W/LTR dated 3-17-94

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

AUDIT REPORT

OF

RAYTHEON SERVICES NEVADA
LAS VEGAS, NEVADA

AUDIT YMP-94-03
JANUARY 24 THROUGH 28, 1994

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1.0 EXECUTIVE SUMMARY

As a result of Quality Assurance (QA) Audit YMP-94-03, the audit team determined that Raytheon Services Nevada (RSN) is satisfactorily implementing an effective QA program in accordance with the United States Department of Energy (DOE) Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements and Description (QARD), DOE/RW-0333P, Revision 0, for the Civilian Radioactive Waste Management Program and RSN implementing procedures for QA Program Elements 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 10.0, 11.0, 12.0, 14.0, 15.0, 16.0, 17.0, 18.0, and Supplements I, II, and IV.

The audit team identified two deficiencies during the audit that resulted in the issuance of two Corrective Action Requests (CAR). CAR YM-94-016 identifies that the job descriptions of matrixed RSN personnel were not sent to the training coordinator; hence, these job descriptions are not maintained in the training files or submitted to the records facility as required. CAR YM-94-017 identifies that the description of existing conditions at the drillsite was not included in the Underground Storage Waste (USW) North Ramp Geologic (NRG)-7 and USW Systematic Drilling (SD)-12 work programs; lifetime QA records were not addressed in USW NRG-7 work program; and the covering of unattended holes from spudding to rigdown is not addressed in the work program.

There were 11 deficient conditions identified and subsequently corrected during the audit. These conditions are described in Section 5.5.2 of this report. Additionally, there were two recommendations resulting from the audit which are detailed in Section 6.0 of this report.

2.0 SCOPE

The audit was conducted to evaluate the compliance to, and effectiveness of, the RSN QA Program as described in the QARD and RSN implementing quality procedures.

Follow-up on previously issued CARs relating to the QA program elements audited was performed. Results of this follow-up are described in Section 5.5.3 of this report.

The QA program elements/requirements evaluated during the audit in accordance with the published audit plan, are as follows:

QA PROGRAM ELEMENTS

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
10.0 Inspection
11.0 Test Control
12.0 Control of Measuring and Test Equipment
14.0 Inspection, Test and Operating Status
15.0 Nonconformances
16.0 Corrective Action
17.0 Quality Assurance Records
18.0 Audits

Supplement I, Software
Supplement II, Sample Control
Supplement IV, Field Surveying

The following QA program elements/requirements were not reviewed during the audit because RSN has no activity for which these elements apply.

8.0 Identification and Control of Items
9.0 Control of Special Processes
13.0 Handling, Storage, and Shipping

Supplement III, Scientific Investigation

TECHNICAL AREAS

The scope of this audit did not include any technical areas.

3.0 AUDIT TEAM AND OBSERVERS

The following is a list of audit team members, their assigned areas of responsibility, and observers:

Name/Title	QA Program Elements/Requirements
Amelia I. Arceo, Audit Team Leader (ATL), Yucca Mountain Quality Assurance Division (YMQAD)	
Sandra D. Bates, Auditor, YMQAD	2.0, 15.0, 16.0
Raul A. Hinojosa, Auditor, YMQAD	10.0, 14.0
John R. Matras, Auditor, YMQAD	17.0, Supplements I, IV
Kenneth T. McFall, Auditor, YMQAD	1.0, 3.0, 18.0
Thomas E. Rodgers, Auditor, YMQAD	4.0, 5.0, 6.0, 7.0
Rick L. Weeks, Auditor, YMQAD	11.0, 12.0 Supplements II, IV
Pauline P. Brooks, Observer, U.S. Nuclear Regulatory Commission (NRC)	
Robert D. Brient, Observer, NRC/Center for Nuclear Waste Laboratory Analysis (CNWLA)	
Susan W. Zimmerman, Observer, State of Nevada	

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

The preaudit meeting was held at the RSN office in the Bank of America Center in Las Vegas, Nevada on January 24, 1994. A daily debriefing and coordination meeting was held with RSN management and staff, and daily audit team meetings were held to discuss issues and potential deficiencies. The audit was concluded with a postaudit meeting held at the RSN office in the Bank of America Center in Las Vegas, Nevada on January 28, 1994. Personnel contacted during the audit are listed in Attachment 1. The list includes an indication of those who attended the preaudit and postaudit meetings.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Effectiveness

The audit team concluded that, in general, the RSN QA Program is adequate and is being satisfactorily implemented for the scope of this audit. Individually, QA Program Elements 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 10.0, 11.0, 12.0, 14.0, 15.0, 16.0, 17.0, 18.0, and Supplements I, II, and IV are satisfactorily implemented.

