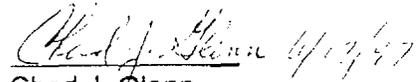


U.S. NUCLEAR REGULATORY COMMISSION  
ON-SITE LICENSING REPRESENTATIVE REPORT  
NUMBER OR-97-09

FOR THE REPORTING PERIOD OF SEPTEMBER 1 THROUGH OCTOBER 31, 1997

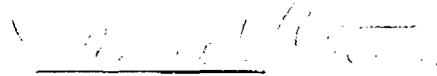


William L. Belke  
Sr. On-Site Licensing  
Representative  
Performance Assessment &  
High-Level Waste Integration  
Section  
Division of Waste Management



Chad J. Glenn  
Sr. On-Site Licensing  
Representative  
Performance Assessment &  
High-Level Waste Integration  
Section  
Division of Waste Management

Reviewed and approved by:



Sandra L. Wastler  
Acting Section Leader  
Performance Assessment &  
High-Level Waste Integration  
Section  
Division of Waste Management

9711280035 971119  
PDR WASTE  
WM-11 PDR

TABLE OF CONTENTS

U.S. NUCLEAR REGULATORY COMMISSION  
ON-SITE LICENSING REPRESENTATIVE REPORT  
NUMBER OR-97-09

	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.....	2	
5.0 EXPLORATORY STUDIES FACILITY AND KEY NRC TECHNICAL ISSUES.....	8	
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 September 1 through October 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 OR observed activities associated with the recent transition of the QA function, attended the fall Nuclear Quality Assurance meeting (NQA-1), and pursued efforts to resolve technical and open items. The OR also initiated an additional QA Open Item pertaining to the quality of data produced by the DOE suppliers.

### 4.0 QUALITY ASSURANCE, ENGINEERING, AND NRC KEY TECHNICAL ISSUES

- The current listing and status of QA open items are provided in Enclosure 1.
- In previous OR reports, the ORs have provided favorable input regarding the recent transition consolidating the QA function into a single entity in lieu of being fragmented and spread out among the various project participants. As a result of recent moves within the QA organization, the QA function is presently separated into different buildings. There has been no adverse observations from the OR due to this fragmentation however, it appears to be contrary to the original intent of the consolidation effort, i.e., QA being a single entity. Consequently, the potential lack of

daily interface and dialogue between QA disciplines and applicable personnel may, in the future, have a downward effect on the total QA effort from the OR perspective. However, the OR views the recent move of the QA Engineering Section to the location where the actual design and engineering products are being produced, as a positive aspect.

- The OR attended the fall American Society of Mechanical Engineers(ASME)/Nuclear Quality Assurance (NQA) meeting held in Reno, Nevada, October 13-15, 1997. The subject matter discussed at this meeting is provided in Enclosure 2.

At the Main Committee meeting, it was stated that the April 1998 ASME/NQA meeting would be held in Washington, D. C., in the proximity of NRC Headquarters. The reason for the Washington location is to discuss a side-by-side comparison of the latest revision to ASME/NQA-1 versus the 1983 issue of ASME/NQA-1 as endorsed by the NRC (Regulatory Guide 1.23, Revision 3, August 1985). The Main Committee and associated working groups will attempt to understand and resolve NRC negative comments on the latest revision to NQA-1. The Main Committee is also considering requesting a presentation to the NRC Commissioners on the latest revisions to the ASME/NQA-1 Standard.

- The regularly scheduled QA meeting between the OR and DOE QA Management and staff was held on October 7, 1997. The following subject matter was discussed:
  - o The OR requested the status of DOE's response to the recommendations resulting from the February 1996, QA Management Assessment conducted to determine the adequacy and effectiveness of the QA program. 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. DOE QA staff indicated that responses to the 1996 QA Management Assessment Team's recommendations and associated action plans will be provided to the OR.
  - o The evaluation and recommendations from the QA Management Assessment Team's conducted in 1997, are in process.
  - o DOE initiated an additional exercise in September 1997 to resolve NRC QA Open Item 7.
  - o On September 9, 1997, the OR and DOE QA 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 information needed for resolution to close these open items is in process.
  - o The recent OR review of supplier audit reports appears to indicate a possible trend in the increase of deficiencies found by the DOE auditors. The OR questioned whether the DOE trending program recognized this as an issue and the rationale for its occurrence. Separate meetings with the OR and DOE

representatives were scheduled to provide a description of why there appears to be an increase in supplier deficiencies and the corrective actions involved in preventing recurrence. DOE also indicated they did not believe this was a trend.

