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

DATE: MARCH 31, 1995

TO: Joseph Holonich, Chief
High-Level Waste and Uranium Recovery Projects Branch
Division of Waste Management
Office of Nuclear Materials Safety and Safeguards

FROM: William Belke, Sr. On-Site Licensing Representative for Quality Assurance and Engineered Systems
Chad Glenn, Sr. On-Site Licensing Representative for Natural Systems and Total Systems

SUBJECT: U. S. NUCLEAR REGULATORY COMMISSION ON-SITE LICENSING REPRESENTATIVES' REPORT ON YUCCA MOUNTAIN PROJECT FOR FEBRUARY AND MARCH 1995

INTRODUCTION:

A principal purpose of the On-Site Representatives' (OR) reports is to alert NRC staff, managers and contractors to information from U. S. Department of Energy (DOE) programs for site characterization, repository design, performance assessment, and environmental studies that may be of use in fulfilling NRC's role during prelicensing consultation. The principal focus of this and future OR reports will be on DOE's programs for ESF, surface-based testing, performance assessment, data management systems and environmental studies. Relevant information includes new technical data, DOE's plans and schedules, and the status of activities to pursue site suitability and Exploratory Studies Facilities (ESF) development. In addition to communication of this information, any potential licensing concerns identified are reported, as appropriate. Observations, concerns, or opinions raised in this report represent the view of the ORs and not that of NRC headquarters' staff.

QUALITY ASSURANCE (QA)

1. Periodic QA Meeting

Participated in the periodic QA meeting/videoconference in Las Vegas, NV, January 18, 1995 (Enclosure 1), between representatives of the NRC staff (Rockville, MD) and DOE staff (Washington, DC, and Las Vegas, NV).

102.8
WM-11
NH16

2. DOE QA Program Managers Meeting

Attended the DOE QA Program Managers meeting (Enclosure 2) held in Las Vegas, NV, on March 7, 1995. This meeting discussed general items of interest between DOE and representatives from the Civilian Radioactive Waste Management System Management and Operating contractor (M&O), DOE Office of Environmental Restoration and Waste Management Waste Vitrification Branch, U. S. Geological Survey (USGS), Los Alamos National Laboratory, Lawrence Livermore National Laboratory (LLNL), Sandia National Laboratories, and Reynolds Electrical and Engineering Co., Inc. One of the main subjects discussed at this meeting was the M&O "Team-Mate" Transition whereby the M&O has been assigned QA responsibility from DOE to provide technical and QA direction to all of the DOE principal participants and contractors. DOE's responsibility will be to provide oversight of this process with audits and surveillances. In addition, DOE will also be responsible for vendor surveys, trending deficiencies, and budgeting matters. It is expected that this transition will be completed by the end of FY 1995. The NRC ORs questioned the timing of this transition phase in view of the concerns expressed in the October 13, 1994, NRC letter to DOE. The M&O appears to be exerting a substantive effort in responding to the NRC staff QA concerns however, since the corrective actions for the NRC QA concerns have not been verified as being fully implemented, it may be premature to assign additional responsibility to the M&O. The ORs plan to follow the progress of this transition through observations, meetings, and discussions with the M&O and DOE.

DOE stated that as of March 31, 1995, all participant QA programs will be replaced with the existing DOE Quality Assurance Requirements and Description document (QARD). A letter to this effect will be sent to NRC. In addition, the QARD is presently being revised as a result of "Lessons Learned" and also to provide additional clarifications to the users. It is expected this revision will be completed by May 1, 1995, and issued final by July 1, 1995.

The corrective action system for identifying and reporting conditions adverse to quality is being revised. The proposed revision documents potential conditions adverse to quality into three categories: 1) Performance Deficiency Report, 2) Deficiency Report, and, 3) Corrective Action Report (CAR). The CAR represents the most serious condition. All three categories will be trended and if not responded to in a timely manner, can be elevated to the next higher category and upper management if applicable. When this revised system is finalized, the ORs plan to meet with DOE and obtain a full understanding of the effects of this system.

3. Revised Design Verification Process

Attended a briefing on the revised product verification process. As a result of the concerns in the design review process expressed in the NRC October 13, 1994, letter, the M&O established a multi-discipline independent checking group to check all design products prior to the final independent verification required by the QARD. This group verifies design products for technical adequacy and procedure compliance to provide feedback to the originator. Once this phase is completed, the design undergoes the interdisciplinary review. When this phase is completed, the design is available for DOE, NRC, State of Nevada, and other Affected Units of Government to review. This appears to be more of a structured type review process than prior efforts and if properly implemented, should be more effective at detecting design errors at an early stage.

4. Design Package 2C

The ORs provided NRC HQ with an uncontrolled copy of the revised Design Package 2C (North Ramp from portal to Topopah Spring Level, specifications and drawings). This was for information purposes and is not updated as revisions occur. The NRC OR Office has been placed on Managed Distribution for 2C and receives all revisions. The ORs commented to DOE/M&O that 2C appeared difficult to follow without an index specifying what documents 2C should contain and what the appropriate revision should be. Additional clarification was requested and it was explained that the "Summary of Work - Package 2C" lists all the documents that 2C should consist of with the exception of Field Change Requests (FCRs) and Baseline Change Proposals (BCPs). The FCRs and BCPs are listed in a computerized Change Control Board (CCB) document. Therefore, to use the 2C package, the user must first refer to the Summary of Work Package for the specific document, drawing, or specification, and then to the CCB for the associated FCRs and BCPs. It was recommended to the NRC Verification Team Leader, that this process be verified during the upcoming April 3-6, 1995, NRC Verification of the responses to the NRC letter to DOE dated October 13, 1994.

5. Flowdown of Requirements

A briefing was scheduled to explain tracing the flowdown from the Title 10 Code of Federal Regulations Part 60 requirements to the design specifications. This subject has also been addressed in the March 14, 1995, letter from D. Dreyfus to R. Bernero. It was noted that the flowdown can be traced through a system known as the Automated Requirements Matrix System (ARMS). Another briefing has been scheduled for the ORs on April 12, 1995, to further explain and demonstrate how the ARMS provides objective evidence of this traceability.

6. Design Package 8A

DOE informed the ORs that they were planning to revise Design Package 8A, "Main Drift at Topopah Spring Level". This revision would essentially reuse the evaluations performed for 2C and upgrade or reevaluate these evaluations where necessary. This subject was discussed in detail at the March 20, 1995, NRC/DOE Technical Exchange.

7. Access to DOE CAR System

DOE QA is looking into providing the NRC, State of Nevada, and Affected Units of Government access via Internet, to their CAR status, audit and surveillance schedules. This may be discussed at the next periodic QA meeting in April.

8. Affected Units of Government Meeting

Attended the March 10, 1995, Affected Units of Government Meeting in Las Vegas, NV (See Enclosure No. 3 for meeting agenda). At this meeting, Wesley Barnes, the recently appointed Yucca Mountain Site Characterization Office Project Manager, introduced himself for the first time to the Affected Units of Government. Mr. Barnes presented his background, education, and experience and emphasized his intent to do a good job without being politically influenced. He also stated that he did not intend to make sweeping changes to the project. Dr. Pat Jonker from the University of Nevada, Las Vegas, presented a unique method whereby meetings could be effectively accomplished through the use of a computerized system. Dr. Jonker stated that through the use of such a system, ideas could be generated, evaluated, voted upon, and documented. She felt that this type of a system would encourage more active participation, generate more ideas and offer a more effective means towards resolution and closure of outstanding items. DOE indicated that they will look into this proposal for future considerations. During the DOE presentation of the Tunnel Boring Machine/ Exploratory Studies Facility update, the State of Nevada, in accordance with their February 8, 1995, letter to W. Barnes (See Enclosure 4) questioned whether the void encountered in the Bow Ridge Fault consisted of a Reportable Geologic Condition as defined in the DOE procedure (AP-6.14). DOE indicated that this was not a reportable condition and will respond to the State's letter accordingly.

9. January 9-13, 1995, DOE Audit of the M&O

Attended the January 9-13, 1995, DOE audit of the M&O (Part-time). Based on the results of the DOE audit team findings, it appears that the corrective action process is not being effectively implemented. QA program element 16.0, "Corrective Action", from a performance-based perspective, was determined to be unsatisfactory.

The audit team based this conclusion on the results of their findings which were documented in CAR HQ-95-003. The CAR cited several examples where there was a lack of objective evidence to substantiate closure of previous CARs, lack of effective corrective action, lack of timeliness in responding to findings, and lack of evaluation to determine the impact of audit findings. At the audit exit meeting, the NRC OR commented that in view of the concerns expressed in the NRC October 13, 1995, letter to DOE on the M&O's lack of an effective QA program, the NRC expected that at this time frame, there should have been an indication of improvement in the area of corrective action rather than an unsatisfactory condition.

EXPLORATORY STUDIES FACILITIES (ESF)

1. Tunnel Mapping

Tunnel mapping is proceeding by the U.S. Bureau of Reclamation field team. Peripheral, detail line survey, and photogrammetry mapping were completed to station 5+16 meters as of March 25, 1995. The ORs furnished NRC headquarters staff with an ESF tunnel chart showing actual versus projected stratigraphy cut by TBM (Enclosure 5). Over 150 rock samples have been collected from the ESF to support a variety of site investigations. To date, no water has been encountered in the excavation of the North Ramp.

