Core run #2 from 14.74' - 17.17' (15 mins) 0.7' Rec.   |
| 0920 - 0955        | Core run #3 from 17.17' - 20.78' (20 mins) 1.2' Rec.   |
| 0955 - 1016        | Pull out of hole with coring assembly. Trip in hole with Odex hammer. Rig up to ream.  |
| 1016 - 1038        | Ream cycle #4 from 11.93' - 20.78' (22 mins).  |
| 1038 - 1100        | Pull out of hole with Odex hammer. Trip in hole with coring assembly. Run new bit RSN #40, serial #L98153, a Longyear step carbonado with 6 airways 6/32"W x 3/32"D. |
| 1100 - 1125        | Core run #4 from 20.78' - 22.51' (16 mins) 0.8' Rec.   |
| 1125 - 1200        | Core run #5 from 22.51' - 25.80' (26 mins) 2.3' Rec.   |
| 1200 - 1230        | Lunch.   |
| 1230 - 1308        | Pull out of hole with coring assembly. Trip in hole with Odex hammer. Rig up to ream.  |
| 1308 - 1319        | Ream cycle #5 from 20.78' - 25.80' (11 mins).  |
| 1319 - 1336        | Pull out of hole with Odex hammer. Trip in hole with coring assembly. Rerun RSN #40.   |
| 1336 - 1404        | Core run #6 from 25.80' - 29.82' (19 mins) 1.8' Rec.   |
| 1404 - 1449        | Core run #7 from 29.82' - 33.45' (32 mins) 2.1' Rec.   |
| 1449 - 1504        | Core run #8 from 33.45' - 34.41' (6 mins) 1.0' Rec.  |
| 1504 - 1527        | Core run #9 from 34.41' - 36.28' (12 mins) 1.7' Rec.   |
| 1527 - 1600        | Pull out of hole with coring assembly. Trip in hole with Odex hammer. Rig up to ream.  |
| 1600 - 1630        | Shut down and secure rig.  |

Average Air Rates:   Coring   260 SCFM  
                          Reaming   314 SCFM

|                |              |               |            |
|----------------|--------------|---------------|------------|
| Ending Depth:  | Cored 36.28' | Reamed 25.80' | Drilled 0' |
| Daily Footage: | Cored 21.54' | Reamed 13.87' | Drilled 0' |

Drilling Rep: Neal Walker, REECO

A/E Rep: James Anthony

Personnel On Site: 1-RSN; 4-REECO; 1-USGS; 4-SMF; 8-Visitors

Visitors On Site: RSN - Lindquist; DOE - Baumeister, White; SAIC - Keele, Heaney, Pysto;  
REECO - Mason, Pritchett.







Field Report Prepared By: James Anthony

Office Report Prepared By: James Anthony



# YUCCA MOUNTAIN SITE CHARACTERIZATION PROJE PRELIMINARY FIELD COMPOSITE BOREHOLE LOG

BOREHOLE ID: USW UZN-35  
 STUDY PLAN NO: 8.3.1.2.2.1  
 CORE SIZE: HX 2.4"  
 DRILL DATES: 10/13/92-  
 GROUND ELEV: \_\_\_\_\_  
 COORDINATES: N: \_\_\_\_\_  
 E: \_\_\_\_\_

 ALLUVIUM  
 NON-WELDED  
 PARTIALLY WELDED  
 DENSELY WELDED  
 VITROPHYRE  
 BEDDED TUFF

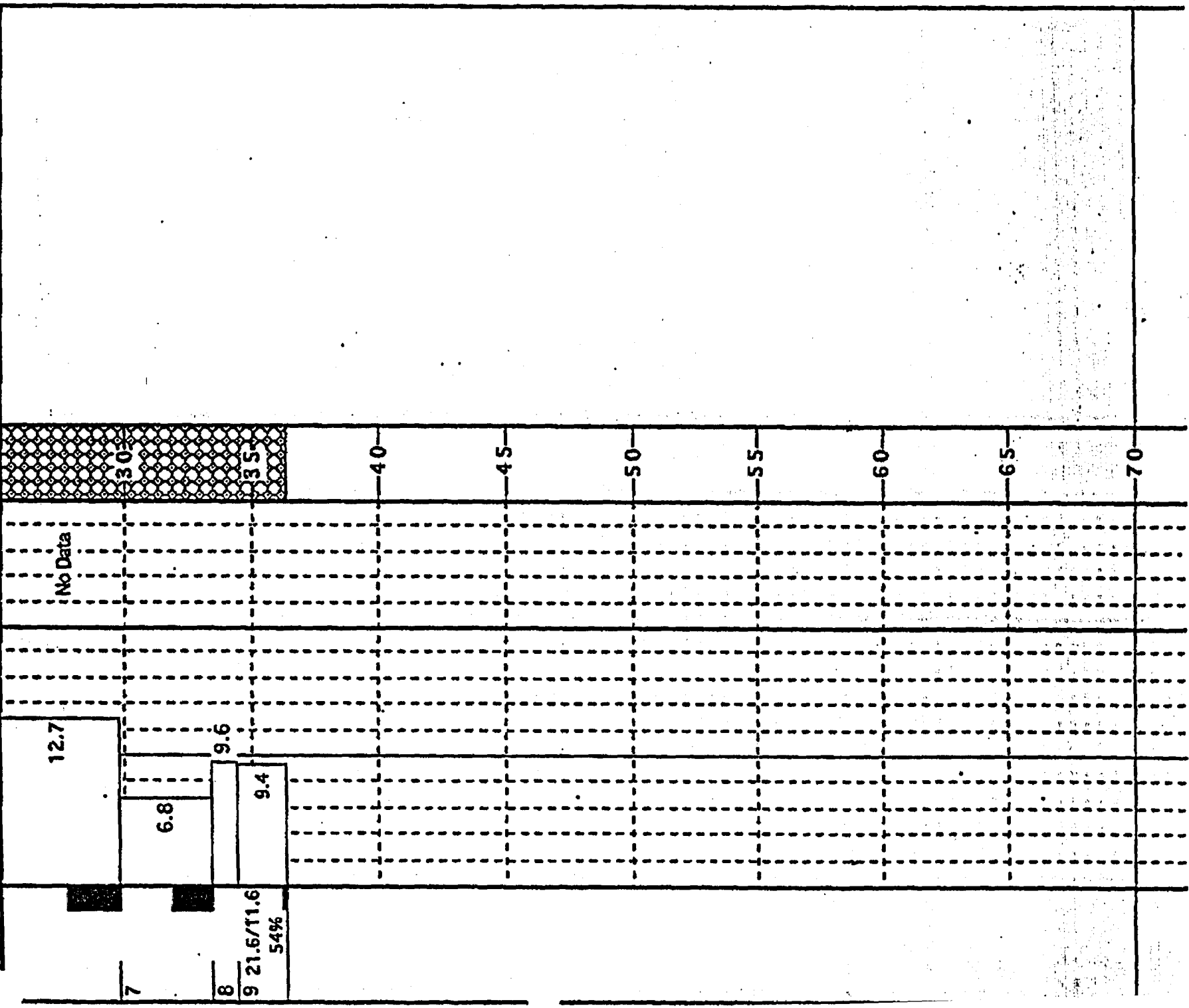
TOTAL DEPTH: \_\_\_\_\_  
 ANGLE FROM VERT: 0 BEARING: NA

