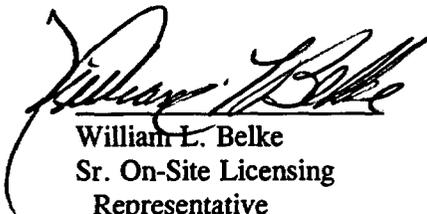


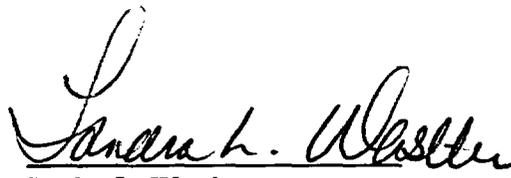
U.S. NUCLEAR REGULATORY COMMISSION
ON-SITE LICENSING REPRESENTATIVE REPORT
NUMBER OR-97-10

FOR THE REPORTING PERIOD OF NOVEMBER 1 THROUGH DECEMBER 31, 1997


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9802170012 980204
PDR WASTE
WM-11 PDR

TABLE OF CONTENTS

**U.S. NUCLEAR REGULATORY COMMISSION
ON-SITE LICENSING REPRESENTATIVE REPORT
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	PAGE	
1. APPROVAL SHEET.....		I
2. TABLE OF CONTENTS.....		ii

REPORT DETAILS

1.0 INTRODUCTION.....		1
2.0 OBJECTIVES.....		1
3.0 SUMMARY AND CONCLUSIONS.....		1
4.0 QUALITY ASSURANCE, ENGINEERING, AND NRC KEY TECHNICAL ISSUES.....		1
5.0 EXPLORATORY STUDIES FACILITY AND KEY NRC TECHNICAL ISSUES.....		3
6.0 GENERAL		13

REPORT DETAILS

1.0 INTRODUCTION

The principal purpose of the On-Site Licensing Representative (OR) reports is to alert NRC staff, managers and contractors to information on the 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 pre-licensing consultation. The principal focus of this and future OR reports will be on DOE's programs for the Exploratory Studies Facility (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 ESF development. The ORs also participate in activities associated with resolving NRC Key Technical Issues (KTI). In addition to communication of this information, any potential licensing concerns, or opinions raised in this report represent the views of the ORs. The reporting period for this report covers November 1 through December 31, 1997.

2.0 OBJECTIVES

The function of the OR mission is to principally serve as a point of prompt informational exchange and consultation and to preliminarily identify concerns about site investigations relating to potential licensing issues. The ORs accomplish this function by communicating, consulting and identifying concerns. Communication is accomplished by exchanging information on data, plans, schedules, documents, activities and pending actions, and resolution of issues. The ORs consult with the DOE scientists, engineers, or managers with input from NRC Headquarters management on NRC policy, philosophy, and regulations. The ORs focus on such issues as quality assurance (QA), design controls, data management systems, performance assessment, and KTI resolution. A principle OR role is to identify areas in site characterization and related studies, activities, or procedures that may be of interest or concern to the NRC staff.

3.0 SUMMARY AND CONCLUSIONS

During this reporting period, the ORs continued to observe activities associated with Yucca Mountain Site Characterization, KTIs, and auditing. The ORs also attended a number of meetings and accompanied NRC staff on visits to Yucca Mountain.

4.0 QUALITY ASSURANCE, ENGINEERING, AND NRC KEY TECHNICAL ISSUES

- o The current listing and status of the NRC QA open items is provided in Enclosure 1.
- o The regularly scheduled monthly OR QA meeting between the NRC OR, NRC Headquarters QA representative, and DOE QA Management and staff was held on December 11, 1997 (see Enclosure 2 for the meeting agenda). The following subject matter was discussed:

- The possible trend or pattern in the increase of supplier deficiencies noted in the previous OR report has also been recognized by DOE and a Corrective Action Report is planned to be issued. DOE has baselined all suppliers and further intends to verify whether the nature of the individual supplier deficiencies has effected the data or the product. The OR will be following this effort and reporting on its progress in future OR Reports in order to close NRC QA open item 12.
- The subject of the next periodic NRC and DOE QA meeting was discussed and the date agreed on for this meeting is January 21, 1998. The proposed agenda for this meeting is provided in Enclosure 3.
- The ORs provided their observations from the recent Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Performance Based Audit of the Civilian Radioactive Waste Management System Management and Operating Contractor (M&O) in Las Vegas, Nevada, on November 17-21, 1997 (see Section 6.0 # 2 below for the results of the ORs observations).
- At the ORs request, DOE QA staff provided their responses to the February 1996, Recommendations of the QA Management Assessment regarding the adequacy and effectiveness of the DOE's QA program. The DOE responses to these recommendations were documented in a report from W. Barnes to D. Dreyfus dated January 10, 1997. The results and status of this assessment were presented and discussed in detail at the December 5, 1996, and May 12, 1997, NRC/DOE QA meetings. This report was also provided to the NRC HQ QA representative.
- DOE initiated an additional exercise in September 1997, to resolve NRC QA Open Item 7 on the USGS technical program effectiveness. DOE informed the ORs that this effort is nearing completion.
- On September 9, 1997, the OR and DOE management discussed an NRC request for obtaining the necessary additional information from DOE related to closing Site Characterization Plan Question 55 and Study Plan 8.3.1.5.2.2 comments. This request for the information needed for resolution to close these open items is in process.
- In June 1997, the NRC released for public comment, drafts of four regulatory guides, three Standard Review Plan sections, and a NUREG document designed to help power reactor licensees use risk information to make changes in their plant's licensing bases. Parts of this draft guidance provided methodology pertaining to use of the graded QA approach to determine the relative importance to safety of structure, systems, and components. At the time of this material being released, the OR provided this information to DOE requesting a cursory review be performed for the purpose of possible application or parts

is still in process. This draft guidance is also under review and consideration by the ASME/NQA Program Management Processes Subcommittee.

- The status of the corrective action for QA Open Item 9 resulting from the NRC's September 16-23, 1997, observation of the DOE audit of the Los Alamos National Laboratory was discussed. The NRC staff reviewed the recommended DOE corrective actions proposed or Deficiency Reports YM-96-105, 106, 107, and 108 and found it to be a reasonable approach towards resolving NRC's concerns expressed during the audit. However, NRC indicated that to fully close this item, it would need a schedule of when the reports would be available and who the evaluators would be. DOE indicated they would provide this requested information to the OR.
- Information related to a proposed forthcoming revision to the DOE QARD was discussed with the OR with respect to data qualification and the NRC letter of August 19, 1996, from J. Austin to S. Brocoum. The NRC reviewed this proposed information and finds it addresses the intent of the August 19, 1996, letter with the exception of "cited literature." It is questionable whether "cited literature" needs to be requalified or whether all that is needed is to provide the appropriate source or reference. Since this is a policy decision, it will be elevated to the NRC KTI Management Board for further direction.
- The OR was questioned whether "natural resources" as identified in Title 10 of the Code of Federal Regulations (CFR) Part 60.21 (13), is required to be on the "Q-List" and to have the total QA program applied. This was deferred to NRC Headquarters (HQ) since it involves an interpretation of the CFR. The response from NRC HQ was that based on NRC guidance, natural resources should not be on the Q-List but it should be on the quality activities list. However, based on DOE's QA program requirements for Q-List classification, it obligates DOE to Q-List natural resources.
- At the closing of this meeting, the OR indicated that in the future, he will be looking at the DOE methodology for trending in conjunction with the requirements of Criterion XVI of Appendix B of 10 CFR Part 50 and the requirements of the DOE QARD, Sections 15.0 and 16.0. Since this meeting, DOE has issued a Deficiency Report stating that the trending program is not effective or timely. The OR will follow the associated corrective action and report on it in future OR Reports.

5.0 EXPLORATORY STUDIES FACILITY AND KEY TECHNICAL ISSUES

Exploratory Studies Facility (ESF) Testing

Geologic mapping in the ESF is complete. ESF construction monitoring and testing activities continue. Investigators dry-cored 30 meter vertical boreholes at the entrance to Alcoves 6, and 7 to determine the depth that traced ESF construction water has

migrated below the invert. Preliminary results indicate that this water may have migrated from a few meters to a few tens of meters below the invert. In January 1998, a third vertical borehole will be dry-cored at approximately station 64+00 to determine the depth that ESF construction water has migrated. Six other boreholes have been drilled (horizontally and vertically) to depths ranging from 7-30 meters in Alcoves 5, 6, and 7 for tests (Goodman Jack/Hydrofrac tests) to determine rock strength for design models. Also, the first of six fracture-matrix boreholes was drilled to a depth of 6 meters in Alcove 6. Additional fracture-matrix boreholes will be drilled in Alcove 4. These boreholes will initially be used for pneumatic tracer testing to characterize the nature of fracture connectivity. Water will then be injected in these boreholes to determine the relative amount of water moving down fractures versus that portion that is imbibed into the matrix.