5.2 Stop Work or Immediate Corrective Actions or Additional Actions

There were no Stop Work Orders, immediate corrective actions or related additional items resulting from this audit.

5.3 QA Program Audit Activities

Details of the QA program audit activities are provided in Attachment 2. A list of objective evidence reviewed during the audit is provided in Attachment 3.

5.4 Technical Activities

No technical activities were included in the scope of this audit.

5.5 Summary of Deficiencies

The audit team identified two deficiencies during the audit for which two CARs have been issued. Eleven additional deficiencies were corrected prior to the postaudit meeting.

Synopses of the deficiencies documented as CARs and those corrected during the audit are detailed below. Information copies of the CARs are included in Attachment 4.

5.5.1 Corrective Action Requests

As a result of the audit, the following CARs were issued:

CAR YM-94-016

Contrary to the QARD DOE/RW-0333P, Revision 1, Section 2.0 and RSN Project Procedure (PP)-02-01, Revision 3, Section 6.0, the latest version of Job Descriptions for matrixed RSN personnel located at the Yucca Mountain Site Offices were not forwarded to the Training Coordinator; hence, these job descriptions are not maintained in the training files or submitted to the records facility as required.

CAR YM-94-017

Contrary to the requirements of RSN PP-03-20, Revision 1, Paragraphs 6.2.1.m, 6.2.1.o, and 6.2.3.g.2, the following conditions related to work programs were identified: 1) statements describing existing conditions at

the drillsite are not included in the USW NRG-7 and USW SD-12 work programs, 2) lifetime QA records are not addressed in the USW-NRG-7 work program, and 3) the covering of unattended holes from spudding to rigdown is not addressed in the work program.

5.5.2 Deficiencies Corrected During the Audit

Deficiencies which are considered isolated in nature and only require remedial action, can be corrected during the audit. The following 11 deficient conditions were identified and corrected during the audit:

1. RSN PP-02-01, Revision 3, Section 6.0, requires that prior to performing quality-affecting activities, RSN employees are indoctrinated/trained to the QARD. Contrary to the requirement, two RSN employee training files did not contain documentation for QARD training. Further investigation revealed that one employee file contained verification of 100 percent accuracy on the QARD examination and the other employee was on disability leave during the QARD training. The employee certified that he had done no quality-affecting work since his return. Training files were updated for both employees during the audit.

2. Quality Assurance Procedure (QAP)-2.3(Y), Revision 1, Paragraph 6.1.2 requires that the QA Manager shall have a Position Description and verification of education and experience; however, the QA Manager's Position Description was incorrect and the verification of education and experience was not signed by his supervisor. The required documentation and authorized signatures were supplied during the audit.

3. PP-03-23, Revision 1, Paragraph 6.3 requires the use of the Field Change Request (FCR) Log; however, the FCR Log maintained by RSN at Area 25 contained the wrong revision of the log form, which did not include all the information of the revised form. The correct form was substituted and updated with all the pertinent information.

4 QARD DOE/RW-0333P, Revision 0, Paragraph 3.2.4.A requires that design verification shall be performed using one or a combination of the following methods: 1) Design Review, 2) Alternate calculations, and 3) Qualification Testing. RSN PP-03-04 was found to allow peer reviews to be substituted for the above

approved methods in the verification of the adequacy of design. This provision was removed from the procedure during the course of the audit.

5. PP-04-01, Revision 1, Procedure Interim Change (PIC) 3, Paragraph 6.6, requires that upon completion of an evaluation by procurement personnel, the proposal package received from the prospective Subcontractor will be forwarded to the responsible technical department and to QA for their evaluation and concurrence. Objective evidence could not be provided to demonstrate that these reviews had been performed and that technical and QA concurrence was provided prior to the award of subcontract 94YMP0005 to British Plaster Board (BPB) on November 24, 1993. The required reviews, conducted and documented during the audit, determined that there was no adverse impact to the resultant subcontract.