Logging by Drilling Support Division, Drilling Support and Sample Management Dept,

| RUNS<br>DATES<br>BITS | CORE LOSS | DRILLING RATE<br>(ft/hr) |      |     | FRAC FREQ<br>(/ 5 ft) |     | DEPTH<br>GRAPHIC LOG | LITHOLOGY/ REMARK   |
|-----------------------|-----------|--------------------------|------|-----|-----------------------|-----|----------------------|---|
|                       |           | 0                        | 10   | 20  | 0                     | 50  |                      |   |
|                       |           | 20                       | 70   | 120 | 50                    | 100 |                      |   |
| DC-1<br>0/13/92       |           |                          |      |     | NO DATA               |     |                      | 0.0-14.7 Alluvium; silt>cobbles>sand>pebbles, grayish orange overburden, unconsolidated, very few organics. |
| DC-2                  |           |                          |      |     |                       |     | 5                    |   |
| DC-3                  |           |                          |      |     |                       |     | 10                   |   |
| 1<br>14.7/11.4<br>78% |           | 7.3                      |      |     |                       |     | 15                   | 14.7-xxxx Alluvium; cobbles and pebbles of Tiva Canyon.   |
| 3 2<br>10/14/92       |           | 9.7                      | 10.8 |     | NO DATA               |     | 20                   |   |
| 4                     |           | 6.5                      |      |     |                       |     | 25                   |   |
|                       |           | 7.6                      |      |     |                       |     |                      |   |
| 6                     |           | 12.7                     |      |     |                       |     |                      |   |



|                       |          |    |     |    |              |  |  |  |                      |
|-----------------------|----------|----|-----|----|--------------|--|--|--|----------------------|
| RUNS<br>DATES<br>BITS | CORE LOG |    |     |    | DEPTH<br>LOG |  |  |  | LITHOLOGY/<br>REMARK |
|                       | (ft/hr)  |    |     |    | (5 ft)       |  |  |  |                      |
|                       | 0        | 10 | 20  | 0  | 50           |  |  |  |                      |
|                       | 20       | 70 | 120 | 50 | 100          |  |  |  |                      |





**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs  
Date: October 14, 1992  
Page: 1 of 1

Job Package No.: 91-9, Phase 2 Revision 4

Station: USW UZ N35

Drill Rig: CME-850

Activity: Coring

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately  $\pm 100'$ . 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

**REPORT FOR: October 13, 1992 (Rig Day 1)**

| HOURS<br>FROM - TO | OPERATIONS DESCRIPTION  |
|--------------------|---|
| 0800 - 1200        | Move in and rig up equipment.   |
| 1200 - 1230        | Lunch.  |
| 1230 - 1253        | Complete rigging up.  |
| 1253 - 1255        | Drive sample #1 from 0' - 5.47' (2 mins) 4.3' Rec.  |
| 1255 - 1321        | Pull drive sampler. Run shoe joint and Odex hammer.   |
| 1321 - 1326        | Ream cycle #1 from 0' - 5.47' (4 mins).   |
| 1326 - 1340        | Pull Odex hammer. Run drive sampler.  |
| 1340 - 1345        | Drive sample #2 from 5.47' - 10.45' (3 mins) 4.5 Rec.   |
| 1345 - 1403        | Pull drive sampler. Run shoe joint and Odex hammer.   |
| 1403 - 1408        | Ream cycle #2 from 5.47' - 10.45' (4 mins).   |
| 1408 - 1422        | Pull Odex hammer. Run drive sampler.  |
| 1422 - 1425        | Drive sample #3 from 10.45' - 11.93' (1 mins) 1.5 Rec.0   |
| 1425 - 1441        | Pull drive sampler. Run shoe joint and Odex hammer.   |
| 1441 - 1445        | Ream cycle #3 from 10.45' - 11.93' (2 mins).  |
| 1445 - 1522        | Pull Odex hammer. Run coring assembly. Run bit RSN #33, serial #2S27751, a Christensen carbonado. |
| 1522 - 1600        | Core run #1 from 11.93' - 14.74' (23 mins) 1.2' Rec.  |
| 1600 - 1630        | Shut down and secure rig.   |

Average Air Rate: Coring 426 SCFM Reaming 325 SCFM

|                |              |               |            |
|----------------|--------------|---------------|------------|
| Ending Depth:  | Cored 14.74' | Reamed 11.93' | Drilled 0' |
| Daily Footage: | Cored 14.74' | Reamed 11.93' | Drilled 0' |

Drilling Rep: Neal Walker, REEC0

A/E Rep: James Anthony

Personnel On Site: 1-RSN; 4-REEC0; 1-USGS; 5-Visitors

Visitors On Site: RSN - Lindquist, Cunningham; CLV/NV - Douglas; DOE - Tunnell

Field Report Prepared By: James Anthony

Office Report Prepared By: James Anthony



YUCCA MOUNTAIN SITE CHARACTERIZATION PROJE  
PRELIMINARY FIELD COMPOSITE BOREHOLE LOG

**BOREHOLE ID:** USW UZN-35

**STUDY PLAN NO:** 8.3.1.2.2.1

**CORE SIZE:** HX 2.4"

DRILL DATES: 10/13/92-

**GROUND ELEV:**


**COORDINATES: N:**

E:

**TOTAL DEPTH:**

ANGLE FROM VERT: 0 BEARING: NA

**Logging by Drilling Support Division, Drilling Support and Sample Management Dept.**

| RUNS<br>DATES<br>BITS | CORE LOSS | DRILLING RATE<br>(ft/hr) |    |     | FRAC FREQ<br>(/ 5 ft) |     | DEPTH<br>GRAPHIC<br>LOG   | LITHOLOGY/ REMARK   |
|-----------------------|-----------|--------------------------|----|-----|-----------------------|-----|---|---|
|                       |           | 0                        | 10 | 20  | 0                     | 50  |   |   |
|                       |           | 20                       | 70 | 120 | 50                    | 100 |   |   |
| DC-1<br>0/13/92       |           |                          |    |     | No Data               |     |  | 0.0-XXXX Alluvium; silt>cobbles>sand>pebbles,<br>grayish orange overburden, unconsolidated,<br>very few organics. |
| DC-2                  |           |                          |    |     |                       | 5   |   |   |
| DC-3                  |           |                          |    |     |                       | 10  |   |   |
| 1<br>14.7/11.4<br>78% | 7.3       |                          |    |     |                       | 15  |   |   |
|                       |           |                          |    |     |                       | 20  |   |   |
|                       |           |                          |    |     |                       | 25  |   |   |