Enhanced Characterization of the Repository Block (ECRB):

Excavation of the ECRB or "cross-drift" began on December 8, 1997, approximately 2,000 meters from the entrance of the ESF North Portal. A starter tunnel that will be used to launch a Tunnel Boring Machine (TBM) has advanced to approximately 14 meters. In March 1998, the TBM is expected to start the excavation of a five meter diameter drift southwest across the repository block and through the Solitario Canyon fault. This cross drift will allow the collection of additional data in the potential repository block to enhance the characterization of the Yucca Mountain.

Alcove 1:

In February 1998, investigators expect to field an artificial infiltration test above Alcove 1. A drip irrigation system will be installed at the surface about 37 meters above this alcove to determine if this water can induce fracture flow in this alcove. Traced water will be applied at a constant rate (approximately 0.5 gallons per minute) over a period of a couple weeks to months. Moisture monitoring instrumentation has been installed at the surface and in this alcove. A steel bulkhead has been constructed to isolate the alcove from ESF ventilation effects.

Alcove 2:

This alcove is in the process of being converted into a display center for ESF visitors. Constructors completed pouring a concrete invert and are currently installing lighting in this alcove.

Alcoves 3 and 4:

Investigators continue to monitor an evaporation test in Alcove 3 and collect barometric pressure, temperature and relative humidity in Alcove 4. In early 1998, several boreholes are planned to be drilled in these alcoves to further characterize the hydrologic properties of the Paintbrush non-welded tuff unit.

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

In November 1997, investigators completed the collection of baseline data in advance of the start of the Heated Drift Test. DOE initiated the heating phase of this test on

December 3, 1997. The four-year heat up phase will be followed by a four-year cool down phase. Heat generated by 9 electrical floor heaters and 50 wing electrical heaters will simulate heat from emplaced waste. This test is designed to heat approximately 15,000 cubic meters of rock in the repository horizon to 100 degrees centigrade or greater to investigate coupled thermal-hydrologic-mechanical-chemical processes. These processes will be monitored by approximately 4000 sensors positioned in 147 radial boreholes around the heated drift. A data collection system records measurements from these sensors. On December 22, 1997, sensors in the heated drift recorded the following preliminary temperatures: canister temperature of 94 degrees centigrade, rock-mass temperature of 70 degrees centigrade, and air temperature of 77 degrees centigrade.

Thermomechanical Alcove:

The Single Element Heater Test started on August 26, 1996. This test is designed to heat approximately 25 cubic meters of rock to 100 degrees centigrade or greater to investigate the thermomechanical properties of rock in the potential repository horizon. The thermal objective for the heat-up phase of this test was met, and the heater was turned off on May 28, 1997, to begin the cool-down phase of this test. In late December 1997, preliminary instrumentation measurements indicated that the rock mass had cooled to near ambient temperature completing the cool-down phase of the test. In February 1998, investigators plan to overcore selected boreholes in this block of rock to analyze the thermal effects on the rock mass. A final report on the results of this test is expected in January 1999.

Alcove 6 (Northern Ghost Dance Fault Alcove):

Testing in this alcove is designed to investigate the hydrochemical and pneumatic properties of the Ghost Dance Fault. Excavation of this alcove cut the fault at station 1+52. At this location, the fault is approximately 1 meter wide with a vertical offset of 6 meters. Investigators continue to conduct air permeability testing and gas sampling across this fault via three 30 meter radial boreholes. A fourth radial borehole supporting this investigation was drilled over this reporting period.

Alcove 7 (Southern Ghost Dance Fault Alcove):

Excavation of this alcove cut the Ghost Dance Fault at station 1+67. At this location, the fault is approximately 1 meter wide with a vertical offset of approximately 25 meters. Two steel bulkheads have been constructed in this alcove to isolate and test two different zones (a non-faulted zone from 0+64 to 1+34, and a faulted zone from 1+34 to 2+00). Moisture monitoring instrumentation has been installed at the surface, above this alcove, and in the alcove. Over the next year, this instrumentation is designed to measure natural infiltration at the surface and temperature, pressure, and moisture conditions in the alcove.