There have been several discussions at the ESF Pad meetings and between DOE and contractor personnel regarding the amount of ground support in the crown (ceiling of tunnel) required for construction versus amount of rock mass exposure needed by mappers to assure no significant geologic features are overlooked. At present, there is agreement between involved personnel responsible for the mapping operation that the mapping accomplished thus far is acceptable. The ORs will continue to monitor the outcome of these discussions.

2. Alcoves 1 and 2

Continued radial borehole testing in Alcove 1. Alcove 2 will be excavated at approximately 1+70 meters into the tunnel to investigate hydrochemistry and hydrologic properties of the Bow Ridge Fault. The excavation of Alcove 2 (via drill and blast) is scheduled to begin in early April 1995. Three parallel horizontal boreholes will be drilled from Alcove 2 to intersect the Bow Ridge Fault.

3. Water usage in North Ramp

Total North Ramp water usage as of March 17, 1995 was 734 kilo liters (193,825 gallons).

SURFACE-BASED TESTING

1. FY95 Geologic Field Activities

The ORs inquired about projected timeframes for conducting geologic field activities in FY95. DOE's surface-based Test Coordination Office provided estimated timeframes for conducting a wide variety of activities in FY95 including: trenching, pavement and fracture mapping, geologic mapping, borehole logging, geophysical logging, volcanism field studies, and the large block test at Fran Ridge. Tentative schedules for FY95 geologic field activities are provided in Enclosure 6.

2. Large Block Test (LBT)

The purpose of the LBT is to gather preliminary data to evaluate coupling of thermal, mechanical, hydrological, chemical processes in rock similar to the potential repository horizon at Yucca Mountain. The results of the LBT are also intended to support the design of roon-scale in situ heater test in the ESF.

Recent field activities conducted by LLNL on the LBT at Fran Ridge have been limited to excavating around the base of the block to construct a working platform. On March 24th, 1995, coring operations started on the large block. Approximately 39 instrumentation holes will be continuously cored in the large block in preparation for conducting a heater test. The large block heater test is currently scheduled to start in January, 1996, and continue up to 2 years. DOE no longer plans to install the steel load-retaining frame around the block. This frame was designed to allow the block to be loaded with a stress similar to the in situ stress at the potential repository horizon. The ORs have questioned whether or not the results of LBT will be available in time to support the ESF in situ heater test presently scheduled for first half of 1997. Site investigators hope that mid-test analysis in August 1996 will confirm test scaling and modeling and yield valuable information to support the ESF in situ heater test.

3. Water Encountered in SD-7

On March 7, 1995, water was encountered in SD-7 about 400-500 feet above the regional water table. SD-7 is located just southeast of the proposed repository outline. In coring this hole, water was observed on core at a depth of 488.3 meters (1602 feet) into the borehole. A water probe was run in the borehole and the water was measured to be at a depth of 479.8 meters (1574.24 feet). The water was encountered near the base of the Calico Hills tuff. USGS believes this water is a perched-water body.

A hydrologic drawdown test was later conducted to determine the size and boundary of the perched water body. The test was conducted for a 30 hour period at a pump rate of 3.3 to 3.4 gallons

per minute. Total fluid recovery for the 30 hour test was approximately 5860 gallons. Water samples have been collected for use by USGS, LANL, Nye County, and State of Nevada. USGS will age date the water samples. Monitoring of water level recovery rates following this test are ongoing.

4. Borehole USW SD-12

The USGS continued downhole air permeability testing. This testing is estimated to continue until May 1995.

5. Borehole USW UZ-7A

Drilling commenced March 22, 1995. The hole was advanced to a depth of 18.7 meters (61.3 feet) by March 26th, 1995. The borehole will facilitate investigation of the hydrologic, pneumatic, and fracture characteristics of the Ghost Dance Fault. Bottom of the hole is picked to be in the Tiva Canyon lower lithophysical unit. Total projected hole depth is 229 meters (751 feet).

6. Borehole USW UZ-5

Work was initiated March 24, 1995, to clean and deepen the borehole. The workover is being performed to accommodate future air permeability and gaseous phase testing and to instrument the unsaturated zone.

7. Unsaturated Zone Infiltration

Artificial infiltration testing was completed in Pagany Wash at Borehole UE-25 UZ-4. Surrounding neutron-access boreholes are continuing to be monitored.

8. ONC-1

ONC-1 is a Nye County borehole situated along the trace of the Bow Ridge Fault. The purpose of ONC-1 is for Nye County to conduct its own analysis of certain site features and independently verify DOE conclusions. ONC-1 was drilled to a total depth of 1540 feet and downhole geophysical logging completed. A Westbay multiport instrument array was installed in the hole to monitor both saturated and unsaturated zone conditions. Nye County also instrumented NRG-4 to monitor the unsaturated zone near the ESF.

9. Storm Water Runoff

USGS collected rainfall and runoff data from the storm of March 10, 1995, which produced flow in Fortymile Wash on March 11, 1995, for the first time since 1984. Measurements of soil moisture in neutron access holes were also gathered after the storm. Two

Neutron holes in Fortymile Wash were buried under debris from the flow.

10. Trenching

USGS mapped and logged trenches in Death Valley and Bare Mountain. Also, four trenches were excavated across known or suspected Quaternary faults in Crater Flats. These trenches will be used by the USGS in tectonic investigations. Information on the location of these trenches is attached (Enclosure 7).

11. Mapping

USGS conducted geologic mapping of the Sundance Fault; fracture mapping of the PTn unit of Paintbrush Tuff in Solitary Canyon; and mapping of the Paintbrush Canyon Fault at Busted Butte.

GENERAL

1. Meetings/Interactions

- Confirmed attendance for April 30-May 5, 1995, High-Level Radioactive Waste Conference.
- Attend Weds ESF pad meetings at Test Site.
- Established meeting schedule with DOE and M&O upper management.
- Attended February 13-17, 1995, DOE's FY95 Technical Program Review (Enclosure 8).
- Attended March 20, 1995, DOE-NRC Technical Meeting on Exploratory Studies Facility Design and Construction (Enclosure 9).
- Attended March 29, 1995, DOE-NRC Technical Exchange on Ground-Water Travel Time (Enclosure 10).

2. Appendix 7 Activities

- Conducted February 1, 1995, Appendix 7 site tour with Charles Haughney (Enclosure 11).
- Attend March 9, 1995, meeting on expert elicitation panel on volcanism with representatives from NRC headquarter's, Center for Nuclear Waste Regulatory Analyses, DOE, and Geometrics.
- Conducted March 21, 1995, Appendix 7 site visit with David Williams and Russell Irish from NRC's Office of Inspector General (Enclosure 12).

3. Other Items

- Furnished H. Lefevre ESF Job and Test Planning Packages.
- Furnished TBM Video requested by M. Knapp.
- Established daily telecon for TBM status.

- Initiated NRC early notification of media-significant events from DOE (Enclosure 13) to supplement requirements of Administrative Procedure 6.14, "Reportable Geologic Conditions".
- Obtaining permit for on-site camera use by ORs in process.
- Preparing for the NRC Chairman's May 1, 1995 site tour.
- Discuss Nye County Drilling program with Nye County Site Representatives.
- Furnished Nye County Drilling Program information to M. Delligatti and J. Spraul.
- Completed General Underground Training (GUT), first aid and CPR training (3/8/95).
- DOE management has informed the ORs that the tunnel access policy for the ESF will be revised in the near future. ' Traffic into the tunnel has increased significantly over the last several months and measures are deemed necessary to ensure a safe working environment for project personnel and visitors to the ESF. This revision to the policy is expected to impose additional restrictions on access to the tunnel. Individuals with a legitimate need to enter the ESF will still be able to do so, however access for visitors may be restricted to certain areas. It is our understanding that the revised policy will not affect the ORs existing ESF access.
- A "camera ready" copy of the Mined Geologic Disposal System License Application Annotated Outline, Revision 0, will be transmitted to the U.S. Nuclear Regulatory Commission, Advisory Committee on Nuclear Waste, the State of Nevada, and Affected Counties by March 31, 1995.
- DOE's Eleventh Semi-Annual Site Characterization Progress Report will be available by March 31, 1995.
- DOE has developed a "Yucca Mountain Project Draft Strategraphic Compendium". The compendium compiles strategraphic information for about 95 boreholes drilled in vicinity of Yucca Mountain. The document includes borehole lithologic logs for most holes drilled by the Yucca Mountain Project. The strategraphic compendium will be revised periodically as new information becomes available. A DOE geology team representative indicated that this draft document will be publicly available within next several months.