**RAYTHEON SERVICES NEVADA  
DAILY OPERATIONS REPORT  
YUCCA MOUNTAIN PROJECT**

**Report Time: 7:30**

**Date: October 14, 1992**

**Page: 1 of 1**

**Job Package No.: N/A**

**Station: See Below**

**Drill Rig: N/A**

**Activity: Borehole Security**

**Objectives: 1) Fabricate a borehole casing cap. 2) Install cap with 1/2" stainless steel banding material. 3) Install a key lock. 4) Photograph each borehole after installation. 5) Return keys to FOC.**

**REPORT FOR: October 13, 1992**

**HOURS  
FROM - TO**

**OPERATIONS DESCRIPTION**

**Borehole caps and locks were installed on the following wells:**

**USW UZ N-71**

**USW UZ N-74**

**USW UZ N-72**

**USW UZ N-73**

**USW UZ N-75**

**USW UZ N-68**

**USW UZ N-76**

**REEC Co. Rep: J.C. McDaniel, REEC Co**

**A/E Rep: Don Cunningham, RSN**

**Office Report Prepared By: Don Cunningham**



**RAYTHEON SERVICES NEVADA  
DAILY OPERATIONS REPORT  
YUCCA MOUNTAIN PROJECT**

**Report Time: 7:30  
Date: October 14, 1992  
Page: 1 of 1**

**Job Package No.: 92-03**

**Station: UE-25 UZ16**

**Drill Rig: LM300**

**Activity: Reaming**

**Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box**

**REPORT FOR: October 13, 1992 (Rig Day 90)**

| <b>HOURS<br/>FROM - TO</b> | <b>OPERATIONS DESCRIPTION</b>         |
|----------------------------|---------------------------------------|
| 0800 - 0830                | Service and warm up equipment.        |
| 0830 - 0900                | Clean filters on Haz-Vac.             |
| 0900 - 1002                | Continue ream cycle #61               |
| 1002 - 1200                | Clean filters on Haz-Vac.             |
| 1200 - 1230                | Lunch                                 |
| 1230 - 1258                | Clean filters on Haz-Vac.             |
| 1258 - 1615                | Ream cycle #61 from 825.70' - 837.98' |
| 1615 - 1630                | Shut down and secure rig.             |

**NOTE: Cleaned out 60 filters on Haz-Vac.**

|                 |                     |           |
|-----------------|---------------------|-----------|
| <b>CORING:</b>  | Average air rate    | N/A SCFM  |
|                 | Average vacuum rate | N/A SCFM  |
| <b>REAMING:</b> | Average air rate    | 749 SCFM  |
|                 | Average vacuum rate | 1362 SCFM |

|                       |                      |                       |                  |
|-----------------------|----------------------|-----------------------|------------------|
| <b>Ending Depth:</b>  | <b>Cored 839.20'</b> | <b>Reamed 837.98'</b> | <b>Drilled 0</b> |
| <b>Daily Footage:</b> | <b>Cored 0.00'</b>   | <b>Reamed 12.28'</b>  | <b>Drilled 0</b> |

**Drilling Rep:** Dick Sowards, REECO  
**A/E Rep:** Richard Wright and David Putnam, RSN  
**Personnel On Site:** 2-RSN; 8-REECO; 2-USGS; 2-SMF  
**Visitors On Site:** RSN - Lindquist, Cunningham, Anthony; DOE - Williams; SAIC - Scroggins, Doyle, Moyer, Seidler; I.O.U.E. #12 - Haslem; Clinton/Gore representative - Suyat; USGS - Guertal; REECO - Joyce; CLV/State - Douglas  
**Field Report Prepared By:** Richard Wright and Dave Putnam  
**Office Report Prepared By:** Richard Wright



**RAYTHEON SERVICES NEVADA  
DAILY OPERATIONS REPORT  
YUCCA MOUNTAIN PROJECT**

Report Time: 7:30

Date: October 13, 1992

Page: 1 of 1

Job Package No.: N/A

Station: See Below

Drill Rig: N/A

Activity: Borehole Security

Objectives: 1) Fabricate a borehole casing cap. 2) Install cap with 1/2" stainless steel banding material. 3) Install a key lock. 4) Photograph each borehole after installation. 5) Return keys to FOC.

**REPORT FOR: October 12, 1992**

**HOURS  
FROM - TO**

**OPERATIONS DESCRIPTION**

Borehole caps and locks were installed on the following wells:

USW UZ N-6S

USW UZ N-27

USW UZ N-13

USW UZ N-64

USW UZ N-95

USW UZ N-94

USW UZ N-93

USW UZ N-96

UE-25 UZ N-2

UE-25 UZ N-3

UE-25 UZ N-4

UE-25 UZ N-5

REEC Co. Rep: J.C. McDaniel, REEC Co

A/E Rep: Don Cunningham, RSN

Office Report Prepared By: Don Cunningham



**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30

Date: October 13, 1992

Page: 1 of 1

Job Package No.: 92-03

Station: UE-25 UZ16

Drill Rig: LM300

Activity: Reaming

Objectives: 1) Mobilize drill rig. 2) Continuous core/drive sample from ground level to 50' minimum. 3) Vacuum drill 22 inch hole and set 16" OD casing to total depth. 4) Cement casing to surface. 5) Continuously core and ream to 1663'. 6) Prepare final location and elevation survey. 7) Install wellhead box

**REPORT FOR: October 12, 1992 (Rig Day 89)**

| <b>HOURS<br/>FROM - TO</b> | <b>OPERATIONS DESCRIPTION</b>  |
|----------------------------|--|
| 0800 - 0845                | Safety meeting, service and warm up equipment.   |
| 0845 - 0955                | Core run #191 from 834.33' - 839.20' (58 min.) Rec. 4.0'   |
| 0955 - 1105                | Pull out of the hole with core assembly.   |
| 1105 - 1200                | Pull out of the hole with dual-wall drill pipe.  |
| 1200 - 1230                | Lunch  |
| 1230 - 1300                | Pull out of the hole with dual-wall drill pipe.  |
| 1300 - 1427                | Change out BHA, remove open-centered ream bit assembly, make up tri-cone ream bit and inter-change sub assembly, trip in hole with dual wall drill pipe. |
| 1427 - 1600                | Ream cycle #61 from 819.20' - 825.70'  |
| 1600 - 1615                | Filter plugged on Haz-Vac, stop and clean out filterscreen.  |
| 1615 - 1630                | Shut down and secure rig.  |

**CORING:**      Average air rate                      562 SCFM  
                    Average vacuum rate                1061 SCFM

**REAMING:**    Average air rate                      769 SCFM  
                    Average vacuum rate                1231 SCFM

Ending Depth:    Cored 839.20'      Reamed 825.70'      Drilled 0  
Daily Footage:    Cored 4.87'        Reamed 6.50'        Drilled 0

Drilling Rep: Dick Sowards, REECO

A/E Rep: Richard Wright, RSN

Personnel On Site: 1-RSN; 8-REECO; 1-USGS; 4-SMF; 4-Visitors

Visitors On Site: RSN - Lindquist, Cunningham; REECO - Hastings

Field Report Prepared By: Richard Wright

Office Report Prepared By: Richard Wright



**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs  
Date: October 13, 1992  
Page: 1 of 1

Job Package No.: 91-9, Revision 3

Station: USW UZ N32

Drill Rig: CME-850

Activity: Rigging down and moving to new location

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately  $\pm 180'$ . 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