6. PP-06-01, Revision 1, PIC 2, Paragraph 6.3.3, requires that recipients of a controlled document are responsible for maintaining the document. It was identified that controlled copy numbers 10 and 123 of the Project Procedures Manuals failed to contain copies of PP-03-20, "Surface Based Borehole Programs," Revision 1, PIC 2, effective August 23, 1993, and PP-02-01, "Indoctrination and Training," Revision 3, effective October 8, 1993, respectively. These manuals were updated during the audit to reflect the latest revisions of the subject procedures.

7. Administrative Procedure (AP)-1.18Q, Revision 1, Appendix C, Part I-1 requires that corrections to records be done with a single line through incorrect information, placement of correct information in close proximity and initialing and dating. Contrary to this prescribed method, the correction made on the RSN MTL Use Log for Instrument 259812 was done by placing "Xs" on incorrect information. The record was recreated and corrected in the appropriate manner.

8. QARD DOE/RW-0333P, Revision 0, Paragraph 5.2 states that work shall be performed according to controlled implementing documents. RSN QAP-15.1(Y), Revision 2, PIC 1, was cancelled December 1, 1993 and replaced with Yucca Mountain Site Characterization Project (YMP) Yucca Administrative Procedure (YAP) 15.1Q. However, two Nonconformance Reports (NCRs)

and one revised NCR initiated in accordance with QAP-15.1(Y) were still open. After determination that no action regarding the NCRs had been initiated since the procedure cancellation, QAP-15.1(Y) was reissued as Revision 3, effective February 4, 1994, to allow closure of the NCRs initiated under this procedure.

9. QAP-18.2(Y), Revision 1, Paragraph 6.1.3 requires that the Surveillance Log list the dates of the performance of surveillances; however, the Surveillance Log maintained by the QA Organization did not contain the dates of the performance of surveillances. The missing dates were entered on the log during the audit.

10. PP-01-02, Revision 1, Paragraph 6.3.3 requires that Work Initiations (WIs) issued for surveys shall contain the appropriate accuracy requirements. Contrary to this requirement, WI 94-006, Revision 0 did not provide the appropriate accuracy requirement. The WI was revised to include this information. Accuracies obtained by survey instruments currently used exceeds minimum requirements.

11. QAP-10.4 (Y), Revision 1, Paragraph 6.1 requires that upon receipt of a Source Verification Plan (SVP) or Field Verification Plan (FVP), the Quality Control Representative (QCR) initiates an Open Item Tracking Log and keeps the log with the SVP or FVP as applicable. The Job Package (JP) for the Solitario Canyon Fault did not contain the Open Item Tracking Log. This was corrected during the audit.

5.5.3 Follow-up of Previously Identified CARs

The below listed CARs previously issued to RSN during YMQAD Audits, were reviewed to determine effectiveness of corrective action.

1. CAR YM-93-028 issued on January 29, 1993 identified that FVPs were not updated when specifications which delineated new requirements were revised. Review of one FVP which was revised revealed that corrective action was effectively implemented.

2. CAR YM-93-029 issued on January 29, 1993 identified that Quality Control (QC) Monitoring Reports and Verification Activity Reports (VARs) did not contain specific characteristics inspected, nor identify the inspection criteria or reference documents to determine acceptance. Three VARs for boreholes were reviewed

and found to reference the applicable EVP or the subcontractors' Logging Procedure. Based upon the objective evidence evaluated during the audit, the corrective action taken to disposition CAR YM-93-029 is considered to be effective.

3. CAR YM-93-076 issued on July 28, 1993 identified that there was insufficient training on Material Test Laboratory (MTL) personnel. It was verified that the Field Operations (FO) Manager is effectively monitoring MTL personnel training by use of the RSN/YMP FO MTL Verification of Qualifications, Training and Annual Certification Log. Information on the log was found to agree with the records of those individuals examined during the audit. Based upon the objective evidence evaluated during the audit, the corrective action taken to disposition CAR YM-93-076 is considered to be effective.