Enclosures: As stated

cc w/encs.:
R. Milner, DOE-OCRWM
R. Loux, State of Nevada
J. Meder, Nevada Legislative Counsel Bureau
W. Barnes, YMSCO
D. Horton, YMSCO
M. Murphy, Nye County, NV
M. Baughman, Lincoln County, NV
D. Bechtel, Clark County, NV
D. Weigel, GAO
P. Niedzielski-Eichner, Nye County, NV
B. Mettam, Inyo County, CA
V. Poe, Inyo County, CA
W. Cameron, White Pine County, NV
R. Williams, Lander County, NV
L. Fiorenzi, Eureka County, NV
J. Hoffman, Esmeralda County, NV
C. Schank, Churchill County, NV
L. Bradshaw, Nye County, NV
W. Barnard, NWTRB
R. Holden, NCAI
A. Melendez, NIEC
R. Arnold, Pahrump, NV
N. Stellavato, Nye County, NV
R. Callen, NARUC
J. Thoma, NRC WA (T7J-9)
M. Bell, NRC WA (T7J-9)
M. Federline, NRC WA (T7J-9)
J. Spraul, NRC WA (T7J-9)
J. Buckley, NRC WA (T7J-9)
M. Delligatti, NRC WA (T7J-9)
A. Garcia, NRC WA (T7J-9)
C. Paperiello, NRC WA (T8A-23)
M. Knapp, NRC WA (T8A-23)
W. Reamer, NRC WA (O15 B-18)
W. Patrick, CNWRA (Center)

AGENDA
NRC/DOE VIDEOCONFERENCE ON QUALITY ASSURANCE
January 18, 1994

Introductory Remarks	ALL
QA Open Items	NRC
Update on Observation of Recent DOE Audits	NRC/NV/LG
Status of DOE/Nye County Cooperative Drilling Program	DOE/LG
Status of DOE FY 95 Audit/Surveillance Schedule and Any Proposed Changes	DOE
Update on QA Overview of Site Characterization Field Activities	DOE
Discussion of QA Program Changes	DOE
Status of Implementing the Revised QARD	DOE
Status of M&O Design Package and Related CARs	DOE
In-Field Verification of Yucca Mountain Site Activities	NRC
Items of Concern to the State of Nevada and Affected Local Governments	NV, LG
Closing Remarks	All
Adjournment	

Enclosure 1

PROGRAM QUALITY ASSURANCE MANAGERS MEETING
MARCH 7, 1995
ROOM 450

8:00 a.m.	M&O "Team-Mate" Transition	D. Horton
8:30 a.m.	Status of QARD Revision	J. Schmit
8:40 a.m.	Distribution of Lessons Learned	D. Harris
8:50 a.m.	Roundtable Discussion Vendor Qualification	D. Harris
9:50 a.m.	Break	
10:00 a.m.	Use of AO Personnel on OQA Audits	D. Horton/ D. Spence
10:15 a.m.	YAP 2.7 Q "Item, Class, and Maintenance of the Q-List"	D. Spence
10:30 a.m.	Database Access/Database Coordination	N. Karas
10:45 a.m.	Corrective Action	D. Threatt
12:00 p.m.	Lunch	
1:00 p.m.	Corrective Action Comment Resolution Continued	D. Threatt

Enclosure 2

YUCCA MOUNTAIN PROJECT/ AFFECTED UNITS OF GOVERNMENT MEETING

Bank of America Center Plaza
101 Convention Center Drive, Las Vegas
Morning/Afternoon Sessions: Room 450
10 March 1995, 8:30 a.m. - 3:00 p.m.

AGENDA

8:30 a.m. - 8:45 a.m.	*Gregory N. Cook*, Director of Public Affairs Welcoming Remarks Introduction of *Max Powell*, Acting Intergovernmental Relations Manager
8:45 a.m. - 9:30 a.m.	*Dr. Pat A. Jonker*, Coordinator for the UNLV Lied Business Information Center Presentation on Business Center Capabilities/Utilization
9:30 a.m. - 10:00 a.m.	*Jim Replogle*, Assistant Deputy Manager for Engineering and Field Operations/ *Dr. Bill Boyle*, MGDS Interaction Team Leader/*Dr. Hemi Kalia*, LANL Tunnel Boring Machine/Exploratory Studies Facility Update
10:00 a.m. - 10:30 a.m.	*Gregory N. Cook*, Director of Public Affairs Introduction of *Wesley Barnes*, YMSCO Project Manager
10:30 a.m. - 10:45 a.m.	Break
10:45 a.m. - 11:00 a.m.	*Ed Jorgensen*, Network Systems Manager E-mail/Future Videoconferencing Standards update
11:00 a.m. - 11:30 a.m.	*Aaron Engel*, Systems Analyst Internet Update
11:30 a.m - 12:00 p.m.	*Susan Rives*, DOE YMSCO's Chief Counsel Discussion of Interest Earned on Direct Payments to State and AUG
12:00 p.m. - 1:00 p.m.	Lunch Break

Enclosure 3

1:00 p.m. - 1:45 p.m.	*Ed McDonnell*, TRW Environmental Safety Systems Inc. Manager of Contracts and Subcontracts Discussion on How to Do Business with the M&O
1:45 p.m. - 2:30 p.m.	*Phil Gehner*, Coordinator, Nevada Repository Preliminary Transportation System Study Presentation of Results from the Transportation System Study
2:30 p.m. - 3:00 p.m.	*Russ Patterson*, Scientific Program, Team Leader for Hydrology Update on Hydrology Studies

SITE CONCERNS

MILLER
Governor

STATE OF NEVADA

ROBERT R. LOUX
Executive Director

Submitted to
Project Office
Liaison 2

AGENCY FOR NUCLEAR PROJECTS
NUCLEAR WASTE PROJECT OFFICE

Capitol Complex
Carson City, Nevada 89710
Telephone: (702) 687-3744
Fax: (702) 687-5277

February 8, 1995

Wesley Barnes, Project Manager
Yucca Mountain Project Office
U.S. Department of Energy
P.O. Box 98608
Las Vegas, Nevada 89193

Dear Mr. Barnes:

On Wednesday, February 1, 1995, the Tunnel Boring Machine (TBM) excavating the North Ramp of the Exploratory Studies Facilities (ESF) encountered running ground in the Bow Ridge fault which opened up a large void above the TBM. It is this Office's opinion that this occurrence constituted a significant geologic condition as defined in procedure AP-6.14, "Reportable Geologic Conditions". Procedure AP-6.14 should have been implemented by DOE, and the NRC and the State officially notified of this occurrence and given the opportunity of viewing the geological condition at the earliest opportunity before further tunneling was performed.

Also of concern is the fact that DOE's own scientists were not informed of this occurrence until after shotcrete had already been applied to the surface of the void. This prevented the collection of any scientific site characterization data regarding this occurrence.

We request a detailed report on the geologic condition, including a description of the occurrence, alternatives considered for mitigating the condition, the mitigating measure selected and the justification for this selection, and a description of the success of this mitigating measure.

We also request that for any similar occurrence or other reportable geologic condition that this Office be promptly and officially informed, per procedure AP-6.14.

ACTION
Cook/Jones
Powell/Olds
Wilson/Baxeum
Landerus/Reilly
Wilcox-Doane
Dixon/Bradford
Richardson
Lundstrom
Rives
Dyer
Hanlon
Replogle
Craun
Williams
2-15

Enclosure 4

Thank you for your attention to this matter. If you wish to discuss this issue further, please give me a call.

Sincerely,

Robert R. Loux
Executive Director

cc: Malcolm Knapp, NRC
John Cantlon, NWTRB

ESF TUNNEL CHART SHOWING ACTUAL VERSUS PROJECTED STRATIGRAPHY
(Preliminary, Subject to Revision)

STRATIGRAPHY	ACTUAL STATION	PROJECTED TUNNEL STATION
Tiva Canyon crystal poor upper lithophysal unit	0+00 to 0+99.5m	0+00 to 0+78m
Tiva Canyon crystal poor middle nonlithophysal unit	0+99.5 to 1+90m	0+78 to 1+58m
Tiva Canyon crystal poor lower lithophysal unit	1+90 to 1+99.5m	1+58 to 2+03
Bow Ridge Fault Zone	1+99.5 to 2+02m	2+03
Ranier Mesa	None	2+03 to 2+09
Pre-Ranier Mesa Tuff	2+02 to 2+63.5m	2+09 to 2+67
Tuff "X"	2+63.5 to 3+35m	2+67 to 3+50
Pre-Tuff "X"	3+35 to 3.46m	3+50 to 3+60
Tiva Canyon Caprock Undifferentiated	3+46 to Face	3+60 to 4+50

Notes: All stations given are referenced to the right springline unless otherwise noted.
This chart is based on stratigraphy as reported by USBR mappers and projected stratigraphy as taken from drawing "Cross Section through Exile Hill" prepared by JFT Agapito (QA) dated 12/10/93. Also note that tunnel stratigraphic nomenclature differs somewhat from that used on the cross section; an attempt is made here to integrate the two nomenclatures.
Prepared by Drew Coleman 03/10/95

Enclosure 5

FY-95 STATUS AND TENTATIVE PROJECTION OF PLANNED FIELD TEST ACTIVITIES

Surface

I. TRENCHING - LOGGING/EXCAVATION

The following is a summary of Trench excavation and logging activities for FY-95

A. Rock Valley Trenching (Excavation complete, mapping by USGS in progress)

B. Crater Flat Trenching (Excavation in progress, due to mechanical failure excavation was halted and is tentatively scheduled to resume on 03/16/95). USGS mapping to follow completion of excavation.

C. Bare Mountain Trench (projected start of excavation March 95, USGS mapping to follow)

D. Amargosa Valley Trench (Tentative - April-May 95 excavation date, awaiting landowner permission to access, USGS mapping to follow)

E. Sleeping Buttes Trenches (Tentative - April/May 95 excavation awaiting Air Force permission to access, LANL mapping to follow)

F. Lathrop Wells Cinder Cone Excavations (April/May 95 excavation - awaiting test planning, LANL mapping to follow)

G. Excavated or modified 4 trenches related to evaluating Quaternary displacement history of the Ghost Dance Fault. Additional trench near Antler Ridge is planned for Spring, 1995. Responsibility is USGS.