Niche Studies

DOE has initiated work to reduce the uncertainty in the amount of percolation flux through the potential repository horizon at Yucca Mountain. Two niches (Niches #1 and #2) have been excavated in the ESF Main Drift. Niche #1 represents an area of

potential fast percolation flux and Niche #2 an area of slow percolation flux, based on the results of Chlorine 36 studies. Investigators hope to characterize these two locations to identify any difference in ambient conditions in fast and slow percolation flux areas. Over this reporting period, investigators selected two additional niche locations.

Niche #1 (35+66):

Investigators continued installing instruments to monitor humidity, moisture, and rewetting of niche walls. The steel bulkhead constructed at the entrance of the niche is expected to be closed in the near future, and in-situ conditions monitored over the next 6 months.

Niche #2 (36+50):

Investigators installed a system to catch dripping water from seepage tests. This test is designed to help address the extent to which a mined opening will act as a capillary barrier. In December 1997, investigators injected several aqueous dyes approximately a meter above the niche and monitored seepage into the niche. This test will be repeated by varying the type and amount of fluid injected to determine at what point seepage is no longer detected.

Niche #3 (31+07):

Seven boreholes were drilled to a depth of approximately 10 meters and packers installed for air permeability testing. Following the completion of this testing, this niche will be excavated to a depth of approximately 5 meters. This drift is located directly below the planned ECRB cross drift and will be used to monitor the effect of this construction activity.

Niche #4 (47+87):

The location of this niche was surveyed over this reporting period. A series of seven boreholes will be drilled and air permeability testing conducted prior to excavation of this niche.

Surface-Based Testing

Fran Ridge Large Block Test:

The Fran Ridge Large Block Test (LBT) started on February 28, 1997, and has continued through this reporting period. The purpose of this test is to gather data to evaluate thermal-hydrologic-mechanical-chemical processes in rock similar to the potential repository horizon. Since October 1997, investigators have continued to maintain at a steady state rock mass temperature in the block of approximately 140 degrees centigrade.

Borehole Testing:

The location of boreholes referenced in this section are provided in Enclosure 4.

C-Hole Complex:

On November 12, 1997, tracer testing the Tram/Lower Bullfrog was terminated. Since that time C#1 has monitored drawdown recovery from the Pyridone tracer testing.

Packers, sensors and tubing are being removed from C#2 and C#3. In late January 1998, investigators plan to determine the steady state pump rate in the Prow Pass Tuff unit before initiating the next series of tracer tests.

WT-24:

Following perched water testing at a depth of 1686.5 feet, coring advanced to a depth of 1747 feet. A submersible pump was installed and a series of preliminary pump tests (duration of individual test was several hours) conducted at a rate of 1-2 gallons per minute. Investigators then conducted a series of short-term tests (less than 48 hours) over the first half of December 1998 with similar results. In one such test, the water zone was pumped at a rate of 1.5 gallons per minute for 18 hours resulting in a 30 foot drawdown of the water level in the borehole. This series of pump tests was terminated on December 19, 1998, and the recovery of water level will be monitored over the next several weeks. Preliminary results indicate that this is a perched water zone. The plan is to remove the transducer from the borehole and proceed in drilling approximately to the regional ground water level.

SD-6:

Drilling initiated on November 18, 1997, to the first core point. Drillers cored the lower Tiva Canyon and Paintbrush non-welded tuff. In late December 1997, drilling proceeded to the second core point (repository horizon in Topopah Spring tuff).

WT-3 and WT-17:

The existing monitoring tubing in these boreholes was removed so to allow the installation of a submersible pump used to clean-out these boreholes. In early 1998, groundwater samples will be collected from these boreholes for measurements of EH and PH used in modeling the transport of radionuclides.

Pneumatic Testing:

Pneumatic data recording continues at boreholes UZ-4, UZ-5, UZ-7a, SD-12, NRG-7a, and SD-7. Nye County continues to record pneumatic data in NRG-4 and ONC-1.

6.0 GENERAL

1. Appendix 7 Site Interactions

- o A representative from the NRC Division of Facilities and Security staff visited the Yucca Mountain Site on December 3, 1997. This visit provided an orientation of Yucca Mountain Site activities. There were no outstanding issues raised during this visit.
- o On December 9, 1997, the newest member of the NRC Headquarters QA staff was given an orientation of the Yucca Mountain Site. There were no outstanding issues raised during this visit.

- o The ORs will accompany the NRC Chairman and the International Nuclear Regulators Association on a visit to the Yucca Mountain Site on January 12, 1998.