Historically, DOE took ownership of the qualified suppliers list over two years ago. At this time, DOE consolidated the list and reduced the amount to less 50 qualified suppliers. Many of these suppliers were originally under the direction of the national laboratories and USGS. From this point, DOE audits were conducted on the basis of what requirements the suppliers were committed to follow at that time. When several deficiencies surfaced from the DOE audits and surveillances, DOE recognized that there was a potential problem with the supplier's QA program implementation. DOE at present, is in the process of reviewing each supplier's QA program and baselining it to the requirements of the DOE Quality Assurance and Requirements Description (QARD).

It is the OR's understanding, that certain of the data produced by the suppliers has been determined to be indeterminate. Also, certain of the data has had to be requalified to be usable. From the OR and licensing perspective, it appears questionable, in view of the amount of supplier deficiencies that have surfaced, whether the data and products produced by the suppliers are valid or fully qualified. This issue will require further discussion and consideration. Consequently, this issue will be listed as NRC QA Open Item 12 on the NRC QA Open Items list (Enclosure 1).

- o 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 thereof, to the high-level waste program. The DOE review of this draft guidance is still in process. This draft guidance is also under review and consideration by the ASME/NQA Program Management Processes Subcommittee.
- o 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 for Corrective Action 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.

- o Resolution of the Civilian Waste System, Management and Operating Contractor (M&O) design control program (NRC QA Open Items 1, 2, & 3) concerns expressed by the NRC is currently in process by the NRC Headquarters staff technical lead. This resolution is being documented in an NRC Issue Resolution Status Report and is expected to be finalized in November 1997.
  - o The August 29, 1997, NRC letter to DOE (M. Bell to S. Brocoum) formally closes the NRC QA Open Items 4, 5, & 6 pertaining to the License Application Annotated Outline.
  - o 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.
  - o 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. The OR deferred this question to the NRC Headquarters staff for an interpretation since it involves the CFR. The NRC Headquarters staff requested a copy of the DOE Determination of Importance Evaluation (DIE) for natural resources from DOE. The OR has requested the DIE and when received, it will be forwarded to NRC Headquarters for further evaluation and interpretation.
  - o 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.
- A set of meetings was scheduled between the OR and representatives of the recently formed M&O Engineering Assurance organization (EA). The EA was effective in June 1997, as a result of the recent QA transition. EA representation is provided at the M&O offices in Las Vegas, NV, and Vienna, VA, the U.S. Geological Survey (USGS) and the national laboratories associated with the Yucca Mountain Project. All EA organizations report to the M&O EA Manager who in turn reports to the M&O General Manager with the exception of USGS. The USGS EA reports to the USGS Project Manager in Denver, CO.

The purpose of the EA is to provide QA and technical guidance to the developers of products and procedures for continuous improvement of the final product. To accomplish this, the EA participates in early product reviews and provides comments and recommendations to enhance product development. The EA is careful to avoid duplicating the DOE QA effort. For example, the OR viewed the qualified suppliers list

and noticed that any potential supplier selected for a possible review by EA, had not been audited or surveilled by DOE.

A brief review of the position descriptions (PDs) and education and experience for the EA Las Vegas, NV, office indicated a diverse background of expertise of the involved individuals. All the PDs required at least (14) years of related experience. The degrees of the EA individuals ranged from a Doctorate, Bachelor of Science, mechanical and civil engineering Computer Software with experience in the fields of QA, metallurgy, welding, and environmental.

Since the EA organization's inception in June 1997, the EA has performed over 127 assessments of the M&O products and processes. The results of each assessment are documented on a brief 2-3 page EA Report. Basically, the report, lists the scope of the assessment and any recommendations and/or deficiencies. The OR had the opportunity to review eight EA Reports and found most of the EA recommendations to be of a substantive constructive nature in contributing toward the ultimate quality of the final product. The EA manager indicated that about 90% of the EA recommendations have been accepted and incorporated into the final product. Recognizing the EA is not a "requirement" and serves to be more of a "value added" organization, there is no formal documented mechanism for closeout of the documented recommendations. The EA reviewer(s) discuss and resolve their recommendations with the responsible product individuals. Verification of the incorporated agreed to recommendations occurs when the product is completed and readied for final review.

From the OR perspective, the EA process can be a valuable contribution to the licensing process for the review of products and processes for accuracy and regulatory compliance. This is especially timely since the M&O Product Integrity Group has been depleted and its members assigned to other tasks. The OR recommends that at the next NRC/DOE QA meeting, that the EA give an overview of their functions and examples of their recommendations. The OR also recommends that the EA group periodically review the comments and resolutions, where applicable, of the final review from a "lessons learned" aspect.

Subsequent to the OR meeting with the EA, this matter was discussed with DOE QA management. DOE management indicated that the recent FY 1997 QA Management Assessment Team had proposed two preliminary recommendations whereby: (1) the EA should complement and not duplicate the DOE QA function, and (2) the EA function should be similar to the depleted Product Integrity Function. DOE QA management appeared to be uncertain on whether the EA role was fully defined and adequately staffed to be of the utmost value. DOE QA management will be monitoring the EA function to assure the EA focuses on performance similar to the Product Integrity Group. The OR has requested to be informed of the progress of this monitoring effort.