II. PAVEMENT AND DETAILED FRACTURE MAPPING

A. Pavement type exposure will be cleaned at UZ-7A drill pad, cleaning began 03/01/95. Mapping by USGS will follow.

B. Solitario Canyon detailed geologic mapping of Paintbrush Tuff non-welded unit. To be conducted by USGS. Schedule is TBD.

III. GEOLOGIC MAPPING

A. Detailed Stratigraphy of Paintbrush Tuff non-welded unit - Solitario Canyon. To be conducted by USGS. Schedule is TBD.

B. Paint Brush Tuff non-welded and Topopah Springs measured sections. To be conducted by the USGS. Schedule is TBD.

C. Reconnaissance structure study of the Sundance Fault from Antler Ridge to interception with the Solitario Canyon fault. To be conducted by the USGS. Schedule is TBD.

IV. BOREHOLE LOGGING

See attached tentative schedule for the following boreholes. SD-9, ONC-1, UZ-7, UZ-4, SD-7 run 1, G-2, WT-12, WT-10, WT-24, WT-11, SD-12 1 run.

V. GEOPHYSICAL SURVEYS

A. Repository Geophysics including the following surveys.

- Seismic Reflection - complete 2/95
- Gravity - complete 2/95
- Electrical - additional work to be completed tentatively 5/95.
- Data reduction and interpretation in progress. Activity being conducted by LBL.

B. Surface geophysical surveys - Seismic Reflection profiling field work completed by USGS 11/94, data reduction and interpretation in progress.

C. 3-D test on UZ-7A borehole pad to image the Ghost Dance fault. Field work complete February 1995. Data reduction and interpretation in progress. Work being conducted by LBL.

D. Vertical Seismic Profiling (VSP) at UZ-16 (TBD test date). USGS to conduct test

VI. GEODETIC SURVEYS

GPS surveys from Death Valley to Beatty are complete. Data reduction and interpretation is scheduled for FY-96. USGS is responsible.

VII. COMPUTER MODELS

A. 3-D model Surface mapping of the Tiva Canyon Unit, outcrops in Solitario Canyon. USGS is to conduct activity. Schedule is TBD.

B. Surface outcrop verification of geologic cross sections. USGS is to conduct. Schedule is TBD.

C. Scott and Bonk geologic surface map revision. USGS is to conduct. Schedule is TBD.

VIII. VOLCANISM

See Item No. I, letters E (sleeping Butte Trenches) and F (Lathrop Wells Cinder Cone Excavations) for status of trenches being excavated and mapped under volcanism program.

IX. CALC - SILICA VEINING

Outcrop sample collection. Schedule TBD. USGS responsibility.

X. SOUTHERN GREAT BASIN SEISMIC NETWORK

A. Strong motion field recording equipment is being procurred. Instruments will be deployed in FY-95.

B. Continuous monitoring of the Great Basin Seismic Network. As part of the digital upgrade of the Southern Great Basin Seismic Network, 14 stations will be installed in FY95. UNR doing the work for USGS.

XI. NATURAL RESOURCES

Collection of outcrop samples and observation of drill cores - (industrial rock minerals), activity schedule TBD. USGS responsible.

XII. EROSION

None

XIII. BOW RIDGE FAULT ZONE

A. Detailed geologic mapping of Bow Ridge fault exposed in ESF (in progress).

B. ESF Test Alcove II will have hydrochemistry boreholes drilled through the Bow Ridge fault(excavation of test alcove II tentatively to begin 4/95).

XIV. LARGE BLOCK EXPERIMENT

A. Excavation to isolate block to resume 3/95. LBL responsibility.

Underground Based Program

I. GEOLOGIC MAPPING OF ESF AND ALCOVES

Full peripheral geologic mapping, detailed line surveys and photogrametery is ongoing, expected to continue for indefinite basis with excavation of ESF being performed by USGS/USBR.

II. ROCK MASS CHARACTERISTICS (ESP. FRACTURE, FAULTS AND STRATIGRAPHY)

A. See section II, item I (geologic mapping of ESF and alcoves.

B. Rock quality estimate is ongoing and is expected to continue for indefinite basis with excavation of ESF being performed by Sandia National Laboratory.

Contacts

Dan Soeder (USGS): For USGS activities (702) 295-5996

Dick Kovach (LANL): For ESF test activities (702) 295-6180
: For Large Block Experiment

Ken Skipper(DOE) :General Test related questions (702) 295-7939
Drew Coleman(DOE):" "(702) 295-7926
Ron Smith (M&O):" "(702) 794-5164

TENTATIVE

FY95 Projected Geophysical Logging

Borehole	Start	1995							
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
ONC-1	Mar/01/1995	ONC-1							
UZ-4	Apr/24/1995			UZ-4					
UZ-7a	Apr/24/1995			UZ-7a					
UZ-5	May/22/1995				UZ-5				
SD-12	Jun/05/1995				SD-12				
SD-7	Aug/21/1995							SD-7	

Mar/01/1995

Updated: 2/17/95

FY95 TEST PLANNING ACTIVITIES

Surface-Based Test Coordination Office

PRELIMINARY DRAFT
INFORMATION ONLY

	TEST ACTIVITY (In Approximate Order of Priority)	PROJECT MANAGER	EST. FIELD START DATE	NEEDS: TPP, JP, NTP OR ?	PLANNING START DATE	PLANNING COMPLETION DATE	ENVIR. PERMITS (Y or N)	ENVIR. SURVEYS (Y or N)	DIE or EXEMPTION	WORK PROGRAM (Y or N)	COST ESTIMATE (Y or N)	FUNCTIONAL RQMNTS (Y or N)	COMMENTS
1.	NRT-1 Backfill	Reynolds											Planning Complete (4 Oct 94)
2.*	Deep Seismic Shotholes	Reynolds											Planning Complete (5 Oct 94)
3	Exile Hill/Booster Pump Station	Reynolds											Planning Complete (6 Oct 94)
4*	Seismic Reflection	Reynolds	10/24/94										Planning Complete (24 Oct 94)
5*	NRG-7a Instrumentation	Wilt	10/24/94										Planning Complete (17 Oct 94)
6.*	NRG-6 Instrumentation	Wilt	11/14/94										Planning Complete (3 Nov 94)
7*	UZ-16 Cleanout	Wilt	11/07/94										Planning Complete (17 Oct 94)
8*.	C-Hole Work Period 1a	Wilt	11/21/94										Planning Complete (31 Oct 94)
9.*	SD-7 Drilling	Wilt	10/03/94										Planning Complete
10.*	NRG-4 Cleanout	Wilt	11/12/94										Planning Compete (3 Nov 94)
11.	Rock Valley Trenches	Reynolds	12/06/94	TPP, JP	04/08/94	12/01/94	Y	Y	Ex	N	Y	Y	Planning Complete (1 Dec 94)
12.	ESF Leach Field	Distel	12/12/94	JP	10/26/94	12/02/94	Y		Ex	Y	Y	Y	Planning Complete (1 Dec 94)
13.	Bare Mtn. Trench	Reynolds	03/10/95	TPP	12/15/94	03/08/95	Y	Y	Ex	N	Y	Y	BLM Permit Delayed
14.	Repository Geophysics	Reynolds	11/28/94	TPP, JP	10/03/94	12/07/94	Y		Ex	N	N	Y	Planning Complete (13 Dec 94)
15.*	UZ-16 Instrumentation	Wilt	01/13/95	JP	11/01/94	12/16/94	Y	N	DIE	Y	Y	N	Planning Complete (23 Dec 94)
16.	UZ-16 VSP	Reynolds	03/20/95	TPP, JP	11/03/94	03/10/95	Y	Y	DIE	N	Y	Y	Environmental clearance to be issued in two phases

* REECo drill crew activities
** Test activity added after original FY 95 priorities set