4. CAR YM-93-077 issued on July 28, 1993 identified that there was no technical data transmitted to the Technical Data Base (TDB) for NRG-1 work. Data from the NRG-1 was submitted to the TDB but was rejected by the TDB Administrator because it was determined as not suitable for the TDB. No data has been submitted to the TDB since closure of this CAR. Therefore, corrective action could not be verified.

5. CAR YM-93-078 issued on July 28, 1993 identified that a supplier of calibration services for instrumentation used on YMP had not been qualified in accordance with QAP-7.1(Y). No instances were identified during the audit where unqualified suppliers were being used to perform quality-affecting work. Based upon the objective evidence evaluated during the audit, the corrective action taken to disposition CAR YM-93-078 is considered to be effective.

6. CAR YM-93-079 issued on July 28, 1993 identified an adverse condition where no documented evidence could be produced for follow-up to document transmittals that had not been returned. Four instances were identified during the audit in which document transmittals were not returned within the required timeframes. In each instance, the appropriate action was taken in accordance with procedural requirements. One individual was sent a second notice and then removed from the controlled document list. A second individual's manuals were decontrolled based upon a change in job status. Based upon the objective evidence evaluated during the audit, the corrective action taken to disposition CAR YM-93-079 is considered to be effective.

7. CAR YM-93-080 issued on July 28, 1993 identified that MTL personnel performed tests requested by Reynolds Electrical and Engineering Company, Inc. (REECo) without the WI, which authorizes the work. As of this date, only REECo has requested work to be done by the RSN MTL. As required by AP-5.39Q, a Technical Field Work Request Form (Work Request No. 93423) was completed and submitted to RSN MTL for the REECo work. WI's were being utilized for work being done directly for YMP activities. Based upon the objective evidence evaluated during the audit, the corrective action taken to disposition CAR YM-93-080 is considered to be effective.

8. CAR YM-93-081 issued on July 28, 1993 identified that MTL test reports did not reference the year of the standard test procedure used. Six MTL test reports were examined and found to contain the appropriate information, including the year of the standard test procedure used. Based upon the objective evidence evaluated during the audit, the corrective action taken to disposition CAR YM-93-081 is considered to be effective.

9. CAR YM-93-082 issued on July 28, 1993 identified that MTL has not established and maintained a Calibration History Log for Measuring and Test Equipment (M&TE). It was verified that a Calibration Log is maintained by both the MTL and Survey Department. M&TE sampled for this audit were found on the log. Based upon the objective evidence evaluated during the audit, the corrective action taken to disposition CAR YM-93-082 is considered to be effective.

10. CAR YM-93-083 issued on July 28, 1993 identified that requests for extensions of the response date for Deficiency Reports (DRs) were not submitted prior to their effective dates. DRs 93-0-007, -008, (closed) and -009 (open), were reviewed for compliance to the above requirements. No deficiencies were identified. Based upon the objective evidence evaluated during the audit, the corrective action taken to disposition CAR YM-93-083 is considered to be effective.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for consideration by RSN management.

6.1 RSN has experienced difficulty in meeting the 60-day requirement for submittal of JP related as-built drawings. This condition is adversely impacted by current staffing levels and has been addressed in RSN DR-93-O-009. It is recommended that RSN Management consider either or both of the following:

a. Assign additional personnel to work off the back log.

b. Request that Project Management allow relief through the revision of procedure AP-6.22Q to extend the 60-day requirement.

6.2 Presently the National Geodetic Survey First Order Control, which is the basis for YMP Control Points, is published in both North American Datum of 1983 (NAD 83) and North American Datum of 1927 (NAD 27). NAD 83 is a redefinition and readjustment of NAD 27. To avoid confusion, it is recommended that NAD 83 be established as the only datum to be used on this project for the following reasons:

a. NAD 83, as established by the Federal Geodetic Control Committee, is the official civilian horizontal datum for surveying and mapping activities performed or financed by the Federal Government, and

b. NAD 83 more correctly represents the earths curvature relying on up-to-date satellite information.