## 5.0 EXPLORATORY STUDIES FACILITY AND KEY TECHNICAL ISSUES

### Exploratory Studies Facility (ESF) Testing:

Geologic mapping in the ESF is complete with the exception of Alcove 7. Temperature, pressure, relative humidity, and air velocity measurements continue to be collected at several locations in the ESF. Investigators continue to collect barometric pressure, temperature, and relative humidity data in Alcove 4 and monitor an evaporation test outside Alcove 3. Tensiometers and heat-dissipation probes installed at several locations in the ESF continue to measure the dry-out of tunnel wall rock. Investigators completed dry coring 44 shallow boreholes in the South Ramp for moisture studies.

New studies are planned for Alcoves 1 and 7 to characterize seepage into alcoves. This activity combines an active and passive surface infiltration study with surface and underground monitoring. An active infiltration experiment will be fielded at the surface, approximately 37 meters above Alcove 1, which will apply a controlled and continuous source of water during this experiment. Natural or passive infiltration conditions will be maintained and monitored at the surface above Alcove 7. Sensors will be installed at the tuff/alluvium contact at these locations to allow continuous monitoring of the soil moisture conditions. Steel bulkheads will be constructed in Alcoves 1 and 7 to minimize ESF ventilation effects and to induce seepage into the alcoves from fracture flow. Instrumentation installed within these alcoves will monitor relative humidity and temperature of the air, moisture levels in alcove wall-rock, and drips of water from fracture, faults or rock bolts. The proposed studies are designed to identify and measure the location, timing and quantities of infiltration and deep percolation through the repository horizon.

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

The installation and hook-up of heaters and monitoring equipment for this test is nearly complete and will be followed by instrumentation checks and the gathering of baseline data. This drift scale heater test is scheduled to start on December 8, 1997. 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.

#### Alcove 5 (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 thermomechanical properties of rock in the potential repository horizon. The objectives for the heat-up phase of this test were met and the heater was turned off on May 28, 1997, to begin the six to nine month cool-down phase of this test. On October 15, 1997, preliminary instrumentation measurements in the block indicated rock mass temperatures of 34.5 and 34.8 degrees centigrade at distances of 0.33 and 1.5 meters, respectively, from the midpoint of the heater element. The collection of test data is

expected to terminate in January 1998 and a final report on the results of this test is expected to be issued in January 1999.

#### Alcove 6 (Northern Ghost Dance Fault Alcove)

Testing in Alcove 6 is designed to investigate the hydrochemical and pneumatic properties of the Ghost Dance Fault. The excavation of this alcove was completed in June 1997, and air permeability testing of this fault via two horizontal radial boreholes continued over this reporting period. A third radial borehole was also drilled through the fault over this reporting period. This alcove intersects this North trending fault at station 1+54. At this location, the fault is approximately 1 meter wide with vertical offset of approximately 6 meters.

#### Alcove 7 (Southern Ghost Dance Fault Alcove)

Constructors previously excavated this alcove to station 1+34 meters and then drilled a horizontal radial borehole from this station to locate the Ghost Dance Fault. This borehole reportedly cut two splays of the Ghost Dance Fault at depths of approximately 30 and 63 meters, respectively. Investigators completed air permeability testing and gas sampling via a radial borehole across the West splay of this fault. Alcove excavation advanced exposing the West splay of the fault at approximately station 1+67. At this location, the fault is approximately 1 meter wide with vertical offset of approximately 25 meters. This alcove was excavated to station 2+03 but an East splay of the fault was not encountered.

#### Niche Study

DOE has initiated work to reduce the uncertainty in amount of percolation flux through the potential repository horizon at Yucca Mountain. Investigators have excavated two niches in the right rib of the ESF Main Drift between Alcoves 5 and 6. Niche #1 (station 35+66) represents an area of potential fast percolation flux and Niche #2 (station 36+55) represents an area of potential 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. Niche testing activities include borehole logging, pneumatic testing, tracer injection and seepage testing. A status report on the first phase of this study was completed in September 1997.

#### Niche #1:

In June 1997, this niche was excavated approximately five meters. In July 1997, investigators constructed a steel bulkhead at the niche entrance to minimize rock dry-out and drilled six radial boreholes inside the niche. Investigators are currently conducting permeability testing in these boreholes. Tensiometers and heat-dissipation probes installed in niche wall rock continue to measure moisture levels. Instrumentation to monitor water dripping into the niche will also be installed.