2. Other

- o The ORs attended the NRC/DOE November 5-6, 1997, Technical Exchange addressing Total System Performance Assessment (TSPA) videoconference meeting held between the NRC Headquarters office in Rockville, MD, and the DOE office in Las Vegas, NV. The purpose of this meeting was to reach an agreement on a path to resolution of TSPA issues from the May 1996 and July 1997, TSPA interactions. Michael Lee, the NRC headquarters project manager, will prepare a joint NRC/DOE meeting summary for this technical exchange.
- o On December 10, 1997, a member from the NRC Office of Information Resources Management provided the ORs with their annual computer security briefing.
- o The OR attended the December 15, 1997, NRC/DOE Quarterly Technical Meeting video conference held in Las Vegas, NV, and Washington D.C. Enclosure 6 provides the agenda and list of items discussed at this meeting.
- o The ORs observed (part-time) the OCRWM Quality Assurance Performance Based Audit of the M&O in Las Vegas, Nevada, on November 17-21, 1997. The KTI associated with this audit is "Repository Design and Thermal-Mechanical Effects." The purpose of this audit was to evaluate the effectiveness of selected design processes and the quality of the resultant end products listed below:
 - Repository Thermal Loading Management Analyses
 - Repository Subsurface Layout Configuration Analyses
 - Overall Development and Emplacement Ventilation Systems
 - Repository Surface Design Site Layout Analyses
 - Q-Repository Drawings associated with the above analyses
 - Drift Design Guide

The audit team consisted of an Audit Team Leader, three auditors, and a technical specialist. The two observers from the State of Nevada consisted of a QA specialist and a technical specialist. Prior to the audit, the ORs reviewed the audit teams qualifications and they were found to be acceptable in that they met the requirements of Quality Assurance Procedure (AP)18.1, "Auditor Qualification." The qualification of the technical specialist was found to be acceptable in that he met the requirements of "Internal Audit Program," Section 6.3, "Qualification of Technical Specialists."

This was the first audit of the M&O design process since July 1994. There have been surveillances in the interim however, the requirement for the audits to be conducted annually appears to have been overlooked. The NRC OR recommends that the audit schedule be more

closely monitored to assure all principal DOE participants are audited annually in accordance with the annual requirement and commitment to NRC.

The audit team identified three deficiencies; namely, one in the area of corrective action, and two in the area of computer software. The audit team determined that the M&O is satisfactorily implementing an effective QA program for the design process. As a result of this audit and prior observations, the NRC ORs agree with the audit team's finding. Furthermore, the NRC ORs have observed that the M&O design process has greatly improved as opposed to the previous process.

NRC OPEN ITEMS

N= WAITING NRC ACTION

D= WAITING DOE ACTION

	ISSUE	REFERENCE	STATUS
1	M&O DESIGN CONTROL PROGRAM	BERNERO TO DREYFUS LTR. 10/13/94	CLOSED
2	POTENTIAL OF CONSTRUCTION WORK TO IMPACT SITE CHARACTERIZATION OR THE WASTE CAPABILITY OF THE SITE	BERNERO TO DREYFUS LTR. 10/13/94	CLOSED
3	REQUEST FOR MORE DETAILS REGARDING QA CONCERNS AS WELL AS THE DESIGN OF THE ESF	BERNERO TO DREYFUS LTR. 10/13/94	CLOSED
4	LICENSE APPLICATION ANNOTATED OUTLINE (LAAO) INCOMPLETE AND EDITORIALY POOR	HOLONICH TO MILNER LTR. 8/15/95	CLOSED
5	LAAO CHAPTER 10 HEADINGS DO NOT REFLECT NRC GUIDANCE	HOLONICH TO MILNER LTR. 8/15/95	CLOSED
6	QUALITY CONTROLS APPLIED TO THE LAAO	HOLONICH TO MILNER LTR. 8/15/95	CLOSED
7	USGS TECHNICAL PROGRAM EFFECTIVENESS	HOLONICH TO MILNER LTR. 11/2/95	OPEN (D)
8	DATA QUALIFICATION	AUSTIN TO MILNER LTR. 3/18/96	OPEN (N)
9	LEVEL OF QUALITY OF WORK PRODUCTS	AUSTIN TO MILNER LTR. 10/24/96	OPEN (D)
10	EXEMPTION OS STATISTICAL ANALYSIS PROGRAMS FROM QA REQUIREMENTS	OBSERVER INQUIRY OF 11/12/96	(C) SEE #11 BELOW
11	DOE QARD SUPPLEMENT I GUIDANCE/REQUIREMENTS UNCLEAR FOR STATISTICAL ANALYSIS PROGRAM	SECTION 4.0 OF NRC ON-SITE FEB. 1997 REPORT	OPEN (D)
12	VALIDITY AND QUALIFICATION OF SUPPLIER DATA	OR SEPTEMBER/OCTOBER 1997 REPORT	OPEN (D)