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit
Attachment 2: Audit Details
Attachment 3: List of Objective Evidence Reviewed During the Audit
Attachment 4: Information Copies of CARs

ATTACHMENT 1

Personnel Contacted During the Audit

Name	Organization/Title	Preaudit Meeting	Contacted During Audit	Postaudit Meeting
Arceo, A.	YMQAD, ATL	X		X
Bates, G.	RSN/Survey Support, Supervisor		X	
Bates, S.	YMQAD, Auditor	X		X
Boroski, R.	RSN/Survey Support, Party Chief		X	
Brient, R.	NRC/CNWLA, Observer	X		
Brooks, P.	NRC, Observer	X		X
Bullock, R.	RSN, Technical Advisor	X		
Candelaria, W.	RSN/Survey Support, Project Coordinator		X	
Criddle, R.	RSN/Information Services, Systems Analyst		X	
Cunningham. D	RSN/FED, Principal Engineer		X	
Diaz, M.	DOE/YMQAD, General Engineer	X		
Ferguson, J.	RSN/Systems Engineering Sr. Specialist	X	X	X
Gibson, S.	RSN/FO, Senior Engineer		X	
Glasser, W.	REECo QA Manager		X	
Hale, P.	RSN/QC, Supervisor	X	X	X
Hermes, C.	SAIC/SMF		X	
Herrington, D.	RSN/MTL, Senior Specialist		X	
Hinojosa, R.	YMQAD, Auditor	X		X
Jacoby, J.	RSN, Clerk III		X	
Jacocks, H.	RSN, Procurement Supervisor		X	
Kopatich, W.	RSN, TPO	X	X	
Landaz, T.	RSN, Employment Specialist		X	
Lindquist, W.	RSN/QC, Sr. QC Specialist		X	
Matras, J.	YMQAD, Auditor	X		X
Maudlin, R.	YMQAD, Sr. QA Specialist			X
McFall, K.	YMQAD, Auditor	X		X
Monson, E.	REECo, Sr. Engineer		X	
Moore, J.	RSN/QC, Inspector		X	
Morrison, G.	RSN/Procurement, Sr. Subcontract Specialist	X		
Musick, R.	RSN/Common Facilities, Principal Project Engineer	X	X	X
Olson, R.	RSN/FED, Principal Engineer	X	X	X
Remington, R.	RSN/Field Survey, Surveyor Supervisor		X	
Rodgers, T.	YMQAD, Auditor	X		X
Rue, J.	RSN,			

ATTACHMENT 1

Personnel Contacted During the Audit
(Continuation)

Name	Organization/Title	Preaudit Meeting	Contacted During Audit	Postaudit Meeting
Schreiner, R.	RSN/Systems Engineering, Principal Project Engineer	X	X	X
Straight, H.	RSN/QA, Sr. Engineer	X	X	X
Thummala, V.	RSN/MTL, Sr. Engineer		X	
Tunney, D.	RSN/QA, Supervisor	X	X	X
Walker, N.	REECo, Rig Supervisor		X	
Wasson, E.	RSN/SBT, Project Engineer		X	
Watson. L.	RSN/FO, Manager	X	X	
Weeks, R.	YMQAD, Auditor	X		X
Werley, P.	RSN, Secretary III		X	
Wilson, P.	REECo, Sr. QA Specialist		X	
Wright, E.	RSN/SBT, Principal Engineer		X	X
Zimmerman, S.	State of Nevada, Observer	X		

Acronyms

FED = Field Exploration Drilling
SAIC = Science Applications International Corporation
SBT = Surface Based Testing
SMF = Sample Management Facility
TPO = Technical Project Officer

ATTACHMENT 2

AUDIT DETAILS

The following is a summary of the RSN QA Program activities covered during the audit. The list of objective evidence reviewed and specific procedures audited is provided in Attachment 3.

1.0 ORGANIZATION

The evaluation of this QA program element was based on interviews with RSN management and QA personnel and examination of objective evidence to determine the degree of compliance with selected requirements from QAP-1.1(Y) and PP-01-05. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below.