Updated: 2/17/95

FY95 TEST PLANNING ACTIVITIES

Surface-Based Test Coordination Office

	TEST ACTIVITY (In Approximate Order of Priority)	PROJECT MANAGER	EST. FIELD START DATE	NEEDS: TPP, JP, NTP OR ?	PLANNING START DATE	PLANNING COMPLETION DATE	ENVIR. PERMITS (Y or N)	ENVIR. SURVEYS (Y or N)	DIE or EXEMPTION	WORK PROGRAM (Y or N)	COST ESTIMATE (Y or N)	FUNCTIONAL RQMNTS (Y or N)	COMMENTS
17.	Geophysical Logging	Reynolds	12/13/94	TPP-rev.	10/12/94	11/18/94	N		Ex	N	N	N	Planning Complete (13 Dec 94)
18.	Soil & Rock Properties	Grant	02/03/95	TPP, JP	11/23/94	02/01/95	Y	Y	DIE	N	Y	Y	Planning Complete (2 Feb 95)
19*.	UZ-7a Drilling**	Wilt	03/22/95	TPP, JP	09/01/94	03/17/95	Y	N	DIE	Y	Y	N	
20.*	UZ#5 Workover & Instrumentation	Wilt	03/14/95	TPP, JP	12/20/94	03/06/95	Y		DIE	Y	Y	N	
21.	ONC#1 Drilling (Nye)	Grant	12/01/94	TPP	11/23/94	12/01/94	Y		DIE	N	N	N	Planning Complete (5 Dec 94)
22.	C-Hole Work Period 1b	Distel	03/29/95	NTP	11/11/94	02/15/95	Y		Ex	Y	Y	N	Letter to Proceed Issued
23.	Borehole Water Sampling **	Distel		TPP	01/03/95	03/03/95			EX	Y	Y	N	
24.	WT-24 Road & Pad	Distel	07/31/95	JP	10/18/94	04/10/95	Y		DIE	Y	Y	Y	
25.*	UZ#4 Workover & Instrumentation	Wilt	03/14/95	JP	02/03/95	03/06/95	Y		DIE	Y	Y	N	
26.	Crater Flat Trenches	Reynolds	02/02/95	TPP, JP	10/07/94	01/27/95	Y	Y	Ex	N	Y	Y	Planning Complete (27 Jan 95)
27.	UZ-6s	Wilt	02/22/95	TPP	02/06/95	02/22/95	Y	N	DIE	N	N	N	USGS Tracer Tests
28.	ONC#1 & NRG-4 Instrumentation (Nye)	Grant	12/30/94	NA			Y		DIE	N	N	N	Planning Complete (5 Dec 94)
29	Sleeping Butte Trenches	Reynolds	TBD	TPP	TBD	TBD	Y		Ex	N	N	N	BLM Permit
30.	Amargosa Valley Trenches	Reynolds	04/08/95	TPP	TBD	04/06/95	Y	Y	Ex	N	Y	N	Access Permit
31.*	WT-10 Workover & Pump	Biggar	04/01/96	TPP, JP	01/24/95	08/01/95	Y		DIE	Y	Y	Y	
32.*	WT-24 Drilling and Instrumentation	Distel	09/29/95	TPP, JP	10/18/94	09/01/95	Y		DIE	Y	Y	Y	
33.*	C-Hole Work Period 2	Distel	05/15/95	TPP, JP	11/11/94	05/01/95	Y		Ex	Y	Y	N	Delay: Vari-speed motor

* REECo drill crew activities
** Test activity added after original FY 95 priorities set

Updated: 2/17/95

FY95 TEST PLANNING ACTIVITIES

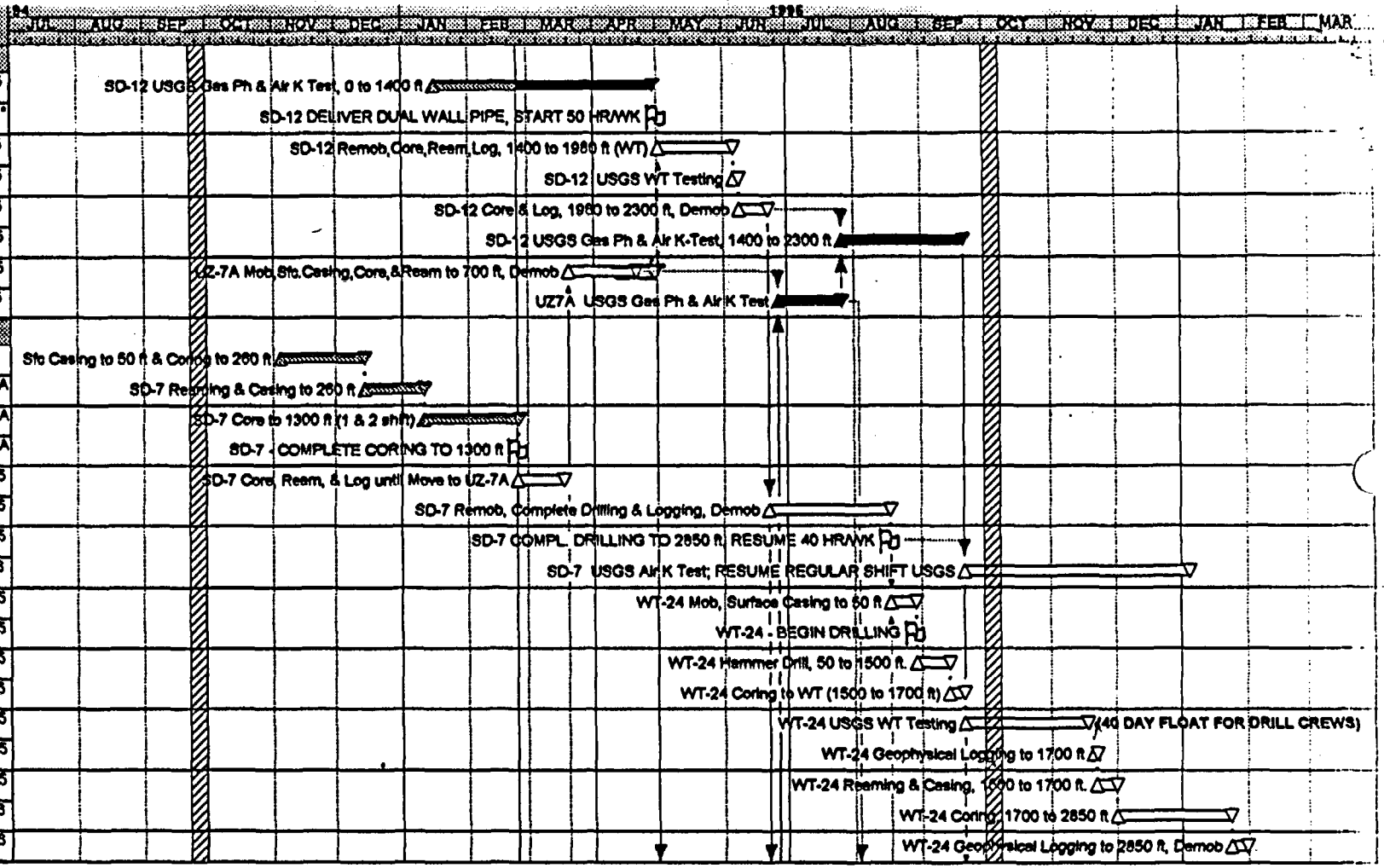
Surface-Based Test Coordination Office

	TEST ACTIVITY (In Approximate Order of Priority)	PROJECT MANAGER	EST. FIELD START DATE	NEEDS: TPP, JP, NTP OR ?	PLANNING START DATE	PLANNING COMPLETION DATE	ENVIR. PERMITS (Y or N)	ENVIR. SURVEYS (Y or N)	DIE or EXEMPTION	WORK PROGRAM (Y or N)	COST ESTIMATE (Y or N)	FUNCTIONAL RQMNTS (Y or N)	COMMENTS
34.*	G-2 Workover & Pump	Grant	05/30/95	TPP, JP	11/01/94	04/30/95	Y		DIE	Y	Y	Y	
35.*	WT-12 Workover & Pump	Wilt	04/01/95	TPP, JP	11/17/94	02/23/95	Y		DIE	Y	Y	Y	
36.*	C-Hole Work Period 3	Distel	11/09/95	NTP	11/11/94	05/13/95	Y		DIE	Y	Y	N	May Need JP
37.*	SD-12 Instrumentation	Wilt	08/14/95	Done	Done	Done	Y		-	-	-	-	
38.*	WT-11 Workover & Pump	Wilt	04/06/95	TPP, JP	03/28/95	08/18/95	Y		DIE	Y	Y	N	
39.	G-6 Planning	Biggar	10/01/95	TPP, JP	11/01/94	02/01/95	Y		DIE	N	Y	Y	
40.*	C-Hole Work Period 4	Distel	03/01/96	NTP	11/11/94	09/10/95	Y		DIE	Y	Y	N	May need JP

* REECo drill crew activities

** Test activity added after original FY 95 priorities set

Activity ID	Orig Dur	Rem dur	Early start	Early finish
LM-300 (2 Drill Crews)				
SD12F0000	70	46	16JAN95A	28APR95
SD12F0004	0	0		01MAY95*
SD12F0010	24	24	02MAY95	05JUN95
SD12F0021	2	2	06JUN95	07JUN95
SD12F0030	10	10	08JUN95	21JUN95
SD12F0100	40	40	26JUL95	20SEP95
UZ7AF0003	24	24	20MAR95	20APR95
UZ7AF0100	20	20	27JUN95	25JUL95
Stratmaster (2 Drill Crews)				
SD7F0014	25	0	4NOV94	3DEC94
SD7F0020	9	0	4DEC94	10JAN95A
SD7F0022	42	0	11JAN95A	24FEB95A
SD7F0031	0	0		24FEB95A
SD7F0051	16	16	24FEB95	17MAR95
SD7F0066	40	40	22JUN95	17AUG95
SD7F0068	0	0		17AUG95
SD7F0100	60	60	21SEP95	04JAN96
WT24F0020	8	8	18AUG95	29AUG95
WT24F0018	0	0		29AUG95
WT24F0021	10	10	30AUG95	13SEP95
WT24F0040	5	5	14SEP95	20SEP95
WT24F0060	40	40	21SEP95	17NOV95
WT24F0065	2	2	20NOV95	21NOV95
WT24F0070	5	5	22NOV95	30NOV95
WT24F0075	26	26	01DEC95	23JAN96
WT24F0090	5	5	24JAN96	30JAN96



Project Start 17AUG94
Project Finish 05APR96
Data Date 24FEB95
Print Date 28FEB95