**REPORT FOR: October 9, 1992 (Rig Day 13) Revised**

| <b>HOURS<br/>FROM - TO</b> | <b>OPERATIONS DESCRIPTION</b>                             |
|----------------------------|---|
| 0800 - 0830                | Service and start up rig and equipment.                   |
| 0830 - 0915                | Rig maintenance, change oil and filters.                  |
| 0915 - 0958                | Down time due to protestors.                              |
| 0958 - 1040                | Ream cycle #13 from 188.74' to 207.41'.                   |
| 1040 - 1119                | Pull out of hole with Odex hammer laying down drill rods. |
| 1119 - 1200                | Rig down dust collection equipment from well head.        |
| 1200 - 1230                | Lunch.  |
| 1230 - 1330                | Secure hole around 5.5" casing while rigging down.        |
| 1330 - 1600                | Rigging down and moving to new location.                  |
| 1600 - 1630                | Shut down and secure rig.                                 |

Average Air Rates:   Coring   N/A SCFM  
                          Reaming   292 SCFM

NOTE: FINAL REPORT. Total Depth 207.41'.

NOTE: Installed Cal-Seal around well bore.

|                |               |                |           |
|----------------|---------------|----------------|-----------|
| Ending Depth:  | Cored 207.41' | Reamed 207.41' | Drilled 0 |
| Daily Footage: | Cored 0       | Reamed 18.67'  | Drilled 0 |

Drilling Rep: Neal Walker, REEC Co

A/E Rep: James E. Anthony

Personnel On Site: 1-RSN; 4-REEC Co; 1-USGS; 1-Visitors

Visitors On Site: RSN - Lindquist

Field Report Prepared By: James E. Anthony  
Office Report Prepared By: James E. Anthony



**RAYTHEON SERVICES NEVADA**  
**DAILY OPERATIONS REPORT**  
**YUCCA MOUNTAIN PROJECT**

Report Time: 7:30 hrs

Date: October 13, 1992

Page: 1 of 1

Job Package No.: 91-9, Phase 2 Revision 4

Station: USW UZ N35

Drill Rig: CME-850

Activity: Rigging down and moving to new location

Objectives: 1) Mobilize drill rig & drilling system. 2) Continuous core with wire line coring system to a total depth of approximately  $\pm 100'$ . 3) Ream down core track while coring with 6-inch bit & 5.5-inch O.D. Odex steel casing. 4) Demobilize equipment. 5) Prepared final location and elevation survey.

**REPORT FOR: October 12, 1992 (Rig Day 0)**

**HOURS  
FROM - TO**

**OPERATIONS DESCRIPTION**

0800 - 1630

Move in and rig up equipment.

|                |          |           |            |
|----------------|----------|-----------|------------|
| Ending Depth:  | Cored 0' | Reamed 0' | Drilled 0' |
| Daily Footage: | Cored 0' | Reamed 0' | Drilled 0' |

Drilling Rep: Neal Walker, REEC

A/E Rep: Don Cunningham

Personnel On Site: 1-RSN; 4-REEC; 1-USGS; 1-Visitors

Visitors On Site: RSN - Lindquist

Field Report Prepared By: Don Cunningham

Office Report Prepared By: Don Cunningham



## WEEKLY INTERACTIONS CALENDAR

## STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/16/92

| <u>DATE/LOC.</u>                                    | <u>TOPIC</u>                         | <u>TECHNICAL LEAD<br/>(SUPPORT)</u> | <u>CONTACT<br/>(SUPPORT)</u> | <u>PARTICIPANT<br/>(SUPPORT)</u> | <u>COMMENTS</u>   |
|---|--------------------------------------|-------------------------------------|------------------------------|----------------------------------|---|
| 10/14-15/92<br>Las Vegas, NV<br>(Plaza Suite Hotel) | NWTRB<br>Full Board                  | D. Harrison                         | Cooper<br>(Hoffman-M&O)      | M&O<br>LLNL<br>PNL               | Source term; 1) Concept and release mechanisms, 2) spent fuel testing, 3) PA and design implications.   |
| 10/16/92<br>Las Vegas, NV                           | NWTRB Yucca<br>Mountain Site Tour    |                                     | Cooper<br>(Hoffman-M&O)      |                                  |   |
| 10/20/92<br>Las Vegas, NV                           | ACNW WG on<br>Human Intrusion        |                                     | Gil<br>(LeRoy-M&O)           |                                  | Discuss methodologies for assessment of potential for natural resources at YM, and relationship between such resources and potential for human intrusion. |
| 10/21/92<br>Las Vegas, NV                           | ACNW 47th Meeting                    |                                     | Gil<br>(LeRoy-M&O)           |                                  | Agenda TBD.   |
| 10/22/92  | ACNW GIS Tour                        |                                     | Gil<br>(LeRoy-M&O)           |                                  | Tour will take place in the morning only.   |
| 10/23/92  | ACNW Yucca Mountain<br>and NTS Tours |                                     | Gil<br>(LeRoy-M&O)           |                                  | Agenda TBD.   |

**BOLD INDICATES REVISIONS AND NEW INFORMATION**  
**\*\* = MEETINGS THAT ARE CLOSED TO THE PUBLIC**



# WEEKLY INTERACTIONS CALENDAR

## STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/16/92

| <u>DATE/LOC.</u>                          | <u>TOPIC</u>                                       | <u>TECHNICAL LEAD<br/>(SUPPORT)</u> | <u>CONTACT<br/>(SUPPORT)</u> | <u>PARTICIPANT<br/>(SUPPORT)</u> | <u>COMMENTS</u>  |
|---|--|-------------------------------------|------------------------------|----------------------------------|--|
| 10/29/92<br>San Antonio, TX               | NRC TE: CNWRA<br>Functional Analysis of<br>10CFR60 |                                     | Bjerstedt<br>(LeRoy-M&O)     | M&O                              | Discuss CNWRA activities<br>related to regulatory and<br>institutional<br>uncertainties, definition<br>of regulatory<br>requirements, guidance<br>on technical issues, and<br>FCRG for LA.   |
| 11/4-6/92<br>Denver, CO<br>(TENTATIVE)    | NWTRB SG&G Panel<br>Meeting                        |                                     | Cooper<br>(Hoffman-M&O)      | M&O                              | Discuss ESF and<br>repository design.  |
| 11/16-17/92<br>Bethesda, MD               | ACNW 48th Meeting                                  |                                     | Gil<br>(LeRoy-M&O)           |                                  | Agenda TBD.  |
| 11/18/92<br>Bethesda, MD                  | ACNW WG<br>Climate                                 |                                     | Gil<br>(LeRoy-M&O)           |                                  | Discuss the potential for<br>climate changes in<br>Southern Basin and Range<br>and the impact on natural<br>processes affecting PA of<br>potential repository at YM.<br>Original scheduled<br>11/19/91, this has been<br>rescheduled from 4/22/92. |
| Date and Location<br>TBD<br>Rockville, MD | Interaction Planning<br>Meeting                    | Bjerstedt<br>(LeRoy-M&O)            | Bjerstedt<br>(LeRoy-M&O)     | M&O                              | Discuss/plan DOE/NRC<br>interactions for first half<br>1993. Previously scheduled<br>11/18/92.   |