Organization (QARD, Section 1.0)

Requirements:

- The QA Manager's position shall be at the same or higher organization level as the highest line manager directly responsible for performing work subject to QARD requirements
- The QA Manager's position shall have the organizational freedom to effectively communicate with other senior management positions.
- The positions or organizations making the delegation shall retain overall responsibility for the delegated work.

Organization [QAP-1.1(Y)]

Requirements:

- The responsibilities of the Supervisor Quality Assurance (SQA)/YMP are to:
  - Overview Program QA activities by conducting internal and external verifications and selectively participating in verification activities, such as assessments, readiness reviews, or audits.
  - Issues schedules for audits and surveillances.

- The QA engineering functions are as follows:

  - Qualification of RSN subcontractors and maintenance of the Approved Suppliers List (ASL)

  - Performing Trend analyses

  - Developing source and field verification plans.

- The QA Audits and Surveillance functions are as follows:

  - Scheduling of audits and surveillances.
  - Performance of audits and surveillances.
  - Deficiency reporting and CARs.
  - Training and qualification of auditors.

- The QC functions are as follows:

  - Issuing NCRs
  - Control of nonconforming items.

- A listing of names of individuals assigned to positions is maintained and periodically issued by RSN management in the form of Organization Charts.

- The responsibilities of the Managers/Supervisors within the QA organization may be delegated by signed letters.

Organization (PP-01-05)

- The organization is graphically defined in Figure 1.

- Individual position skill (e.g., engineering, quality, administrative, clerical, etc.) requirements are determined and job descriptions for each position are written.

- Education and experience are verified for each individual hired.

- A listing of names of individuals assigned to positions is maintained and periodically issued by the TPO.

- A written delegation of authority/responsibility is required when delegating actions to organizational subordinates or laterally (same level of authority).

- Letters delegating responsibility or authority are lifetime QA records generated by this procedure.

Results:

The SQA was interviewed to determine his knowledge of the position responsibilities described in the QARD, QAP-1.1(Y), and PP-01-05. An organization chart, dated January 1, 1994 depicting the RSN YMP organization was provided by the SQA. No deficiencies were identified.

Summary for the QA Program Element:

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on the interviews conducted and review of objective evidence, the implementation of QA Program Element 1.0 is satisfactory and effective.

2.0 QUALITY ASSURANCE PROGRAM

The evaluation of this QA program element was based on interviews with RSN QA organization management and examination of objective evidence to determine the degree of compliance with selected requirements from PP-02-01, -02, -03, -08, QAP-2.1(Y), -2.2(Y), -2.3(Y), -2.4(Y), -2.6(Y), and -2.7(Y). In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Quality Assurance Program (QARD, Section 2.0)

Requirements:

- Each manager of a QA organization shall report QA program information to internal management and to the QA organization of the next-higher-level affected organization.

- Each affected organization shall establish a program for the evaluation, selection, indoctrination, training, and qualification of personnel performing work subject to QARD requirements.

- Personnel performing special QA functions (such as inspecting, examining, testing, and auditing) shall be qualified according to the requirements of the applicable QARD Section.

Indoctrination and Training (PP-02-01)

Requirements:

- Prior to performing quality-affecting activities, RSN employees are indoctrinated/trained to their respective job responsibilities and authority.
- Self-study records are maintained as lifetime QA records.

Results:

Eleven training files were reviewed for compliance with indoctrination and training requirements. Twenty-two additional employee files were reviewed for training to selected procedures applicable to specific job performance.

Two RSN employee training files did not contain documentation for QARD training. This deficiency was corrected during the audit. See Section 5.5.2.1 for more details.

No classroom training sessions have been conducted since the last OCRWM audit conducted June 12 through 16, 1993.

Records are maintained in a 1-hour fire rated UL listed safe and submitted to the records center on an annual basis. One record package was submitted, a signed and dated transmittal receipt was on file, and the package was retrievable on RSN microfilm.

Personnel Selection (PP-02-02)

Requirements:

- Job descriptions set forth job duties that include the quality-affecting responsibilities of the job and the minimum education and experience required commensurate with the scope, complexity, and nature of the work.
- Personnel Qualification Evaluations are completed by the Manager, Human Resources, on Form LV-304.