#### Niche #2:

In August 1997, investigators completed air permeability and cross-hole tracer testing via seven boreholes drilled in and around the face of this niche. After this testing, the niche was excavated approximately five meters and a steel bulkhead constructed at the entrance of the niche to minimize dry-out of niche wall rock from ESF ventilation. A

seepage test will inject water traced with dye into a horizontal radial borehole above this alcove. A drip shield has been installed below the crown of this niche to detect any water dripping from fractures, faults or rock bolts.

#### Surface-Based Testing:

##### Fran Ridge Large Block Heater Test

The Fran Ridge Large Block Test (LBT) started on February 28, 1997, and continued its heat-up phase through September 1997. Rock mass temperatures are projected to reach approximately 140 degrees centigrade, near heaters, and 60 degrees centigrade at the periphery of the block. These conditions were met and the test entered a controlled power ramp down phase on October 6, 1997, with the goal of maintaining the appropriate steady-state condition. The purpose of this test is to gather data to evaluate thermal-hydrologic-mechanical-chemical processes in rock similar to potential repository horizon. This test will investigate: the development of a dry-out region around the heaters and a rewetting front after cessation of boiling; the development of heat pipes and the role of fractures in the reflux of condensed water; and the effects of changes in chemistry and mineralogy and their effect on hydrology. This test will also provide information on biological organism activity and help to discriminate among alternate conceptual models. A status report on the results of this test was submitted for DOE review in August 1997. This report was revised and is currently being finalized.

##### Borehole Testing:

The location of boreholes referenced in this section is provided in Enclosure 3.

##### C-Hole Complex

Tracer testing at the C-Hole Complex is currently being conducted in the Bullfrog-Upper Tram interval of the Crater Flat Group for the purpose of determining hydrologic properties in the saturated zone. Conservative (non-sorbing) tracer testing continues at the C-Hole Complex. On January 9, 1997, investigators injected up to 4 kilograms of the tracer Pyridone into borehole C#1 and up to 15 kilograms of the tracer 2,6 difluorobenzoic acid (DFBA) into borehole C#2. Breakthrough of DFBA occurred on January 16, 1997. Peak concentration values of DFBA were measured on January 21, 1997. In April 1997, Pyridone tracer was detected in low concentrations in water samples collected from borehole C#3. Pyridone concentration values continued to increase over this reporting period. Sampling and analyses of water pumped at C#3 are expected to continue up until November 12, 1997. Testing of the overlying Prow Pass Tuff of the Crater Flat Group is planned to begin in December 1997. A report documenting the results of hydraulic and conservative tracer tests at the C-Hole Complex was recently submitted to and accepted by DOE.

##### New Boreholes Planned

DOE is proceeding with plans to drill two new boreholes (WT-24 and SD-6) in the Yucca Mountain area this year.

#### WT-24:

In early October 1997, drilling of WT-24 advanced to a depth of 1686.3 feet when ground water was encountered. Investigators sampled this water and conducted a series of pump tests to establish if it is perched water. To date, there has been no official determination that this is a perched water body, however some preliminary results indicate that this may be the case. Preliminary results indicate a low steady-state pump rate (two gallons per minute) for this water zone, and the water level did not fully recover after this testing. Water chemistry analysis of samples are not available yet. Investigators plan to resume drilling and coring operations until the next impermeable rock unit is encountered and additional pump testing of this zone may be conducted. A packer will be installed to isolate this water zone from deeper water zones. The estimated total depth of this borehole will be approximately 2900 feet. The purpose of this borehole is to find the static water table, and to learn if the large hydraulic gradient or perched water is present in this area. An additional objective is to determine the thickness, water quality and hydraulic characteristics of the static water table and of any encountered perched water zones. Drilling Work Program (YMP/WP/97-02) and Field Work Package (FWP-SB-97-005) describe the drilling and testing activities for this borehole.

#### SD-6:

This borehole will be located on the crest of Yucca Mountain and will penetrate the potential repository block. The start of drilling of this borehole is contingent on the completion of road upgrades, the construction of a drill pad for the LM-300, and drilling operations at WT-24. The drill pad was constructed and the LM-300 set up at this location over this reporting period. Drilling Work Program (YMP/WP/97-01) and Field Work Package (FWP-SB-97-002) describe the drilling and testing activities for this borehole.

#### 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.

#### Unsaturated Zone Transport Test at Busted Butte

The Yucca Mountain Site Characterization Project plans to field a unsaturated zone transport test in zeolitized rocks similar to zeolitized rocks under the proposed repository horizon at Yucca Mountain. The purpose of this test is to reduce the uncertainty in unsaturated zone transport for TSPA-LA and to validate/calibrate these models. The test will further characterize the Calico Hills formation and evaluate the extent to which this unit serves as a barrier to radionuclide transport. Data will be collected on the physical and chemical properties of the Calico Hills along with structural and lithologic discontinuities observed in this unit. The proposed test will be located on the southeast side of Busted Butte, south of the proposed repository footprint, but within the limits of the Conceptual Control Area. A 60 meter access drift will be excavated to a planned 15 X 15 X 5 meter instrumented test block in the Calico Hills. The field test is scheduled to be conducted in FY98-99 with the possibility of extending some testing into the performance conformation period.