**BOLD INDICATES REVISIONS AND NEW INFORMATION**

**\*\* = MEETINGS THAT ARE CLOSED TO THE PUBLIC**



# WEEKLY INTERACTIONS CALENDAR

## STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/16/92

| <u>DATE/LOC.</u>                            | <u>TOPIC</u>  | <u>TECHNICAL LEAD<br/>(SUPPORT)</u>                       | <u>CONTACT<br/>(SUPPORT)</u> | <u>PARTICIPANT<br/>(SUPPORT)</u> | <u>COMMENTS</u>  |
|---|---|---|------------------------------|----------------------------------|--|
| 11/18-20/92<br>Albuquerque, NM              | DOE Workshop on<br>Expert Judgment                      | Dyer/Boak<br>(Yunker-M&O,<br>Van Luik-M&O,<br>Weaver-M&O) | Simmons<br>(Hoffman-M&O)     | M&O                              | Examine DOE's use of<br>expert judgment for YMP,<br>learn how other projects<br>have used expert judgment,<br>make recommendations for<br>future use, fulfill NWTRB<br>recommendation to hold<br>workshop. |
| 12/14-15/92<br>Rockville, MD                | NRC TE: Total System<br>Performance<br>Assessment       | Boak<br>(Pahwa-M&O)                                       | Bjerstedt<br>(LeRoy-M&O)     | M&O<br>SNL<br>PNL                |  |
| 12/16/92<br>Bethesda, MD                    | ACNW WG on PA -<br>Phase 2 HLW<br>Interactive PA by NRC | Boak<br>(Van Luik-M&O)                                    | Gil<br>(LeRoy-M&O)           | M&O<br>SNL                       | Will discuss progress of<br>Phase 2 PA effort. Also<br>will hear briefing from<br>DOE on status of TSPA.   |
| 12/17-18/92<br>Bethesda, MD                 | ACNW 49th Meeting                                       |   | Gil<br>(LeRoy-M&O)           |                                  | Agenda TBD.  |
| Delayed to early<br>1993<br>Albuquerque, NM | NRC TE: Volcanism                                       | Cooper<br>(Jerez-M&O)                                     | Bjerstedt<br>(LeRoy-M&O)     | M&O<br>LANL                      | Discuss DOE volcanism<br>studies as detailed in<br>LANL report.  |

**BOLD INDICATES REVISIONS AND NEW INFORMATION**

**\*\* = MEETINGS THAT ARE CLOSED TO THE PUBLIC**



# WEEKLY INTERACTIONS CALENDAR

## STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/16/92

| <u>DATE/LOC.</u>                                      | <u>TOPIC</u>                                       | <u>TECHNICAL LEAD<br/>(SUPPORT)</u> | <u>CONTACT<br/>(SUPPORT)</u> | <u>PARTICIPANT<br/>(SUPPORT)</u> | <u>COMMENTS</u>  |
|---|--|-------------------------------------|------------------------------|----------------------------------|--|
| Delayed to early<br>1993 (January)<br>Albuquerque, NM | WIPP Roundtable<br>discussion - NRC<br>observation | Boak<br>(Van Luik-M&O)              | Bjerstedt<br>(LeRoy-M&O)     | M&O<br>SNL<br>PNL                | NRC staff observe<br>interaction between YMPO<br>PA and WIPP PA.<br>Previously scheduled.<br>10/27/92. |
| Delayed to early<br>1993 (January)<br>Carlsbad, NM    | Tour of WIPP Site<br>**                            | Boak<br>(Van Luik-M&O)              | Bjerstedt<br>(LeRoy-M&O)     | M&O                              | Previously scheduled<br>10/28/92.  |
| 1/5-6/93<br>Arlington, VA                             | NWTRB Full Board<br>Meeting                        |                                     | Cooper<br>(Hoffman-M&O)      |                                  | M&O systems update and<br>ESF and repository design<br>follow-up.                                      |
| 2/93 or 3/93<br>TBD                                   | NWTRB HG&G Panel<br>Meeting                        |                                     | Cooper<br>(Hoffman-M&O)      |                                  | Agenda TBD.  |
| 4/20-23/93<br>Reno, NV                                | NWTRB Full Board<br>Meeting                        |                                     | Cooper<br>(Hoffman-M&O)      |                                  | Agenda TBD.  |
| 6/1/93<br>TBD   | NWTRB International<br>Trip<br>**                  |                                     | Cooper<br>(Hoffman-M&O)      |                                  | Agenda TBD.  |
| 7/12-15/93<br>Denver, CO                              | NWTRB Full Board<br>Meeting                        |                                     | Cooper<br>(Hoffman-M&O)      |                                  | Agenda TBD.  |

**BOLD INDICATES REVISIONS AND NEW INFORMATION**

**\*\* = MEETINGS THAT ARE CLOSED TO THE PUBLIC**



# WEEKLY INTERACTIONS CALENDAR

## STATUS OF DOE NWTRB, ACNW, AND NRC MEETINGS FOR WEEK ENDING 10/16/92

| <u>DATE/LOC.</u>             | <u>TOPIC</u>                | <u>TECHNICAL LEAD<br/>(SUPPORT)</u> | <u>CONTACT<br/>(SUPPORT)</u> | <u>PARTICIPANT<br/>(SUPPORT)</u> | <u>COMMENTS</u> |
|------------------------------|-----------------------------|-------------------------------------|------------------------------|----------------------------------|-----------------|
| 10/19-22/93<br>Las Vegas, NV | NWTRB Full Board<br>Meeting |                                     | Cooper<br>(Hoffman-M&O)      |                                  | Agenda TBD.     |

**BOLD INDICATES REVISIONS AND NEW INFORMATION**  
**\*\* = MEETINGS THAT ARE CLOSED TO THE PUBLIC**



# WEEKLY INTERACTIONS CALENDAR

## DRILLING, TRENCHING, AND TEST PIT ACTIVITIES 10/16/92

| <u>DESIGNATION</u>                            | <u>PLANNED START DATE</u> | <u>PLANNED END DATE</u> | <u>BACKFILL DATE</u> | <u>YMPO SITE CONTACT</u> | <u>COMMENTS</u>   |
|---|---------------------------|-------------------------|----------------------|--------------------------|---|
| Midway Valley Investigations                  | 7/22/92                   | 8/7/92                  | N/A                  | Sullivan                 | Four (one additional is optional) gravity and Magnetic evaluation lines going East-West across Midway Valley were completed.                |
| Soil and Rock Properties Test Pits (Phase II) | 8/17/92                   | 10/31/92                | TBD                  | Williams                 | Excavate 41 test pits for engineering properties of planned roads, one each fields, and concrete aggregate sources. Data for design of ESF. |
| Fran Ridge Test Pit No. 1                     | 8/24/92                   | 9/15/92                 | N/A                  | Girdley                  | Bedrock excavation in Topopah by controlled blasting. Fracture network mapping will be undertaken.  |
| Lathrop Wells Cinder Cone Volcanic Trenching  | 9/8/92                    | 9/16/92                 | 9/16/93              | Cooper                   | Continuation of the volcanic studies.   |
| Unsaturated Zone Borehole No. 16              | 5/27/92                   | 3/24/93                 | N/A                  | Long                     | Unsaturated zone site characterization and vertical seismic profiling.  |