Results:

Eleven Job Descriptions and Personnel Qualification Evaluation Forms LV-304 were reviewed. Personnel Qualification Evaluation Forms were cross checked with eight selected official employee records maintained at Summerlin. Job Descriptions for two employees were deficient and one additional job designation did not match. It was

subsequently determined that since job descriptions were reviewed for all RSN YMP personnel during December 1993, the latest versions of Job Descriptions for some matrixed RSN personnel were not in the files. See CAR YM-94-016, Attachment 4, for more details. Duplicate records are maintained at Summerlin RSN offices for Job Descriptions and Personnel Qualification Evaluation Form LV-304.

Management Assessment (PP-02-03)

Requirements:

- A Management Assessment is scheduled annually.

Results:

- A Management Assessment to evaluate 1993 results has been initiated. Two assessment team members are in the process of being qualified to conduct the assessment. A schedule has been developed, and a plan was submitted. No other action has yet occurred.

Training, Qualification, and Certification of Materials Testing Laboratory Personnel (PP-02-08)

Requirements:

- The Manager, RSN/YMP FO, continues to monitor MTL personnel training with the use of a log and checklist.
- For each MTL person, education and training is documented on the Record of Education and Training (Attachment 2).
- For each MTL person, experience is documented on the Qualifying Experience form (Attachment 3).
- For each MTL person, a Certification Checklist has been completed and signed and dated by the examiner.
- A Record of Certification has been completed for each candidate and signed and dated by the Examiner and candidate.
- An annual evaluation is documented on the Record of Certification for Level I, II, and III personnel.
- Certified employees are recertified at least once every three years.

- An annual update is made for each candidate in each certified area.

- For decertified personnel a Letter of Revocation (Attachment 7) has been issued at time of decertification.

- The qualification of test personnel is certified in writing and includes the following:

  - Employers name
  - Identification of person being certified
  - Activities certified to perform
  - Education, experience, indoctrination and training
  - Test results (where applicable)
  - Results of capability demonstration
  - Level of certification
  - Discipline of certification
  - Results of periodic evaluation
  - Results of visual acuity and physical examination
  - Signature of Examiner
  - Dates of certification and certification expiration

Results:

The evaluation of these procedural requirements was based on examination of training, qualification and certification documents and interviews with RSN staff for seven MTL personnel. The specific documents examined included: Record of Education and Training, Certification Checklist, Record of Certification, Letters of Revocation and interviews with RSN staff for seven RSN personnel. Examined documentation was complete and met procedural requirements. The examined procedural requirements were being effectively implemented. Follow-up to previously identified CAR YM-93-076 was performed as described in Section 5.5.3.3 of this report.

Quality Assurance Program Status Reporting [QAP-2.1(Y)]

Requirements:

- YMP QA monthly status reports contain the following:

  - status of development of the QA program,
  - status of resolution of issues, trends, and significant conditions adverse to quality, and
  - summary of required management and QA overview results.

- QA monthly status reports are handled as lifetime QA records.

Results:

Three monthly status reports were evaluated for compliance with requirements.

Training and Indoctrination of Quality Assurance Personnel [QAP-2.2(Y)]

Requirements:

- RSN QA personnel read the current version of 10CFR60 Subpart G, 10CFR50 Appendix B, DOE/RW-0333P, RSN YMP QAPs, RSN YMP PPs, and additional documents determined by QA management.

- Inspection personnel are qualified and certified in accordance with QAP-2.6(Y).

Results:

Five QA personnel files were reviewed for compliance to reading requirements. Three RSN Inspection Personnel files were reviewed for compliance to certification requirements including certifications and levels attained, checklists, examinations, and visual acuity, as applicable.

Qualification of Audit Personnel [QAP-2.3(Y)]

Requirements:

- Qualified Auditors meet the following requirements:

  - Meet the requirements for Auditors-in-Training
  - Have participated in a minimum of two audits within RSN or outside audits documented by a previous employer.
  - Have participated in an audit training program to provide generalized and specialized training.

- Lead Auditors meet the following requirements:

  - Have participated in a minimum of five QA audits or equivalent verifications (such as management assessments, pre-award surveys, or comprehensive surveillances, providing the parameters of the audit process are met within a period of time not to exceed three years prior to the date of certification.