## 6.0 GENERAL

### 1. Appendix 7 Site Interactions

- On October 15-16, 1997, representatives from NRC and DOE staff and contractors participated in an Appendix 7 site visit on underground mapping. On the first day, DOE provided a brief overview of planned mapping activities in FY98, along with a discussion of current mapping techniques used in the ESF. This discussion was followed by a tour of the ESF to view: Alcove 5 thermal test facility, Alcoves 6 and 7 exposures of the Ghost Dance Fault, and other structural and stratigraphic features exposed at various locations in the ESF.
- The second day of informal discussions (Enclosure 4) focused on DOE plans for future mapping of subsurface facilities of the potential geologic repository. DOE outlined their preliminary mapping program and requested NRC feedback on the adequacy and sufficiency of these plans. NRC staff indicated that it was comfortable with DOE's overall mapping approach, which calls for less than 100 percent mapping of the subsurface facilities. NRC staff indicated that it would consider the information presented and provide feedback to DOE. There were no outstanding issues or concerns raised by NRC staff.

### 2. Other

- During the month of October, the OR's traveled to NRC Headquarters, Washington, D.C. The purpose of this travel was for the OR annual briefings to NRC Management.
- The ORs met with the Yucca Mountain Site Characterization Office Director of the Office of Project Control (OPC) and staff. This office defines policy, scope, organizational responsibilities and functions related to the project control process on the Yucca Mountain Project (YMP). The OPC's primary role is to coordinate and integrate project functions for the YMP. Their functions include overall planning, baselining, performance monitoring, and management control efforts for the project. This includes long term planning with additional detail applied to the current year plan. Information from this planning function is used for use controlling YMP work schedules as well as communications with the NRC, Nuclear Waste Technical Review Board, and other DOE offices.

In particular, the meeting focused around several milestone charts which portray planned schedules in a bar chart type format. These charts give the user a quick overview of the status of project milestones. Any one of these charts can be

adjusted to project the relationship to a particular NRC KTI as well as adjusted to reflect increases or decreases in budget allocations.

The ORs recommend that when time and resources allow, that a presentation by DOE be given to NRC management. An understanding of the project control process could be a valuable tool that could be applied to the allocation of NRC resources and schedules.

- The ORs attended the September 4, 1997, NRC/DOE Management Meeting video conference held in Las Vegas, NV, and Washington D.C. Enclosure 5 provides the agenda and list of items the discussed at this meeting.
- The ORs attended the September 10, 1997, NRC/DOE Quarterly Technical Meeting videoconference held in Las Vegas, NV, and Washington, D.C. Enclosure 6 provides the agenda and list of items discussed at this meeting.

N= WAITING NRC ACTION D= WAITING DOE ACTION C= CLOSED

	ISSUE	REFERENCE	STATUS
1	M&O DESIGN CONTROL PROGRAM	BERNERO TO DREYFUS LTR. 10/13/94	OPEN (N)
2	POTENTIAL OF CONSTRUCTION WORK TO IMPACT SITE CHARACTERIZATION OR THE WASTE CAPABILITY OF THE SITE	BERNERO TO DREYFUS LTR. 10/13/94	OPEN (N)
3	REQUEST FOR MORE DETAILS REGARDING QA CONCERNS AS WELL AS THE DESIGN OF THE ESF	BERNERO TO DREYFUS LTR. 10/13/94	OPEN (N)
4	LICENSE APPLICATION ANNOTATED OUTLINE (LAAO) INCOMPLETE AND EDITORIALY POOR	HOLONICH TO MILNER LTR. 8/15/95	(C)
5	LAAO CHAPTER 10 HEADINGS DO NOT REFLECT NRC GUIDANCE	HOLONICH TO MILNER LTR. 8/15/95	(C)
6	QUALITY CONTROLS APPLIED TO THE LAAO	HOLONICH TO MILNER LTR. 8/15/95	(C)
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 DOE responded to NRC in its September 25, 1996, letter (S. Brocoum to M. Bell). In general, the QA portion is considered acceptable based on: 1) the NRC November 14, 1994, verification exercise; 2) revisions improvements to the overall design process; 3) the recent DOE QA Transition Plan, NRC observations of DOE audits/surveillances of the design process and; 4) meeting and observations of the design process by the ORs. An Appendix 7 meeting was held on June 12, 1997, in order for the NRC Technical Lead to obtain additional review information to assist in the closure of the open items. As a result of this meeting, the NRC technical Lead was left with the impression that most of the open items remaining from the NRC in-field verification of April 1995, could now be closed with perhaps one or two exceptions. An Issue Resolution Status Report is being prepared by the NRC Technical Lead documenting the results of this review. (W. Belke QA Lead, M. Nataraja NRC Technical Lead). Additional confidence for improvements in the M&O design process may be acquired with the OR's observation of the forthcoming performance based audit of the M&O planned for November 17-21, 1997.
- 4,5,6 DOE responded to NRC in its March 21, 1997, letter (S. Brocoum to J. Thoma). In this letter, DOE indicates that the LAAO development will be terminated. It is also indicated that, should a repository licensing application be recommended in the future, information from the LAAO may be used in addition to other current NRC guidance. Should DOE submit such documentation in the future, the NRC comments that surfaced during its review of the DOE LAAO submittal will be considered. At the May 12, 1997, NRC/DOE QA Meeting, NRC stated it will document its rationale for closure of these items in a formal letter to DOE. This letter was issued by NRC on August 29, 1997, (M. Bell to S. Brocoum), thereby closing 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 NEW 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 5/12/97 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