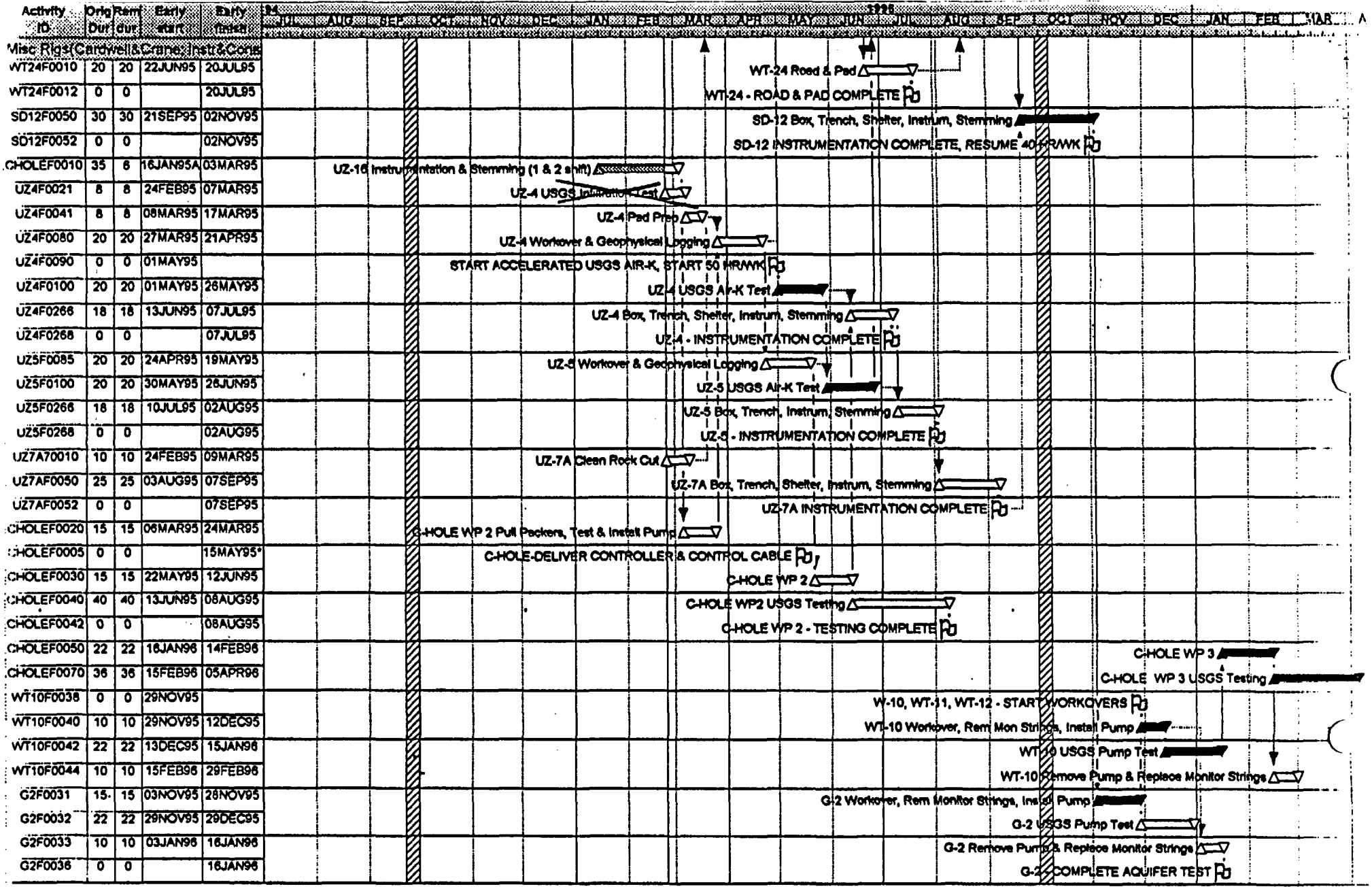
Early Bar
Progress Bar
Critical Activity

8133

PROPOSED FY'95 DRILLING SCHEDULE
REECo - 5 days @ 10 hrs/shft
2/27/95 (3C50A)

Sheet 1 of 3

2/27/95 UPDATE			
Date	Revision	Checked	Approved



Project Start 17AUG94
Project Finish 05APR96
Data Date 24FEB95
Print Date 28FEB95

(c) Primavera Systems, Inc.

Early Bar
Progress Bar
Critical Activity

8133

Sheet 2 of 3

PROPOSED FY'95 DRILLING SCHEDULE
REECo - 5 days @ 10 hrs/shft
2/27/95 (3C50A)

2/27/95 UPDATE

Date	Revision	Checked	Approved

TENTATIVE

FY95 Projected Geophysical Logging

Borehole	Start	1995							
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
ONC-1	Mar/01/1995	ONC-1							
UZ-4	Apr/24/1995			UZ-4					
UZ-7a	Apr/24/1995			UZ-7a					
UZ-5	May/22/1995				UZ-5				
SD-12	Jun/05/1995				SD-12				
SD-7	Aug/21/1995							SD-7	

Mar/01/1995

BOREHOLE ACTIVITIES			
TEST ACTIVITY	JOB PACKAGE/WORK PROGRAM/TEST PLANNING	SCHEDULE INFORMATION	COMMENTS ON STATUS
SD-7 DRILLING	JP 94-08	Work initiated 10/03/94. Re-start 10/28/94.	Hole depth 1260.25 feet. Ream depth 658 feet. Protective measures from the presence of erionite continue to be taken.
"C-HOLES" TESTING	WP 94-18		Downhole instruments are working, water level-monitoring is ongoing.
UZ-16 INSTRUMEN-TATION	WP 94-10	Geophone installation commenced 01/18/95. Stemming operations commenced 02/01/95.	Stemming operations continued to approx. 651ft.
UZ-7A PAD	JP 94-14		Basic pad construction is complete. Additional rock slope to be excavated and cleaned for mapping purposes prior to acceptance and closeout.
ONC#1			Nye County Rig is at ONC#1 location,cleanout activities have commenced.
SD-12 testing		Packer installation commenced 02/01/95.	Air- permeability testing continues.

MISCELLANEOUS ACTIVITIES			
TEST ACTIVITY	JOB PACKAGE/WORK PROGRAM/TEST PLANNING	SCHEDULE INFORMATION	COMMENTS ON STATUS
ESF SURFACE MUCK CONVEYOR SYSTEM	JP 95-9	JP approved February 1, 95.	Phase I Plate Load Tests and Standard Penetration Test are complete. Phase II Plate Load Tests and trench excavations will commence Tuesday February 28.
REPOSITORY GEOPHYSICS (LBL)	TPP-T-93-10	Work resumed on 01/12/95.	Seismic work and Gravity work are complete.

EXCAVATION ACTIVITIES			
TEST ACTIVITY	JOB PACKAGE/WORK PROGRAM/TEST PLANNING	SCHEDULE INFORMATION	COMMENTS ON STATUS
ROCK VALLEY TRENCHES	JP 94-10	Work complete.	CMO has provided acceptance documentation from the PI.
CRATER FLAT FAULT TRENCHES	JP 95-16	JP issued January 30,95.	The Caterpillar 225 Backhoe has completed CFFT2 trench, and commenced excavation of CFFT2A trench.

ESF ACTIVITIES			
TEST ACTIVITY	JOB PACKAGE/WORK PROGRAM/TEST PLANNING	SCHEDULE INFORMATION	COMMENTS ON STATUS
UNDERGROUND GEOLOGIC MAPPING	JP 92-20A TPP 92-10	04/08/93 (start)	Ongoing (LANL to status)
CONSTRUCTION MONITORING IN THE STARTER TUNNEL	JP 92-20D TPP T-92-2	04/08/93 (start)	Ongoing (LANL to status)
CONSOLIDATED SAMPLING IN THE STARTER TUNNEL	JP 92-20C TPP 92-14	05/27/93 (start)	Ongoing (LANL to status)
HYDRO-CHEMISTRY TESTING (ALCOVE 1)	TPP 92-12	01/12/94 (start)	Ongoing (LANL to status)
ENGINEERED BARRIER: LARGE BLOCK TEST	TPP T-93-3 JP 93-10	Start date: 08/25/93 Excavation completed 09/08/94.	Field work on indefinite suspension.

JOB PACKAGE CLOSEOUTS			
TEST ACTIVITY	JOB PACKAGE/WORK PROGRAM	SCHEDULE INFORMATION	COMMENTS ON STATUS
SOIL & ROCK PROPERTIES NORTH PORTAL	JP 92-02	Record submittals past due. Due date 10/04/93.	FCR issued on 2/3/95 to change as-built drawing requirements. Will start preparing records package.
SOIL & ROCK PROPERTIES PHASE II	JP-92-08	Records due date 11/21/94.	See JP 92-02.
NRG-4 ROAD & PAD	JP 93-02	Records due 08/15/93.	Drawings are baselined. R. Schreiner has action to issue out drawings.
AUGER HOLES HRF	JP 91-6		Old JP that is being closed out to clear records in DRC. JPRC is W. Distel.
JF-3 BOREHOLE	JP 92-1		Old JP that is being closed out to clear records in DRC. JPRC is W. Distel.
NRG-4 BOREHOLE	JP 93-02A	Records due by 02/21/95.	Cleanout completed.
C-WELL PIPELINE	JP 92-21	Records due by 10/25/94.	Records package in preparation. Need As-Built drawings to complete.
SD-7 ROAD & PAD	JP 94-08	Records due by 10/25/94	Records package in preparation. Need to determine if NCR YMPO-94-0056-00 disposition complete before closure.
NRG-6 BOREHOLE	JP 92-11	Records due by 10/25/94	Records package in preparation.