**BOLD INDICATES REVISIONS AND NEW INFORMATION**

**\*\* = MEETINGS THAT ARE CLOSED TO THE PUBLIC**



# WEEKLY INTERACTIONS CALENDAR

## DRILLING, TRENCHING, AND TEST PIT ACTIVITIES 10/16/92

| <u>DESIGNATION</u>                                     | <u>PLANNED START DATE</u> | <u>PLANNED END DATE</u> | <u>BACKFILL<br/>DATE</u> | <u>YMPO SITE<br/>CONTACT</u> | <u>COMMENTS</u>  |
|--|---------------------------|-------------------------|--------------------------|------------------------------|--|
| Neutron-Access<br>Boreholes Phase II<br>(12 boreholes) | 8/3/92                    | TBD                     | N/A                      | Girdley                      | Core taken from these holes will<br>be used by USGS for<br>determination of moisture content<br>and to construct tritium profiles. |

**BOLD INDICATES REVISIONS AND NEW INFORMATION**  
**\*\* = MEETINGS THAT ARE CLOSED TO THE PUBLIC**





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

WBS 1.2.3  
QA: N/A

OCT 23 1992

J. Russell Dyer, YMP, NV  
Winfred A. Wilson, YMP, Mercury, NV, M/S 717

FIELD TEST COORDINATOR'S REPORT FOR THE WEEK ENDING OCTOBER 16, 1992

UZ-16

Scope of Activity: A borehole approximately 1700 feet in depth will be drilled using the LM-300 drilling system. The primary purpose of the hole will be for vertical seismic profile testing, although other tests such as air permeability, hydrogeochemistry, and matrix hydrologic properties are also being planned. Drilling is scheduled from May through December 1992, following pad construction in March 1992.

Status as of October 16, 1992: Borehole UZ-16 continues to be drilled with the LM-300 drill rig. Coring continued from 834.33 feet to 859.23 feet and the borehole was reamed from 819.20 feet to 851.74 feet. On October 15, 1992, two deviation surveys were run at a depth of 839 feet using a 6 degree tool. Deviation of the hole was found to be between 2 degrees and 5 minutes and 2 degrees and 7 minutes off vertical. A modified bottom drill string hole assembly and continued implementation of revised drilling procedures are being utilized in an attempt to return the borehole closer to vertical.

NEUTRON-ACCESS BOREHOLES

Scope of Activity: Approximately 24 shallow boreholes will be drilled/cored for neutron logging by the U.S. Geological Survey (USGS) in order to evaluate natural infiltration. Core taken from these holes will be used by USGS for determination of moisture content and to construct tritium profiles. The drilling operation utilizes an Odex drilling system, which produces HQ core and a cased hole having a diameter of approximately six inches. The drilling program is being implemented in two phases, each consisting of 12 boreholes that will take several months to complete.

Status as of October 16, 1992: Commencement of drilling on borehole USW UZN-35 began October 13, 1992. By the end of shift on Friday, October 16, 1992, coring had reached a depth of 73.32 feet; ream depth was 69.73 feet. Target depth of the hole is 100 feet. SF<sub>6</sub> tracer gas was injected during drilling operations. Borehole USW UZN-35 is located (approximate state plane coordinates are North 762,200 and East 562,350) in an unnamed wash west to northwest of borehole UZ-16. The borehole is expected to extend five to ten feet through the Ghost Dance Fault Zone.



OCT 23 1992

#### QUATERNARY FAULTING WITHIN THE SITE AREA INVESTIGATIONS

Scope of Activity: Pavements and trenches will be excavated to provide exposures of Quaternary deposits and faults for mapping by geologists from the USGS as described in Study Plan 8.3.1.17.4.6 Quaternary Faulting in the Site Area. Planned activities include excavation of new trenches and modification of existing trenches on the Windy Wash fault, Solitario Canyon fault, and Stagecoach Road fault, and modification of existing exposures of the Paintbrush Canyon fault west of Busted Butte in the sand ramps by developing pavements.

Status as of October 16, 1992: Geologic mapping, sampling, and interpretation continues on trench excavations completed during previous weeks in Midway Valley and Solitario Canyon.

#### SOIL AND ROCK PROPERTIES

Scope of Activity: Objectives of this investigation are to characterize the soil and rock conditions that will influence or be influenced by the construction of the Exploratory Studies Facility surface and subsurface access facilities. This activity is comprised of a total of 32 test pits and one drill hole (NRG-1). Ongoing Phase II activities include 41 additional test pits and pavement clearing at NRG-1.

Status as of October 16, 1992: No field activities were performed during this period.

#### CHARACTERIZATION OF STRUCTURAL FEATURES IN THE SITE AREA

Scope of Activity: Objectives of this investigation are to conduct prototype work for development of equipment and techniques for shaft mapping in the Exploratory Studies Facility. Developmental work is to be completed in an enlarged and deepened circular test pit on the east side of Fran Ridge. The area around the pit disturbed during the original excavation will be cleaned to the rock surface for use in pavement studies for Surface Fracture Network Studies.

Status as of September October 16, 1992: No field activities were performed during this period.



OCT 23 1992

**VOLCANISM EXCAVATIONS**

Scope of Activity: Test pits and trenches will be excavated at the Lathrop Wells Volcanic Center and at the Cima volcanic field in order to test alternative models of eruptive histories of cinder cone volcanic activity. The excavations will provide exposures of volcanic materials (lava flows, pyroclastic deposits) and soils for examination and collection of samples. Planned activities include collection of samples for age determinations by multiple methods, description and collection of samples for evaluation of soil development on volcanic units, exposure of contact relations to aid stratigraphic studies for mapping of volcanic centers, and collection of samples for petrologic analysis.

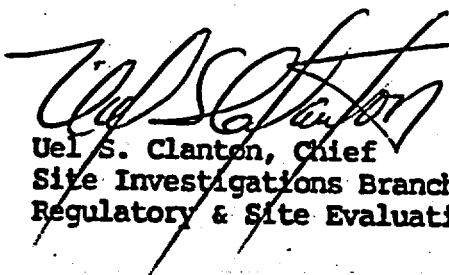
Status as of October 16, 1992: Additional excavations on the north flank of Lathrop Wells Cone commenced on October 16, 1992. It is expected that excavation work will continue through Wednesday, October 21, 1992. Examination, documentation, and interpretation of geologic conditions exposed during these excavations is being performed concurrently with excavation operations due to the instability of excavation slopes and previous inability to preserve the excavation walls intact. A trench box is being utilized as slope stability conditions warrant.

