

# Memorandum

QA: QA

DATE: JUL 03 2002

REPLY TO

ATTN OF: RW-3 (James Blaylock/4-1420)

SUBJECT: U.S. DEPARTMENT OF ENERGY (DOE) OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT (OCRWM) OFFICE OF QUALITY ASSURANCE (OQA) SUPPLIER AUDITS OQA-SA-02-21 AND OQA-SA-02-22

TO: YMSCO/OPE (C. E. Hampton)

The enclosed report represents the results of the combined supplier audits, that were conducted by auditors representing OCRWM OQA, of the University and Community College System of Nevada (UCCSN) at the University of Nevada, Las Vegas (UNLV) on May 20-24, 2002, and University of Nevada, Reno (UNR) on May 13-17, 2002.

The audits were performed to evaluate compliance with UCCSN Quality Assurance (QA) Program Procedures and UCCSN's Cooperative Agreement, DE-FC09-98NV12081, with the DOE Yucca Mountain Site Characterization Office, entitled "Scientific and Engineering Studies of the Potential Yucca Mountain Repository." The UCCSN's QA Program is governed by DOE/RW-0333P, Revision 10, *Quality Assurance Requirements and Description* document.


Along with UNLV and UNR, Desert Research Institute (DRI) Reno and DRI Las Vegas were audited for compliance with UCCSN's QA Program Procedures. See the enclosed report, Section 1.0, for the identified tasks that were reviewed during the audits.

The audit team identified one condition adverse to quality that resulted in a Quality Observation, YMSCO(V)-02-O-038, related to Section 7.0, "Control of Purchased Items and Services," identifying a lack of QA review on an isolated purchase order.

The audit team determined that UCCSN is in compliance and recommends UCCSN remain on the OCRWM Qualified Suppliers List and be maintained on an annual audit schedule.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or Lester W. Wagner at (702) 794-1304.

OQA:JB-1410

  
Ram B. Murthy Acting Director  
Office of Quality Assurance

Enclosure:

Supplier Audit OQA-SA-02-21 and 22

NMSS07  
WM-11

## cc w/encl:

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QA: QA

**U.S. DEPARTMENT OF ENERGY  
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT  
OFFICE OF QUALITY ASSURANCE**

**SUPPLIER AUDIT REPORT**

**OF THE**

**UNIVERSITY AND COMMUNITY COLLEGE SYSTEM OF NEVADA**

**UNIVERSITY OF NEVADA, LAS VEGAS  
AUDIT OQA-SA-02-21**

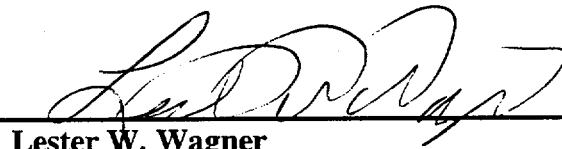
**AT  
LAS VEGAS, NEVADA, MAY 22-30, 2002**

**AND**

**UNIVERSITY OF NEVADA, RENO  
AUDIT OQA-SA-02-22**

**AT  
RENO, NEVADA, MAY 13-16, 2002**

Prepared by: \_\_\_\_\_

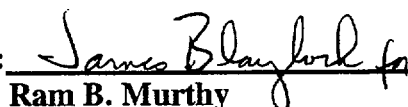


Lester W. Wagner  
Audit Team Leader  
Navarro Quality Services

Date: \_\_\_\_\_

6/27/02

Approved by: \_\_\_\_\_



Ram B. Murthy  
Acting Director  
Office of Quality Assurance

Date: \_\_\_\_\_

7/2/02

ENCLOSURE

## 1.0 EXECUTIVE SUMMARY

The University and Community College System of Nevada (UCCSN) has a Cooperative Agreement (DE-FC08-98NV12081) with the U.S. Department of Energy (DOE), Yucca Mountain Site Characterization Office, entitled "Scientific and Engineering Studies of the Potential Yucca Mountain Repository." The governing document for the UCCSN Quality Assurance (QA) Program is the DOE/RW-0333P, Revision 10, *Quality Assurance Requirements and Description* (QARD) from which the UCCSN QA Program procedures were developed. Although this activity started as two separate audits they have been combined into this one audit report for convenience, since one QA program, maintained by the UCCSN QA Manager, is implemented throughout all task and locations.

The University of Nevada, Las Vegas (UNLV), University of Nevada, Reno (UNR), Desert Research Institute (DRI), Reno, and DRI Las Vegas were audited for compliance to the UCCSN Quality Assurance Procedures (QAP) and appropriate implementing procedures for the quality-affecting tasks identified in Section 5.0 of this report. The identified tasks were reviewed at different levels of detail, based on the complexity and percent completion of the activity:

The audit team determined that UCCSN compliance to the UCCSN QAPs at the four facilities were satisfactory overall. In addition, it was noted that several of QAPs have yet to be implemented, because either the tasks are in the planning (scoping) phase or have yet to reach that point in the process.