JOB PACKAGE CLOSEOUTS			
TEST ACTIVITY	JOB PACKAGE/WORK PROGRAM	SCHEDULE INFORMATION	COMMENTS ON STATUS
NRG-7/7A BOREHOLE	JP 93-15	Records due by 10/25/94	Records package submitted to DRC on 11/09/94. JP obsoleted on 2/15/95
DEEP SEISMIC SHOTHOLES	JP 94-12	Records due by 01/09/95.	Records package in preparation.
STAGECOACH ROAD BOREHOLES	JP 94-13	Records due by 10/25/94	Records package submitted to DRC on 01/03/95. JP obsoleted on 2/16/95.
EXILE HILL BOOSTER PUMP	JP 94-24	Records due by 01/09/95.	
REAMING OF NRG-6 & NRG-7A	JP 94-18	Records due by 01/17/95.	
BOREHOLE WORKOVER, TESTING & INSTRUMEN-TATION OF NRG-7A	JP 94-05	Records due by 01/17/95.	
EXHILE HILL TRENCH	JP 94-02	Records due by 02/21/95.	
ESF LEACH FIELD PERCOLATION TEST	JP 95-3	Records due by 02/21/95.	

JOB PACKAGE CLOSEOUTS			
TEST ACTIVITY	JOB PACKAGE/WORK PROGRAM	SCHEDULE INFORMATION	COMMENTS ON STATUS
BOREHOLE WORKOVER, TESTING & INSTRUMENTATION OF NRG-6	JP 94-19	Records due by 02/21/95.	
DRILLING & TESTING OF UZ-14	JP 92-17	Records due by 02/21/95.	
Midway Valley P.II	JP 92-5	Records due by 04/10/95	
Rock Valley Trenches	JP 94-10	Records due by 04/25/95	
Quaternary Faulting	JP 92-12	Records due by 04/10/95	

Disk (Reports\
boreplus)

Crater Flats Trenches
(How to get there)

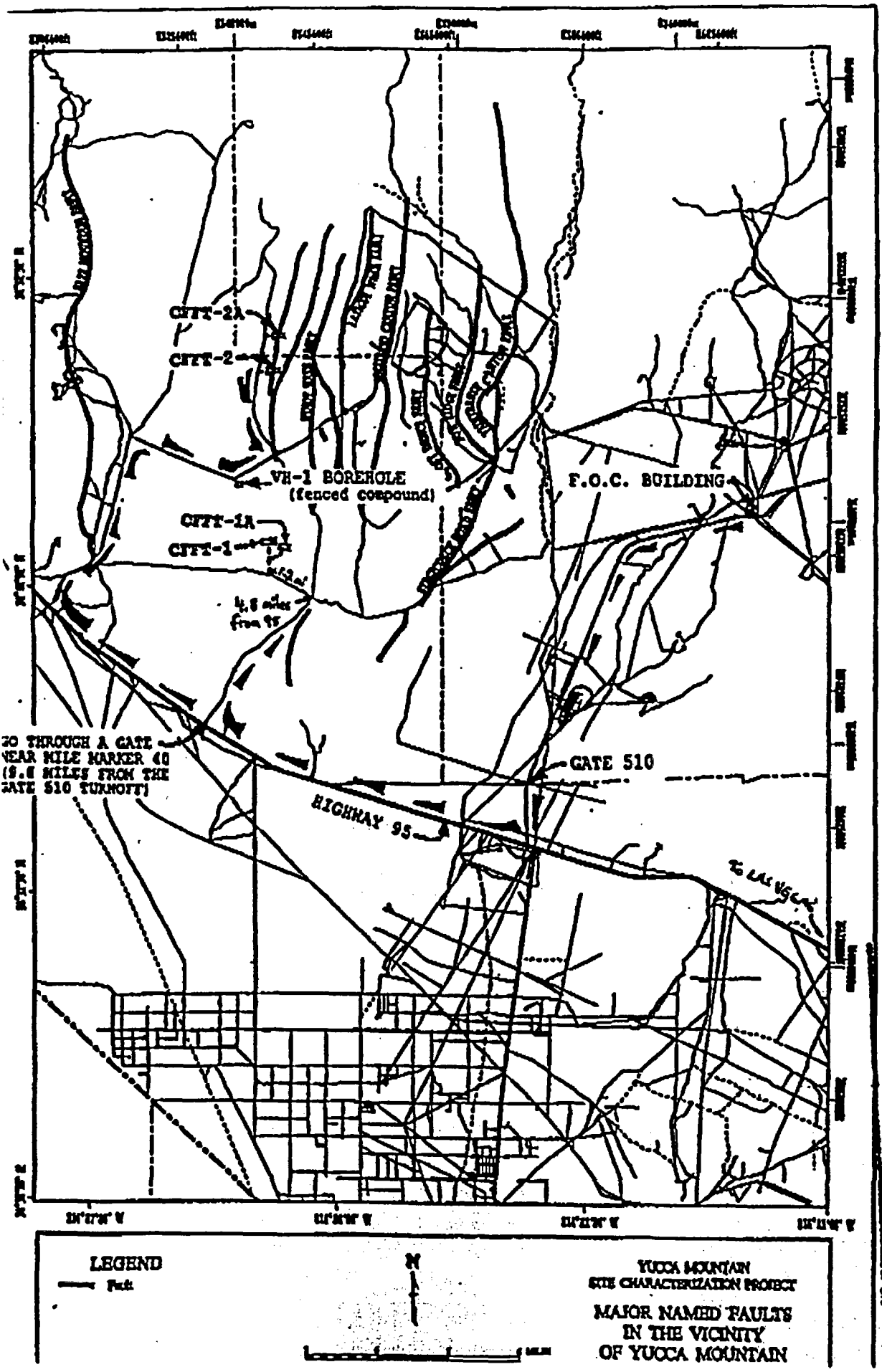
NOTE: Do not attempt to visit any of these trenches unless you are driving a heavy duty 4-wheel drive vehicle. Take water, a radio and other supplies as needed for remote sites. Check in with Ranch Control before leaving for the sites, and be sure to check in with with Ranch Control after concluding your visit. Otherwise a search party may be sent to look for you.

To get to CFFT-1 and CFFT-1A from the F.O.C.
Proceed out gate 510 and check your mileage as you pull onto highway 95. Proceed northbound on highway 95 for 9.8 miles (just beyond the 40 mile marker). Look to your right (north) and see a gate through the fence that borders the highway. Proceed through the gate and along the dirt road for 4.8 miles (north) and make a left onto another dirt road proceed 1.4 miles (west) and look for a newly constructed access road on your right (north) that leads to the two trenches. Leave the same way you go in, because although the road does go all the way through, the road is rough and treacherous.

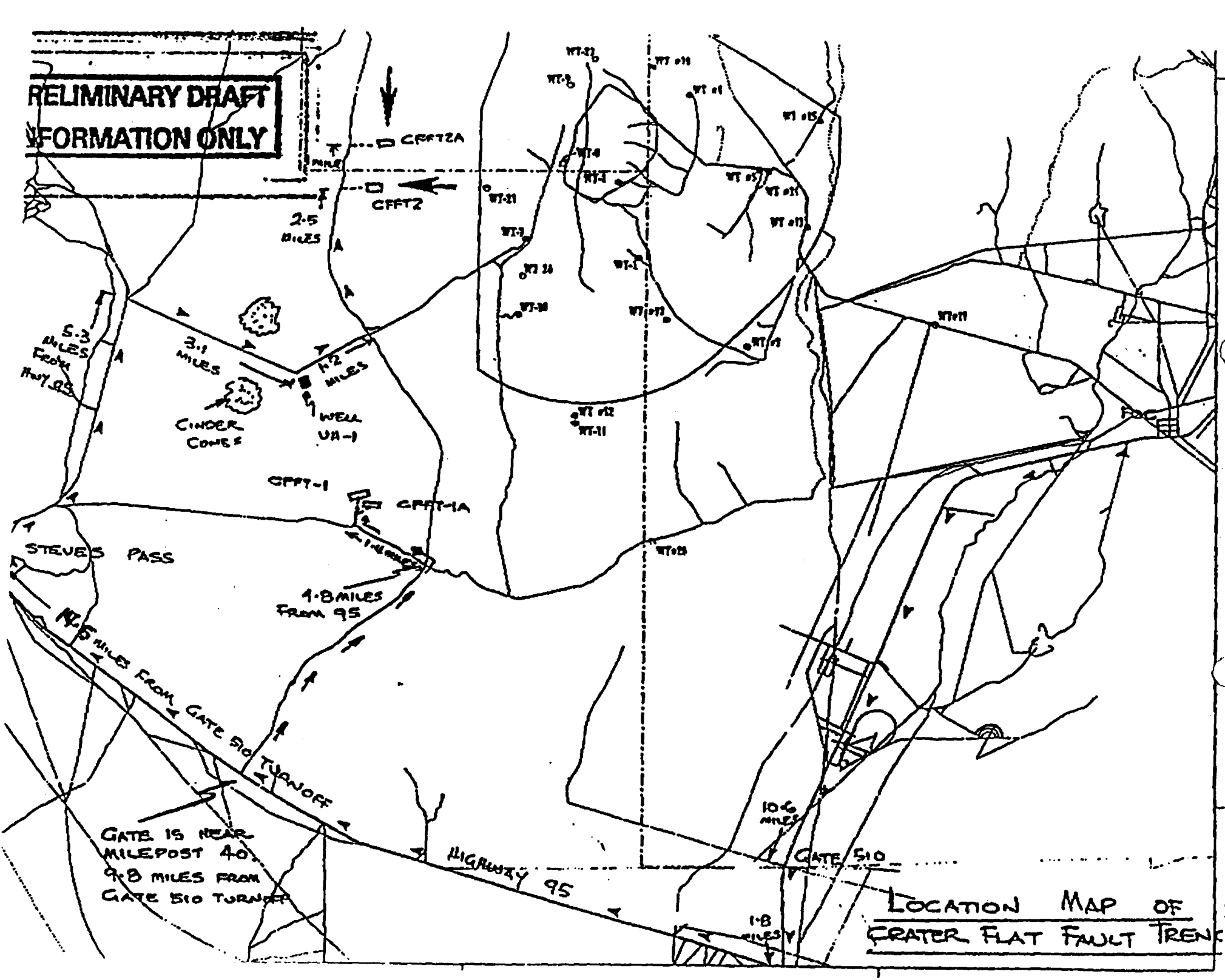
To get to CFFT-2 and CFFT-2A from the F.O.C.
Proceed out gate 510 as above, and check your mileage at Highway 95. Proceed northbound on highway 95 for 14.5 miles and turn right onto a well used and graded gravel road. Stay on the gravel road (heading north) for 5.3 miles and turn right onto another gravel road. Proceed east along this road for 5.3 miles (look for a landmark, the gated compound around borehole VH-1 at 3.1 miles). Turn left (north) along a rough dirt road and travel 2.5 miles. On your right will be a newly constructed access road to trench CFFT-2. Travel another 1 mile north on the dirt road and look for the access road to CFFT-2A. Leave the same way you came in.