**BOREHOLE SECURITY**

Scope of Activity: Objectives of this activity are the locking and securing of boreholes drilled during site characterization efforts and tracking of testing conducted in individual boreholes. Over 200 boreholes will be secured during the next several months.

Status as of October 16, 1992: Borehole caps and locks were installed on an additional 18 existing boreholes. A total of 30 boreholes have now been secured.

If you have any questions, please contact Kenneth J. Skipper at 794-7944.



Uel S. Clanton, Chief  
Site Investigations Branch  
Regulatory & Site Evaluation Division

RSED:KJS-558





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

WBS 1.2.3.5  
QA: N/A

**OCT 22 1992**


Carl H. Johnson, State of Nevada, Carson City, NV  
Phillip Niedzielski-Eichner, Nye County, Chantilly, VA  
Dennis A. Bechtel, Clark County, Las Vegas, NV  
Albert C. Douglas, City of Las Vegas, Las Vegas, NV  
~~Phillip S. Dustus, NRC, Las Vegas, NV~~

**PRELIMINARY FIELD COMPOSITE BOREHOLE LOGS**

For your information, enclosed is a copy of the Preliminary Field Composite Borehole Log for borehole USW UZN-32 which was developed by the Drilling Support and Sample Management Department of Technical and Management Support Services. Drilling of the borehole was completed on October 8, 1992.

If you need additional information regarding the log, please contact Uel S. Clanton at (702) 794-7943.

**RSED:USC-539**

  
J. Russell Dyer, Director  
Regulatory & Site Evaluation Division

Enclosure:  
Preliminary Field Composite  
Borehole Log



# YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT PRELIMINARY FIELD COMPOSITE BOREHOLE LOG

**BOREHOLE ID:** USW UZN-32  
**STUDY PLAN NO:** 8.3.1.2.2.1  
**CORE SIZE:** HQ 2.4"  
**DRILL DATES:** 9/23/92-10/8/92  
**GROUND ELEV:** 4610'  
**COORDINATES: N:** 757100'  
**E:** 659900'  
**TOTAL DEPTH:** 207.4'  
**ANGLE FROM VERT:** NA **BEARING:** NA

|  |                         |
|--|-------------------------|
|  | <b>ALLUVIUM</b>         |
|  | <b>NON-WELDED</b>       |
|  | <b>PARTIALLY WELDED</b> |
|  | <b>DENSELY WELDED</b>   |
|  | <b>VITROPHYRE</b>       |
|  | <b>BEDDED TUFF</b>      |

**LOG FINAL VERSION**  
**DATE: 10/13/92**

Logging by Drilling Support Division, Drilling Support and Sample Management Dept, T&MSS

| RUNS<br>DATES<br>BITS | CORE LOSS | DRILLING RATE<br>(ft/hr) |    |     | FRAC FREQ<br>(/ 5 ft) |     | DEPTH<br>GRAPHIC<br>LOG | LITHOLOGY/ REMARKS  |
|-----------------------|-----------|--------------------------|----|-----|-----------------------|-----|-------------------------|---|
|                       |           | 0                        | 10 | 20  | 0                     | 50  |                         |   |
|                       |           | 20                       | 70 | 120 | 50                    | 100 |                         |   |
| DC-1                  |           |                          |    |     |                       |     |                         |   |
| NA                    |           |                          |    |     |                       |     |                         |   |
| 1 9/23/92             |           | 5.2                      |    |     | 3                     |     |                         | 0.0 - 1.5 Alluvium, brown to light brown silt, with cobbles and angular pebbles of Tiva Canyon.<br>@ 1.5 Alluvium/Tiva Canyon contact.<br>RSN bit #35 |
| 2 7.0/6.8 97%         |           | 4.3                      |    |     | 12                    |     | 5                       |   |
| 3 9/24/92             |           | 2.5                      |    |     |                       |     |                         | 1.5 - 95.0 Tuff, ashflow, light brownish gray, moderately to densely welded, devitrified, 7% pumice fragments up to 2 cm, 5% phenocrysts of sanidine. |
| 4                     |           | 2.6                      |    |     | 14                    |     | 10                      |   |
| 5 9.9/9.2 93%         |           | 1.7                      |    |     | 29                    |     | 15                      | RSN bit #37   |
| 6 9/25/92             |           | 1.1                      |    |     |                       |     | 20                      |   |
| 7 3.8/3.3 87%         |           | 1.2                      |    |     | 17                    |     |                         | RSN bit #38   |
| 8 9/28/92             |           | 3.2                      |    |     |                       |     |                         |   |
| 9                     |           | 4.4                      |    |     |                       |     | 25                      | RSN bit #39   |
| 10                    |           | 3.4                      |    |     | 18                    |     |                         |   |

ENCLOSURE



| CORE LOSS             |                   | DRILLING RATE<br>(ft/hr) |          | FRAC FREQ<br>(/ 5 ft) |                 | DEPTH<br>LOG | USW UZN-32 Page 2 of 6<br>LITHOLOGY/ REMARKS           |
|-----------------------|-------------------|--------------------------|----------|-----------------------|-----------------|--------------|--|
| RUNS<br>DATES<br>BITS |                   | 0<br>20                  | 10<br>70 | 20<br>120             | 50<br>50<br>100 |              |  |
| 10                    |                   | 3.4                      |          |                       | 18              |              | RSN bit #36<br><br>@41.2-44.4 Calcite along fractures. |
| 11                    |                   | 4.1                      |          |                       | 20              | 30           |  |
| 12                    |                   | 4.8                      |          |                       |                 |              |  |
| 13                    |                   | 3.8                      |          |                       | 34              | 35           |  |
| 14                    | 86%               | 4.6                      |          |                       |                 |              |  |
| 15                    | 9/29/92<br>16     | 2.6<br>3.1               |          |                       | 16              | 40           |  |
| 17                    |                   | 4.7                      |          |                       |                 |              |  |
| 18                    |                   | 4.1                      |          |                       | 24              | 45           |  |
| 19                    | 11.1/11.2<br>100% | 4.1                      |          |                       |                 |              |  |
| 20                    | 9/30/92           | 9.7                      |          |                       | 37              | 50           |  |
| 21                    |                   | 5.6                      |          |                       |                 |              |  |
| 22                    |                   | 4.6                      |          |                       | 18              | 55           |  |
| 23                    |                   | 3.5                      |          |                       |                 |              |  |
| 24                    |                   | 3.4                      |          |                       | 30              | 60           |  |
| 25                    | 12.5/12.5<br>100% | 3.1                      |          |                       |                 |              |  |
| 26                    | 10/1/92           | 1.9                      |          |                       | 34              | 65           |  |
| 27                    |                   |                          |          |                       |                 | 70           |  |