The audit team identified one condition adverse to quality during the audit, resulting in Quality Observation, YMSCO(V)-02-O-038, which identified that there was no objective evidence of the required QA review on a procurement document (refer to Section 6.0 of this report for details).

## 2.0 SCOPE

The supplier audits of UCCSN were conducted at the following sites to evaluate the implementation and effectiveness of the QAPs:

- UNR by the Seismology Laboratory, Department of Mining Engineering, and the Metallurgical and Material Science Engineering Department;
- UNLV by the Harry Reid Center (HRC), Biological Sciences Department, Mechanical Engineering Department, and the Civil and Environmental Engineering Department;
- DRI, Reno by the Earth and Ecosystem Sciences Group; and
- DRI, Las Vegas by the Water Resources Center.

The evaluation was accomplished by using checklists developed from the QAPs, conducting interviews with the staff, and reviewing the objective evidence contained in the generated documentation. The QARD Program Sections determined to be applicable are:

1.0	Organization
2.0	Quality Assurance Program
3.0	Design Control
4.0	Procurement Document Control
5.0	Implementing Documents
6.0	Document Control
7.0	Control of Purchased Items and Services
8.0	Identification and Control of Items
12.0	Control of Measuring and Test Equipment
16.0	Corrective Action
17.0	Quality Assurance Records,
18.0	18.0 Audits
Supplement I	Software
Supplement II	Sample Control
Supplement III	Scientific Investigation
Supplement V	Control of the Electronic Management of Data

### **3.0 AUDIT TEAM**

Lester Wagner, Navarro Quality Services (NQS)/Audit Team Leader, Las Vegas, NV  
Sam Archuleta, NQS/Audit Team Member, Las Vegas, NV  
James Blaylock, Audit Team Member, DOE/OQA. Las Vegas, NV

### **4.0 PERSONNEL CONTACTED DURING FACILITY AUDIT**

Roald Akerov	UNLV, Mechanical Engineer
Penny Amy	UNLV, Principal Investigator
Rasool Annoshehpour	UNR, Co-Principal Investigator
Heidi Aquino	UNLV, Mechanical Engineer
Pat Auer	NQS, QA Specialist
Davood Bahrami	UNR, Mining, Investigator
Glenn Biasi	UNR, Seismic Lab Investigator
Richard Blitz	UNR, Technician
Amanda (Barck) Brandt	UNLV, Principal Investigator
James Brune	UNR, Principal Investigator
Yitung Chen	UNLV, Principal Investigator
James Cizdziel	UNLV, Co-Principal Investigator
Jaak Daemen	UNR, Principal Investigator
George Danko	UNR, Principal Investigator
Irene Farnham	UNLV, Principal Investigator

Robert Fulwider	UCCSN, QA Specialist
Caixia Guo	UNLV, Research Chemist
Vernon Hodge	UNLV, Principal Investigator
Mel Holzgrafe	UNR, Program Assistance
Sean Hsieh	UNLV, Research Assistant Professor
Bill Hu	DRI, Principal Investigator, Las Vegas
Nick Hudyma	UNLV, Investigator
Dennis Jones	UNR, Principal Investigator
Moses Karakouzian	UNLV, Professor
Marilyn Kavchak	NQS, QA Specialist
Raymond Keeler	UCCSN, QA/Technical & Data Specialist
Lumin Ma	UNR, Mining Engineer
Glen McMillian	UNR, Investigator
Terry Mueller	UCCSN, QA Specialist
Chuck Neuinghoner	UNLV, Technician
Scott Page	UNLV, Principal Investigator
Curtis Pantle	UNLV, Biological Science
Subhas Pothana	UNLV, Mechanical Engineer
Barbara Roosa	UCCSN, QA/Document Control & Training Coordinator
Morrie Roosa	UCCSN, QA Specialist
Ajit Roy	UNLV, Associate Professor
Saxon Sharpe	DRI, Principal Investigator, Reno
Craig Shirley	DRI, Staff Hydro-geologist, Las Vegas
Amy Smiecinski	UCCSN, QA Manager
Ken Smith	UNR, Investigator
Mohamed Trabia	UNLV, Professor
David von Seggren	UNR, Seismic Network Manager
Ingrid Wengatz	UNLV, Chemist
Constantin Zabolkin	UNLV, Mechanical Engineer, Research Associate
Koveh Zarrabi	UNLV, Principal Investigator

**5.0 SUMMARY OF AUDIT RESULTS**

The audit evaluated the quality-affecting tasks for compliance to the QAPs as specified in the Cooperative Agreement DE-FC08-98NV12081, and Scientific Investigation Plans (SIP). The tasks and related SIPs evaluated are as follows:

<b><u>Task #</u></b>	<b><u>Scientific Investigation Plan Number and Title</u></b>
8	SIP-UNLV-001, Revision 2, Dated 11/19/01, <i>Analytical Support for the NCEWDP</i> SIP-UNLV-005, Revision 1, Dated 12/12/01, <i>Tracer Testing and Analysis (Alluvial Testing Complex)</i>

<b><u>Task #</u></b>	<b><u>Scientific Investigation Plan Number and Title</u></b>
9	SIP-UNLV-008, Revision 1, Dated 8/21/01, <i>Analysis of Chemical Tracers in Conjunction with the Vadose Zone Infiltration and Seepage Studies</i>
12	SIP-UNR-004, Revision 1, Dated 8/16/01, <i>Southern Great Basin Seismic Network Operations</i>
13	SIP-UNR-002, Revision 0, Dated 7/24/00, <i>Drift Scale Test: Analyze and Report</i>
17	SIP-UNR-014, Revision 0, Dated 1/24/01, <i>Stress Corrosion Cracking Studies</i>
18	SIP-UNR-017, Revision 0, Dated 4/24/01, <i>Rock Mechanics and Long Term Drift Stability</i>
	SIP-UNR-018, Revision 0, Dated 7/27/01, <i>Corrosion Research On Steel Sets and Rock Bolts</i>
19	SIP-UNLV-015, Revision 0, Dated 11/16/00, <i>Thermal Transport Evaluations related to Waste Package Design - Phase I: Model Evaluations</i>
	SIP-UNR-019, Revision 0, Dated 6/5/01, <i>A Long Baseline Laser Strainmeter for the Exploratory Studies Facility at Yucca Mountain</i>
22	SIP-UNLV-012, Revision 0, Dated 12/12/00, <i>Determining the Presence of Thermophilic and Calcium Precipitating Bacteria in Yucca Mountain and the Surrounding Area</i>
24	SIP-UNLV-010, Revision 1, Dated 12/13/01, <i>Identification of the Dynamic Properties of Materials for the Nuclear Waste Container</i>
25	SIP-DRI-016, Revision 0, Dated 1/24/01, <i>Semi-analytical Stochastic Study of Radionuclide Transport in the Saturated Zone Below Yucca Mountain</i>
27	SIP-UNLV-013, Revision 1, Dated 12/14/01, <i>The Influence of Lithophysal Porosity on the In-Situ Stress-Strain Properties of Topopah Spring Tuff</i>
28	SIP-UNLV-023, Revision 0, Dated 8/23/01, <i>Ground Water Level Measurements in Selected Boreholes Near the Site of the Proposed Repository</i>
30	SIP-UNLV-021, Revision 0, Dated 6/6/01, <i>Precipitation Gauge Monitoring Network</i>
32	SIP-UNLV-032, Revision 0, Dated 9/19/01, <i>Delayed Hydride Cracking of Spent Fuel Cladding under Repository Conditions</i>
33	SIP-UNLV-024, Revision 0, Dated 10/8/01, <i>Redox Scale for Assigning an Oxidizing/Reducing Potential to Groundwater</i>
34	SIP-UNLV-022, Revision 0, Dated 10/31/01, <i>Corrosion and Transport Processes in Miniature Waste Packages</i>

The audit mainly consisted of review of 18 SIPs with approximately 20 supporting scientific notebooks and interviews with the Principal Investigators and their support staff.

Two particular positive notes worthy of mention were the much-improved condition of the UCCSN scientific notebooks and the excellent system in use for the control of measuring and test equipment.

In addition, this was the first audit to review implementation UCCSN's internal audit program, which was determined to be effective. Once a history of satisfactory implementation is established, a recommendation will be made to decrease our audit frequency of UCCSN.

Overall, the performance of UCCSN in meeting the quality requirements for the Cooperative Agreement Tasks was satisfactory for the areas reviewed, except for one condition adverse to quality, which resulted in a Quality Observation (QO). Details of the QO are provided in Section 6.0 of this report.

Detailed audit activities are documented on the audit checklists, which are maintained OQA files.

## **6.0 DEFICIENCY REPORTS/RECOMMENDATIONS**

### **Quality Observations**

YMSCO(V) 02-O-038 - UCCSN procurement document to Bechtel-Nevada # UCCSN/BN-005 for Task 32, did not show evidence of the QA Manager approval of the document, which is indicated by signing on the final procurement document, in accordance with QAP-7.0, Section 4.1.1 c) Rev. 5-9/4/02. The procurement document (UCCSN/BN 02-005) to Bechtel-Nevada was corrected and transmitted to the RPC by UCCSN Records Coordinator on 5/30/02.

### **Recommendations**

None.