To re-iterate: Check in and out with Ranch Control. If you do have vehicle or medical difficulties, call Ranch Control on Net 14. If you can't get out on Net 14, try waking or driving to a new location, there are numerous "dead spots" for radio reception in the Crater Flats area.

Enclosure 7



PRELIMINARY DRAFT
INFORMATION ONLY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FORMATION ONLY
CFFT2A
CFFT2
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5.3 MILES
3.1 MILES
1.2 MILES
CINDER CONES
WELL UA-1
CFFT-1
CFFT-1A
STEVES PASS
1.8 MILES FROM 95
10.6 MILES FROM GATE 510 TURNOFF
GATE IS NEAR MILEPOST 40. 9.8 MILES FROM GATE 510 TURNOFF
HIGHWAY 95
10.6 MILES
GATE 510
1.8 MILES
LOCATION MAP OF CRATER FLAT FAULT TRENCH
03-24-1995 10:00
7027047908
MAILROOM/YMPO
P.04

A G E N D A

Monday, Feb. 13th

8:30 - 11:30

1:30 - 4:30 1. Opening Plenary

Tuesday, Feb. 14th

8:30 - 11:30 2. Performance Assessment (I)

1:30 - 4:30 3. Design

Wednesday, Feb. 15th

8:30 - 11:30 4. Pre-closure Rock Characteristics & Natural Resources

1:30 - 4:30 5. Geochemistry & Post-closure Rock Characteristics

Thursday, Feb. 16th

8:30 - 11:30 6. Geohydrology, Transport, & Climate

1:30 - 4:30 7. Tectonics & Volcanology
8. Performance Assessment (II)

Friday, Feb. 17th

8:30 - 11:30 9. Wrap up & Next Steps

DOE-NRC TECHNICAL EXCHANGE AGENDA
EXPLORATORY STUDIES FACILITY DESIGN AND CONSTRUCTION

Video Conference
Bank of America Center, Blue Room
Forrestal Building, Conference Room GF277
March 20, 1995

9:00 (12:00 EST)	Opening Remarks	
9:30 (12:30 EST)	ESF Construction Update - Schedule of Operations - TBM Lessons Learned - Discussion of Voids	 Craun Craun Boyle
10:15 (1:15 EST)	Drilling, Testing, and Sampling Program Update	Girdley
11:00 (2:00)	ESF Design Status - Design Progress Update - Design Control Process	Segrest
11:45 (2:45 EST)	Break	
12:00 (3:00 EST)	License Application Schedule Under the Program Approach - Timeline for the LA - Timeline for Topical Reports	Gil
12:30 (3:30 EST)	Closing Remarks and Discussion	All
1:00 (4:00 EST)	Adjourn	

Enclosure 9

AGENDA

DOE / NRC TECHNICAL EXCHANGE
GROUND-WATER TRAVEL TIME

Video Conference: Las Vegas, NV - Forrestal Building, Wash. DC

MARCH 29, 1995

9:00 to 1:00PM (PST)

TOPIC	PRESENTER
Opening Statements	All
Perpestives on Aspects of Demonstrating Compliance with the GWTT Performance Objective of 10 CFR Part 60	NRC (Pohl)
Introduction - DOE	DOE(Smistad)
Clarification of the Regulatory Implications of DOE's Nov./Dec. Approach to GWTT	DOE (Berkowitz)
Revised DOE GWTT Calculation Approach	DOE (Duguid/Barnard)
Open Discussion	All
Closing Remarks	All

Enclosure 10

W BELKE

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

301 E. Stewart Avenue, Rm. 203
Las Vegas, NV 89101
Tel: (702) 388-6125

January 27, 1995

Ms. Loretta Camp, SAIC
FAX No: 295-6053

RE: Visit to NTS (Charles Haughney)

We are requesting access to the Nevada Test Site on Wednesday, February 1, 1995, for an NRC Representative to visit the FOC, observe TBM activities and visit various other sites. A Badge Information sheet for Charles Haughney is enclosed. William Belke will escort.

We prefer that badging be done at Gate 100 at approximately 8:30 a.m. The itinerary will be as follows:

6:30	Leave Las Vegas, NV for gate 100 (Mercury) at NTS
8:30	Arrive at Gate 100 for badging
9:00	Depart Gate 100 for Mercury
9:20	Arrive at FOC and tour the Sample Management Facility
10:00	Leave for ESF pad and TBM
12:00	Leave for Yucca Crest and eat lunch on mountain. Investigate stone stripes, bedrock and erosion in vicinity of Yucca crest
13:00	Descend Yucca Mountain and go to 40 Mile Wash, Large Block Testing and Drill Rig
15:00	Arrive at pass between Little Skull Mountain and Skull Mountain. Stop to investigate varnished deposits to North and South of Jackass Flat Highway
16:00	Leave Little Skull Mountain for Mercury/Las Vegas
17:30	Arrive Las Vegas

Thank you for your consideration.

Sincerely,

William L. Belke
Sr. On-Site Licensing Representative

cc: Nancy Chappell, M&O
Tom Bjerstedt, YMSCO
Joe Holonich, DWM, WA DC

Enclosure 11

ITINERARY FOR MARCH 21, 1995 VISIT TO NEVADA TEST SITE
OFFICE OF THE INSPECTOR GENERAL
DAVID C. WILLIAMS
RUSSELL S. IRISH

06:30 AM	Depart Las Vegas, NV for Gate 100 (Mercury) at Nevada Test Site (NTS)
08:30	Arrive at Gate 100 for orientation/badging
09:00	Depart Gate 100 and arrive at Field Operations Center (FOC) for tunnel training and Sample Management Facility tour
10:00	Depart FOC for Exploratory Studies Facility (ESF) pad
10:30	Tour ESF tunnel and ESF pad
12:30 PM	Depart ESF pad to Yucca Mountain Crest for area overview, geology briefing, and lunch
01:30	Depart Yucca Mountain Crest for Fran Ridge Large Block Experiment (LBE) orientation
01:45	Depart Fran Ridge for Ghost Dance fault
02:15	Return to FOC
02:30	Depart NTS for Las Vegas
04:30	Arrive Las Vegas

P:\POGAGEND

Enclosure 12

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

WBS 1.2.5.2

JAN 25 1995

CC: CG

Richard L. Craun, YMSCO, NV
Gregory N. Cook, YMSCO, NV

U.S. NUCLEAR REGULATORY COMMISSION (NRC) ON-SITE REPRESENTATIVE (OR) NOTIFICATION OF MEDIA-SIGNIFICANT OPERATIONAL EVENTS (SCPB: N/A)

The NRC ORs have requested early telephonic notification of media-significant operational events at Yucca Mountain; for example, Tunnel Boring Machine operational failures, accidents, injuries, difficulties, etc., that would be of interest to the media. The NRC ORs wish to apprise the NRC Headquarters management and staff of such events prior to announcement by the media so that they are not surprised by inquiries.

Currently, Yucca Mountain Site Characterization Project Administrative Procedure (YAP) 30.27, "Reportable Geologic Conditions," addresses NRC OR notification of any potentially technically significant geologic condition. Non-technically significant geologic conditions that might be significant to the media are mentioned in the procedure, but such events do not invoke use of the procedure. The procedure does not deal at all with operational reporting.

The Office of Public Affairs is requested to determine an appropriate notification process to provide the NRC ORs with current information of media-significant operational events, and in collaboration with the Assistant Managers of Suitability and Licensing and Engineering and Field Operations, to develop a simple notification process.

If you are in need of more information on this subject, please contact Thomas W. Bjerstedt of my staff at 794-7590.

for Stephan J. Brocoum
Assistant Manager for
Suitability and Licensing

AMSL:TWB-1877

Enclosure 13