[illegible]



| USW UZN-32   |                          | Page 4 of 6 |                       | LITHOLOGY/ REMARKS      |     |
|--|--------------------------|-------------|-----------------------|-------------------------|-----|
| RUNS<br>DATES<br>BITS  | DRILLING RATE<br>(ft/hr) |             | FRAC FREQ<br>(/ 5 ft) | DEPTH<br>GRAPHIC<br>LOG |     |
|  |                          |             |                       |                         |     |
|  |                          |             |                       |                         |     |
| 37   | 0                        | 10          | 20                    | 0                       | 50  |
|  | 20                       | 70          | 120                   | 50                      | 100 |
| 38   | 11.3                     | 16.4        | 21                    |                         |     |
| 39   | 15.0                     | 18          | 19                    |                         |     |
| 40   | 18.7                     | 17          |                       | 130                     |     |
| 25.1/23.5<br>94%   |                          |             |                       | 135                     |     |
| 41 10/7/92   | 22.0                     | 14          |                       | 140                     |     |
| 42   | 28.7                     | 22          |                       | 145                     |     |
| 43   | 34.4                     | 16          |                       | 150                     |     |
| 44   | 26.5                     | 15          |                       | 155                     |     |
| 45   | 20.8                     | 20          |                       | 160                     |     |
| 46   | 14.0                     |             |                       |                         |     |
| 114.7-129.9 Tuff, ashfall: grayish orange pink to light brown, nonwelded, vitric; 50% pumice fragments, grayish pink; 5% phenocrysts, glass shards.<br><br>@ 129.9 Bedded Tuff/Yucca Mountain Contact<br><br>129.9-158.5 Tuff, ashflow: moderate orange pink to moderate reddish orange, nonwelded to partially welded; devitrified; 10% pumice fragments, grayish pink to very pale orange; <3% phenocrysts; strongly oxidized.<br><br>@ 158.5 Yucca Mountain/Bedded Tuff Contact |                          |             |                       |                         |     |



## LITHOLOGY/ REMARKS

| RUNS<br>DATES<br>BITS | CORE LOSS | DRILLING RATE<br>(ft/hr) |      |     | FRAC FREQ<br>(/ 5 ft) |     | DEPTH<br>GRAPHIC<br>LOG |   |
|-----------------------|-----------|--------------------------|------|-----|-----------------------|-----|-------------------------|---|
|                       |           | 0                        | 10   | 20  | 0                     | 50  |                         |   |
|                       |           | 20                       | 70   | 120 | 50                    | 100 |                         |   |
| 46                    |           |                          | 14.0 |     | 18                    |     |                         | 158.5-164.6 Tuff, ashfall: pinkish gray, nonwelded; 2% phenocrysts, sanidine and bronze biotite.                    |
| 47                    |           | 6                        |      |     |                       |     | 165                     | ⊙164.6 Bedded Tuff/Clay horizon/<br>Pah Canyon Contact  |
| 48                    |           | 34.8                     |      |     | 17                    |     |                         | 164.6-164.7 Tuff, ashflow: pale red to moderate red, nonwelded.   |
| 49                    |           | 30.0                     |      |     | 12                    |     | 170                     | ⊙164.7 Clay horizon/Pah Canyon/<br>Bedded Tuff Contact  |
| 50                    |           | 21.6                     |      |     | 17                    |     | 175                     | 164.7-198.7 Tuff, ashfall: moderate orange pink to grayish orange, nonwelded; 3% phenocrysts, sanidine and biotite. |
| 44.2/43.8<br>99%      |           |                          |      |     |                       |     |                         |   |
| 51 10/8/92            |           |                          | 14.4 |     | 13                    |     | 180                     |   |
| 52                    |           |                          | 17.4 |     | 16                    |     | 185                     |   |
| 53                    |           |                          | 12.0 |     | 18                    |     | 190                     |   |
| 54                    |           |                          | 18.0 |     | 32                    |     | 195                     |   |
| 55                    |           | 9.0                      |      |     | 37                    |     | 200                     | ⊙198.7 Bedded Tuff/Topopah Spring<br>Contact  |
| 56                    |           | 7.8                      |      |     |                       |     | 205                     | 198.7-207.4 Quartz latite: grayish red to very dusky red, densely welded, devitrified.                              |



| RUNS<br>DATES<br>BITS | CORE LOSS | DRILLING RATE<br>(ft/hr) |                    |     | FRAC FREQ<br>(/ 5 ft) |     | DEPTH<br>GRAPHIC<br>LOG | USW UZN-32      Page <u>6</u> of <u>6</u><br><br>LITHOLOGY/ REMARKS    |
|-----------------------|-----------|--------------------------|--------------------|-----|-----------------------|-----|-------------------------|--|
|                       |           | 0                        | 10                 | 20  | 0                     | 50  |                         |  |
|                       |           | 20                       | 70                 | 120 | 50                    | 100 |                         |  |
| 56                    |           | 7.8                      |                    |     |                       |     | NO DATA                 | TOTAL CORED: 207.4<br>TOTAL RECOVERY: 192.4<br>PERCENTAGE RECOVERED 93 |
| 28.4/25.1<br>88%      |           |                          | TOTAL DEPTH 207.4' |     |                       |     |                         |  |
| 210                   |           |                          |                    |     |                       |     |                         |  |

RSN bit #33: Serial #2S27751, Carbonado, surface set, 15 stones/ct., 10 airways 1/4 x 3/16 wide x deep

RSN bit #35: Serial #L96315, Longyear Series 6, Impregnated diamond, 10 airways 5/64 x 5/8 wide x deep

RSN bit #36: Serial #2S2826, Christensen, P.D.C., 10 airways 7/32 x 9/32 wide x deep

RSN bit #37: Serial # L96316, Longyear Impregnated diamond, 5 step jagged face, 10 airways 5/64 x 5/16 wide x deep

RSN bit # 38: Serial #235057, Christensen, step drag bit, 8 inside airways 3/8 x 3/32 wide x deep, 8 inner airways 1/4 x 1/8 wide x deep

RSN bit #39: Serial #2S8762, Christensen, flat bottom diamond impregnated bit, 7 airways 13/32 x 3/16 wide x deep

Bit Information supplied by RSN.



<<NUDOCS/AD>>

Nuclear Regulatory Commission

ADQ54 V6.3.23.0

Record 1 of 2 Full Predefined Search Results ===== Domain ALL ===  
Accession #: 9211060165 Page Number:  
Doc Type: TRZAR Revision:  
Issue Date: 920930 Filmed 24X: \*  
Index Date: 921106 Size: A4  
Backfit Ind: \* Nbr Page: 38pp.

Availability: PDR  
LPDR Avail: \*  
Special Code: \*  
Text Format: \*

END

OK!

-----Title/Description-----  
"Yucca Mountain Site Characterization Project Monthly Status Rept for Sept 1992."

Auth Affil-----Name-----+---Catg-----Reference Numbers-----+---Distribution---  
P EXISANL \*

Recip Affil-----Name-----+---Catg---Rel Dates--+---Task Number--+---Dockets--+---Domain--

File Locations-----+---File Packages-----+---Microfilm Location-----  
PDR -WASTE-\* -WM-11 921030 9211060160-A PDR 63794-138 63794-179  
NMSS SUBJ \* 102 921030

Arrows-Scroll, TAB/HOME-New Area, ENTER-View Text, F3-New Search, F10-5 Summary.  
Count: \*1 <Replace>

~~Get this~~  
~~Pat~~  
OK!

~~Handwritten signature~~