## RESOLUTION STATUS OF THE NRC OPEN QA ISSUES

### ISSUE STATUS

- 1,2,3 DOE responded to NRC in its September 25, 1996, letter (S. Brocoum to M. Bell). In general, the QA portion is considered acceptable based on: 1) the NRC November 14, 1994, verification exercise; 2) revisions improvements to the overall design process; 3) the recent DOE QA Transition Plan, NRC observations of DOE audits/surveillances of the design process and; 4) meeting and observations of the design process by the ORs. An Appendix 7 meeting was held on June 12, 1997, in order for the NRC Technical Lead to obtain additional review information to assist in the closure of the open items. As a result of this meeting, the NRC technical Lead was left with the impression that most of the open items remaining from the NRC in-field verification of April 1995, could now be closed with perhaps one or two exceptions. An Issue Resolution Status Report is being prepared by the NRC Technical Lead documenting the results of this review. (W. Belke QA Lead, M. Nataraja NRC Technical Lead). Additional confidence for improvements in the M&O design process may be acquired with the OR's observation of the forthcoming performance based audit of the M&O planned for November 17-21, 1997.
- 4,5,6 DOE responded to NRC in its March 21, 1997, letter (S. Brocoum to J. Thoma). In this letter, DOE indicates that the LAAO development will be terminated. It is also indicated that, should a repository licensing application be recommended in the future, information from the LAAO may be used in addition to other current NRC guidance. Should DOE submit such documentation in the future, the NRC comments that surfaced during its review of the DOE LAAO submittal will be considered. At the May 12, 1997, NRC/DOE QA Meeting, NRC stated it will document its rationale for closure of these items in a formal letter to DOE. This letter was issued by NRC on August 29, 1997, (M. Bell to S. Brocoum), thereby closing 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 NEW 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 5/12/97 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

# COMMITTEE CORRESPONDENCE

committee: ASME/NQA-1 Committee  
Program Management Processes SC

address writer  
care of: Dan Jennings  
DE&S  
P.O. Box 1004  
400 South Tryon St.  
Charlotte, NC 28202

subject SC MEETING  
OCTOBER 13-14, 1997  
RENO, NV

date: September 12, 1997

copy to: Chris Sanna

to: SC Members

The Fall, 1997 meeting of the ASME NQA-1 Committee, Program Management Processes Subcommittee will take place on Monday and Tuesday, October 13 & 14, 1997 at The Sands Regency, Reno NV.

## AGENDA

- |  |                              |
|--|------------------------------|
| 1. Call to Order   | Dan Jennings                 |
| • Roll call and determination of quorum  | Dan Jennings                 |
| • Introductions  | Dan Jennings                 |
| 2. SC Secretary Position   | Dan Jennings                 |
| 3. Review/Finalize Agenda  | Dan Jennings                 |
| 4. Approval of Past Minutes  | Dan Jennings                 |
| 5. Announcements   | Dan Jennings                 |
| 6. Membership Actions  | Dan Jennings                 |
| 7. Reports   |                              |
| • NRC - Update on General NRC Activities   | Bill Belke                   |
| • NRC - Update on NRC High-Level Waste Activities  | Bill Belke                   |
| • DOE  | TBD                          |
| • NIRMA  | TBD                          |
| 8. Inquiries   | Dan Jennings                 |
| 9. Status of A-94-35 - TPN Draft - Graded Approach for systems, structures, and components important to safety and safety-related. | Bill Belke                   |
| 10. NRC/DOE Review of Graded Approach  | Bill Belke                   |
| 11. Draft Reg Guides, Standard Review Plans, NUREG   | Bill Belke                   |
| 12. SPIN 2 22.1 Data vs. Records (Electronic Records/Data White Paper)   | Harley Kirschenman/Ed Neuzel |