ENCLOSURE 1

RESOLUTION STATUS OF THE NRC OPEN QA ISSUES

ISSUE STATUS

- 1,2,3 NRC Issue Resolution Status Report from N. Stablein to S. Brocoum closes this QA Open Item.
- 4,5,6 A letter issued by NRC on August 29, 1997, from M. Bell to S. Brocoum, closes these three QA Open Items.
- 7 DOE has initiated a comprehensive technical review of three key USGS technical documents. The results of this review indicated the review focused on policy and procedural compliance with no emphasis being placed on document technical adequacy. An additional exercise by DOE QA personnel initiated by DOE QA in September 1997, to resolve this QA Open Item is in process. Therefore, this NRC item will remain open pending further actions to verify the technical adequacy of the USGS technical reports.
- 8 In response to the NRC August 19, 1996, letter (J. Austin to S. Brocoum), DOE organized a working group for improving the requirements and process for qualification of existing data. This was tracked by the ORs and presented at the May 12, 1997, QA meeting. From the OR perspective, this revised methodology appears to be responsive to the NRC position expressed in the August 19, 1996, letter. NRC has questioned whether "cited literature" needs to be qualified or whether all that is needed is to provide the source or reference. This matter has been referred to NRC Management for a policy decision. Ultimately, this methodology will be documented in the forthcoming Revision 8 to the DOE Quality Assurance and Requirements Document (QARD). When the review of the QARD revision of this revised methodology is acceptable, this open item will be closed.
- 9 As a result of the LANL audit, DOE wrote 4 Deficiency Reports. Proposed corrective actions to resolve these Deficiency Reports was scheduled for completion in August 1997, and verification for full closeout is scheduled for late 1997. If the proposed corrective actions and satisfactory verification addresses the NRC Open Item, it will be closed.
- 10 Closed
- 11 DOE has discussed the content of a future proposed clarification to the QARD (Revision 8) for this open item with the ORs. This was also discussed at the May 12, 1997, A meeting. From the OR perspective, this proposed QARD clarification when issued, will close this open item.
- 12 As a result of the OR observation of increased deficiencies surfacing during DOE audits/surveillances of its suppliers, the OR questions whether the data/products produced by these suppliers will be acceptable and appropriately qualified for licensing.

12/11/97 QA MEETING WITH D. HORTON AND STAFF

(DOE)

- COMMENTS - RECENT QA HAPPENINGS ETC.

(BILL BELKE)

- SUPPLIER DEFICIENCIES - WHAT IS BEING DONE OTHER THAN BASELINING ALL SUPPLIERS ? WILL DATA OR PRODUCT BE RE-EVALUATED TO DETERMINE WHETHER THIS DATA IS QUALIFIED ?
- PROPOSED PERIODIC QA MEETING IN JANUARY BEING COORDINATED BY TED CARTER
- M&O DESIGN AUDIT FEEDBACK
- NATURAL RESOURCE QUESTION STILL UNDER NRC MANAGEMENT REVIEW
- STATUS OF DOE/USGS EFFORT
- STATUS OF DOE RESPONSES TO FEBRUARY 1996 QA MANAGEMENT ASSESSMENT RECOMMENDATIONS
- STATUS OF 1997 QA MANAGEMENT ASSESSMENT REPORT
- STATUS OF DOE RESPONSE TO NRC 9/9/97 REQUEST TO CLOSE SCP QUESTION 55 AND STUDY PLAN 8.3.1.5.2.2 COMMENTS
- STATUS OF DOE REVIEW OF NRCs DRAFT QA GRADED APPROACH METHODOLOGY PROVIDED TO DOE IN
- STATUS OF DOE CARs YM-96-105, 106, 107 AND 108 FOR LANL, I.E., NRC WOULD NEED SCHEDULE OF WHEN THE REPORTS WOULD BE AVAILABLE AND WHO THE RESPECTIVE EVALUATOR(S) WOULD BE
- ANY PROPOSED EFFORTS BEING CONSIDERED BY DOE TO ENHANCE THE TRENDING PROCESS

(TED CARTER)

- DATA QUALIFICATION
- PART 21 - ANY PRELIMINARY FEEDBACK FROM DOE ON PROPOSED RESPONSE TO NRC 11/28/97 LETTER ?