The American Society of  
Mechanical Engineers

345 East 47th Street  
New York, NY 10017

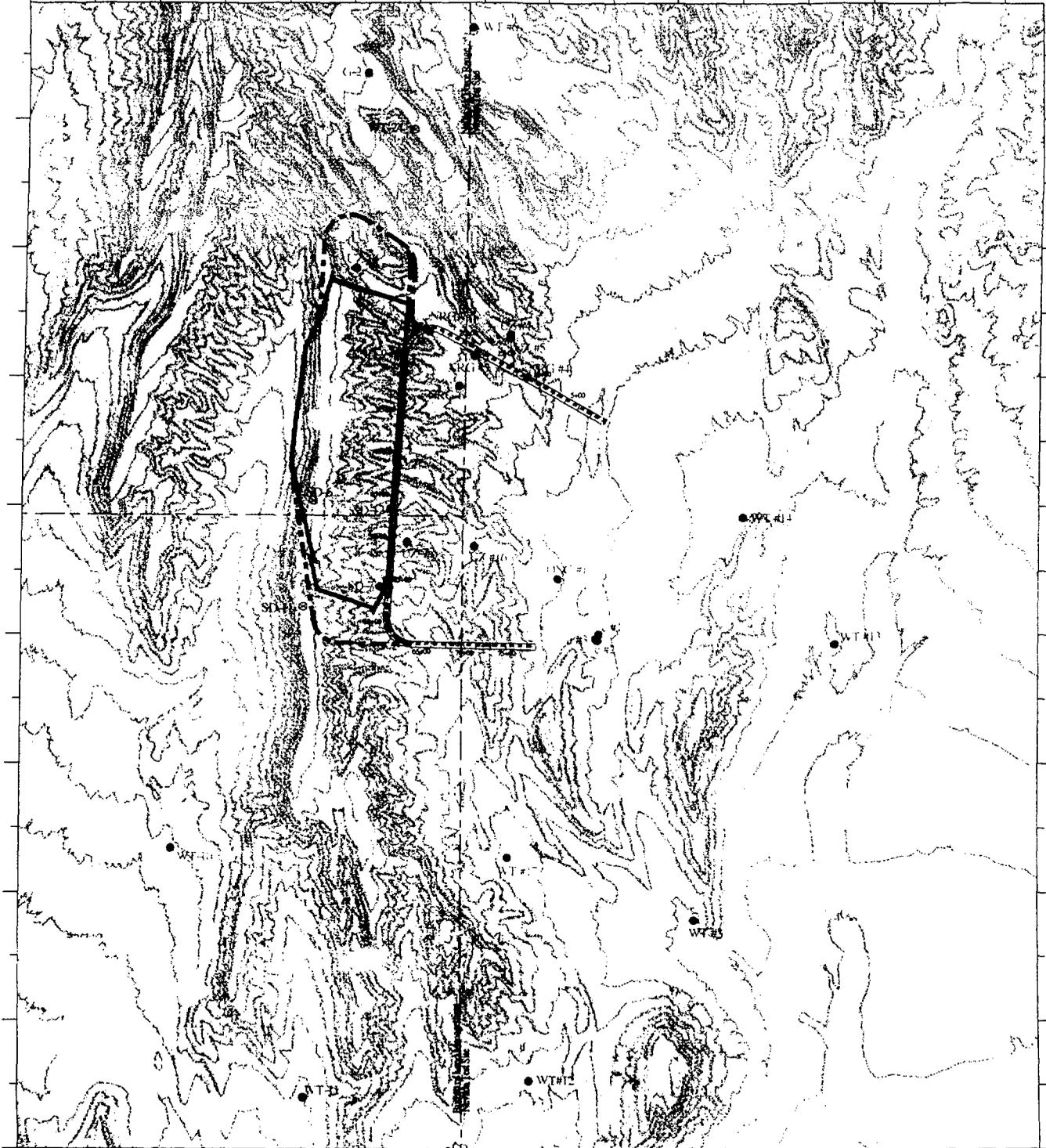
Keep ASME Codes and Standards Department Informed

Enclosure 2

- |   |                         |
|---|-------------------------|
| 13. Draft TPN for training quality personnel beyond QA inspection personnel | Doug Reinhart/Ed Netzel |
| 14. Status of Side-by-Side Comparison of Revised NQA-1 to old Std.          | Margie Shepberd         |
| 15. Matrices  | Doug Reinhart/John Day  |
| 16. Old Business  | All                     |
| 17. New Business  | All                     |
| 18. Review of Action Items  | Dan Jennings            |
| 19. Future Meeting  | Dan Jennings            |
| 20. Adjournment   |                         |

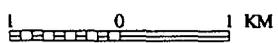
E547500ft E552500ft E557500ft E562500ft E567500ft E572500ft E577500ft E582500ft

N77000ft  
N772000ft  
N767000ft  
N762000ft  
N757000ft  
N752000ft  
N747000ft  
N742000ft  
N737000ft



**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**

**DOE / NRC APPENDIX 7 MEETING**  
**Plans for Geologic Mapping of Subsurface Facilities**  
**DOE Hillshire Office, 2<sup>nd</sup> Floor Atrium Conference Room**  
**October 16, 1997**

**Agenda**

<b>8:00 – 8:20</b>	<b>INTRODUCTION – Brent Thomson</b>
<b>8:20 – 8:30</b>	<b>KEY TECHNICAL ISSUES – Mark Tynan</b>
<b>8:30 – 8:50</b>	<b>PREVIOUS MAPPING EFFORTS – Steve Beason</b>
<b>8:50 – 9:10</b>	<b>AVAILABLE REPOSITORY VOLUME – Bob Elayer</b>
<b>9:10 – 9:30</b>	<b>CURRENT PROPOSED SUBSURFACE FACILITY – Dan McKenzie</b>
<b>9:30 – 10:00</b>	<b>Break</b>
<b>10:00 – 10:05</b>	<b>MAPPING REQUIREMENTS – Brent Thomson</b>
<b>10:05 – 10:20</b>	<b>TECHNICAL DATA NEEDS – Brent Thomson</b>
<b>10:20 – 10:30</b>	<b>CONFIDENCE IN MODELING AND PREDICTIONS – Brent Thomson</b>
<b>10:30 – 10:50</b>	<b>RATIONALE FOR MAPPING FREQUENCY – Steve Beason</b>
<b>10:50 – 11:05</b>	<b>STRATEGY FOR MAPPING – Steve Beason</b>
<b>11:05 – 11:35</b>	<b>Open Discussion, Questions and Answers</b>
<b>11:35 – 1:00</b>	<b>Lunch</b>
<b>1:00 – 1:15</b>	<b>FRACTURE DATA USED DIRECTLY AND INDIRECTLY IN TSPA: informal discussion – Bob Andrews</b>
<b>1:15 – 2:00</b>	<b>USES OF FRACTURE DATA IN ESF AND REPOSITORY DESIGN – John Pye, Gerald Nieder-Westermann, Dwayne Kicker</b>
<b>2:00 – 5:00</b>	<b>OPEN DISCUSSION</b>

**FINAL AGENDA  
NRC/DOE MANAGEMENT MEETING  
Video Conference  
September 4, 1997**

**Hillshire Blue Room; NRC Headquarters; DOE Headquarters**

**10:00 AM PST (1:00 EST)**

● **OPENING REMARKS**

**ALL**

● **PROGRAM STATUS**

Nevada Nuclear Waste Task Force proposal for public meetings

**NNWTF/NV**

NRC Status of IRSR's/DOE Comments on Annual Report

**DOE/NRC**

Availability of Project Documents (YMP 30.12 Reviews)

**DOE/NRC**

WICS Status

**DOE**

Status of DOE's decision documentation Initiative

**DOE**

DOE's plans to streamline and enhance the utility of the progress reports

**DOE**

Procedural Agreement Status

**DOE/NRC**

NRC/DOE's Interactions in VA  
(mutual expectations for VA and DOE's expectations for sufficiency review for SR)

**DOE/NRC**

● **CLOSING REMARKS**

**ALL**

● **ADJOURN**

**2:00 PM PST (5:00 PM EST)**

**PROPOSED AGENDA  
DOE-NRC QUARTERLY TECHNICAL MEETING  
VIDEOCONFERENCE  
SEPTEMBER 10, 1997  
ROCKVILLE MARYLAND**

<b>9:00 am PST</b>	<b>Opening Remarks</b>	<b>DOE, NRC State, AGU</b>
<b>9:10</b>	<b>Scientific Studies Update</b> <ul style="list-style-type: none"><li>- Thermal Testing Update</li><li>- Program Enhancement Update (including Surface-Based Drilling)</li><li>- Additional work in ESF</li><li>- Status of Alcove Construction</li><li>- East-West Drift</li></ul>	<b>DOE</b>
<b>9:50</b>	<b>Engineering Design Program</b> <ul style="list-style-type: none"><li>- Level of Design Detail</li><li>- Engineering Compliance Program Description</li><li>- Design Binning Update</li><li>- Use of Concrete Ground Support</li></ul>	<b>DOE</b>
<b>12:45</b>	<b>Closing Remarks and Additional Discussion</b>	<b>DOE, NRC, State, AGU</b>
<b>1:00</b>	<b>Adjourn</b>	