Enclosure 2

AGENDA
NRC/DOE QUALITY ASSURANCE MEETING

January 21, 1998

Video conference: DOE/LV, Atrium Room; NRC Headquarters

10:00 AM PST (1:00 EST)

- **OPENING REMARKS**

- **QA TOPICS**

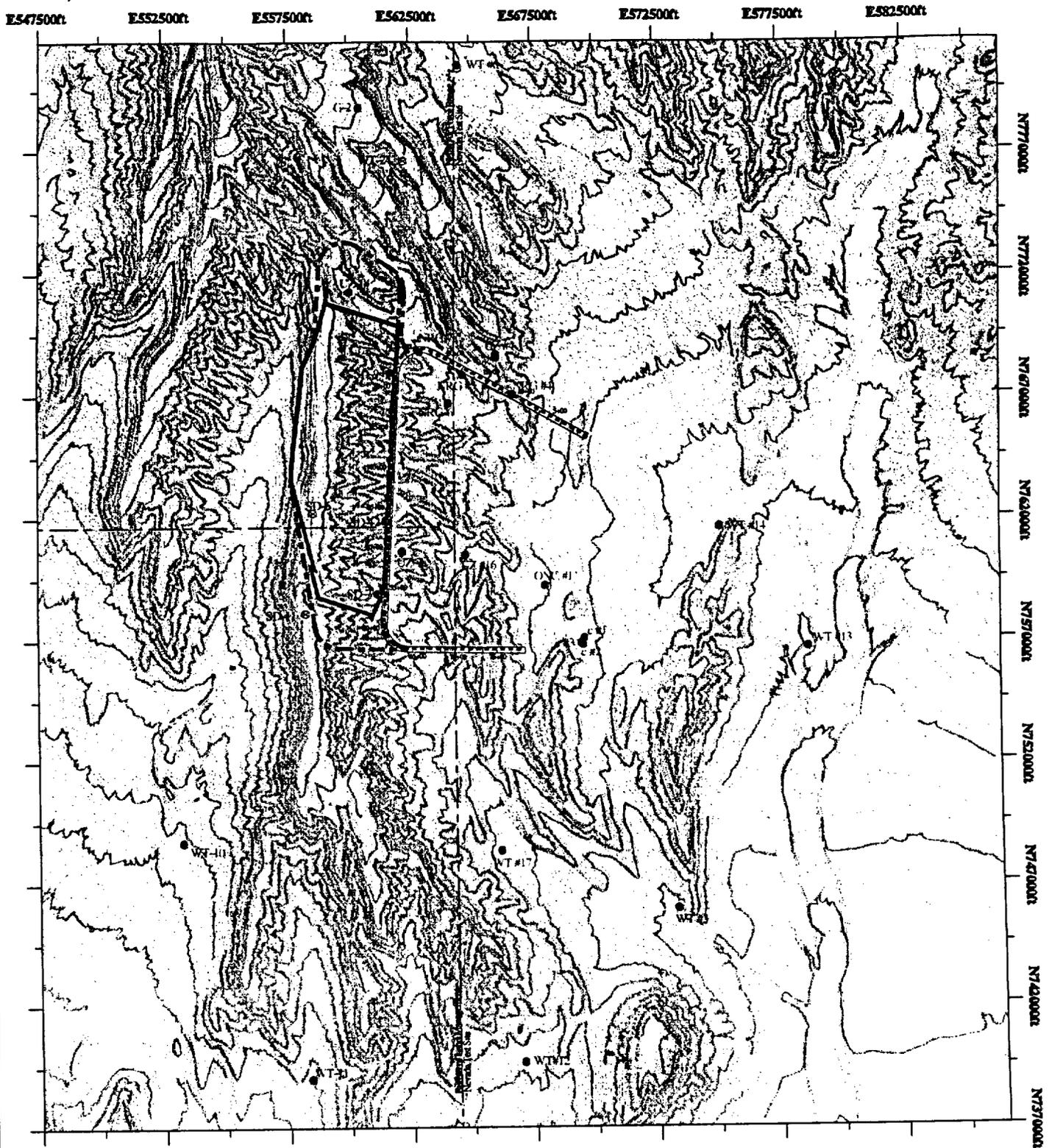
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|---|----------------|
| - Status of Open Items | NRC/DOE |
| - 10 CFR, Part 21 (DOE Response) | DOE |
| - QARD, Revision 8 Overview | DOE |
| - DOE Audit Schedule (Potential Audits Observed by NRC) | DOE |
| - Results/Report of 1997 Independent QA Management Assessment | DOE |
| - Brief Overview by DOE of the M&O Engineering Assurance Organization Responsibilities and Activities performed | DOE |
| - Discussion of Combining or Absorbing Compliance Audits with Performance Based Audits | DOE |
| - Supplier Baselineing Effort | DOE |
| - Transition of TSPA from Non-Q to Q | DOE |
| → QA Involvement in Application to Viability Assessment | DOE |

- **CLOSING REMARKS**

- **ADJOURN**

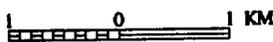
12:00 PM PST (3:00 PM EST)

Enclosure 3



Legend

- Existing Borehole
- ⊙ Planned Borehole
- Proposed Waste Emplacement Area
- - - Proposed Repository Block
- ▭ ESF Tunnel
- Reference Tic Interval 100 Meter
- Contour Index Interval 100 Feet
- Contour Interval 20 Feet



**Yucca Mountain Site
Characterization Project**

**SELECTED BOREHOLES
IN THE VICINITY OF THE
CONCEPTUAL CONTROLLED AREA**

PROPOSED AGENDA
DOE/NRC Technical Exchange on
Total System Performance Assessments (TSPA) for Yucca Mountain

November 5-6, 1997
8:30am - 5:30 pm (PST)

Locations:
DOE Summerlin I Facility, 1651 Hillshire Drive, Atrium Room
North Las Vegas, Nevada

NRC Headquarters — Two White Flint North
11555 Rockville Pike, Room T-2B5 (videoconference room)
Rockville, Maryland

Wednesday, November 5, 1997

- **Opening Remarks**
- **Saturated Zone Hydrology**
 - Results/conclusions from the DOE expert elicitation — Insights related to matrix diffusion and/or vertical mixing
 - C-Well Complex test results: Alternative interpretations and process model incorporation
 - Matrix diffusion/modeling assumptions for the TSPA-VA
 - NRC views on evidence of fracture flow at the site
- **Treatment of Disruptive Events**
 - Overview of DOE 's Features-Events-Processes approach to consequence analyses for non-mutually exclusive events
 - Updates on DOE approach to the treatment of disruptive events for the TSPA-VA, including treatment of criticality
 - NRC approach to the treatment of disruptive events in IPA Phase 3 consequence modeling: Assumptions for volcanism, faulting, and seismicity
 - NRC pre-VA views

Thursday, November 6, 1997

- **Waste Package Degradation:**
 - Results/conclusions from the DOE expert elicitation
 - DOE views on how waste is being released from the waste package canister
 - DOE approach for the TSPA-VA
 - Key assumptions and approach NRC's waste package modeling in IPA Phase 3
- **Biosphere Evaluations**
 - Results of recent DOE Biosphere Survey
 - DOE preliminary views on modeling dilution at pumping well
 - DOE approach for the TSPA-VA — Utilization of Biosphere Survey Results
 - NRC treatment of biosphere issues in IPA Phase 3
 - Dilution assumptions
 - Regional drilling practice survey, including pumping assumptions
 - Dose Conversion Factors
- **Closing Remarks**

**PROPOSED AGENDA
DOE-NRC QUARTERLY TECHNICAL MEETING
(VIDEO CONFERENCE)**

December 15, 1997

NRC @ Two White Flint North
11545 Rockville Pike, Room T2B1, Rockville, Maryland 20852

DOE @ Blue Room, Summerlin, 1551 Hillshire Drive, Las Vegas, Nevada 89134

<i>Time</i>	<i>Item</i>	<i>Lead (s)</i>
8:30 PST	Opening Remarks	All
8:45 PST	Scientific Studies Update	DOE
10:00 PST	Engineering Design Program - VA design review - Surface design - Subsurface design - Waste package design - Design products	DOE
1:00 PST	Other Topics - List of VA design supporting products	DOE
1:45 PST	Closing Remarks and Discussion	DOE, NRC, NV, AUG
2:00 PST	Adjourn	

ATTACHMENT

Enclosure 6