- Passed an examination that evaluated his/her comprehension of and ability to apply the body of knowledge identified in Paragraph 6.2.2.

- Based on an annual assessment, the SQA/YMP may extend the Auditor or Lead Auditor's qualification, require retraining or require requalification.

- The annual assessment is documented on Forms LV-216 and LV-217, Audit Participation Record is completed and attached, or the SQA/YMP may attach a letter explaining the basis for extending the qualification.

Results:

Three auditor files (100 percent sample) were reviewed and all meet the above requirements with the exception that one auditor file (QA Manager) contained an inaccurate position description and the documentation of verification of education and experience was not signed by his supervisor. The required documentation was supplied during the audit. See Section 5.5.2.2 for more details.

Stop Work Order [QAP-2.4(Y)]

There has been no implementation of this procedure.

Training, Qualification and Certification of QC Inspection Personnel [QAP-2.6(Y)]

Requirements:

- The Certifying Agent (CA)/QC Level III evaluates the certification checklist for each individual QC Inspector and this evaluation is documented on the Record of Certification.

- QC Inspection personnel have their relevant experience and education verified in accordance with PP-02-02.

- QC Inspection personnel are trained and indoctrinated in accordance with QAP-2.2(Y) and PP-02-01.

- The CA/QC Level III has prepared,administered, and evaluated written examinations.

- Inspection and Test personnel receive an annual eye examination.

- The CA/QC Level III completes a Record of Certification for each QC Inspector certified and for each discipline in which the inspector is certified.

- All QC Levels I, II, and III are evaluated initially and annually thereafter and the results of the evaluation are documented on the Record of Certification.

Results:

Verification of QC personnel experience, education, certification and visual examination was performed for three individuals the QC Department. Verification was performed by review of the personnel certification and training records. There were no deficiencies observed and the implementation is in accordance with procedural requirements.

Development of the QA Program [QAP-2.7(Y)]

Requirements:

- OCRWM/YMP QA comments are resolved and the Requirements Traceability Network (RTN) matrix is updated according to Steps 4, 5, 6, and 7 of this procedure.

Results:

Comment resolution was conducted prior to this audit. The most current RSN RTN matrix was randomly cross-checked against specified documents for accuracy. No additional activity has occurred that requires QA notification.

Summary for the QA Program Element:

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Except for the deficiencies identified within the results noted above and based on the interviews conducted and review of objective evidence, the implementation of QA Program Element 2.0 is satisfactory and effective.

3.0 DESIGN CONTROL

The evaluation of this QA program element was based on interviews with RSN personnel and examination of objective evidence to determine compliance with selected requirements from QAP-3.1(Y), PP-03-02, -20, and -23. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Design Control (QARD, Section 3.0)

Requirements:

- Changes from approved design inputs and reasons for the changes, shall be identified, approved, documented, and controlled.
- Design inputs based on assumptions that require reverification shall be identified and controlled.
- Applicable information derived from experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel.
- Drawings, specifications, and other design output documents shall contain appropriate inspection and testing acceptance criteria.
- Calculations shall be identifiable by subject (including structure, system, or component to which the calculation applies), originator, reviewer, and date, or by other designators such that the calculations are traceable.
- Identification of assumptions and designation of those that must be verified as the design proceeds.
- Documentation of design analysis shall include identification of the reviewer and approver.
- The following design control requirements shall be applied to verify the adequacy of design:
  - Design verification shall be performed using one or a combination of the following methods:
    - Design Review.
    - Alternate calculations.
    - Qualification testing.
  - The particular design verification method shall be identified and its use justified.
  - The results of design verification shall be documented, including the identification of the verifier.

- Changes in previously verified designs shall require reverification. Such verifications shall include the evaluation of the effects of those changes on the overall previously verified design and on any design analyses upon which the design is based.

Results:

The result of the examination of RSN implementing documents for incorporation of selected portions of the QARD was satisfactory. It was noted during the audit that RSN allowed Peer Reviews to substitute for the allowable QARD options concerning design verification. This provision was removed prior to the close of the audit, as noted in Section 5.5.2.4 of this report.

Quality Assurance Review of Design Output Documents, [QAP-3.1(Y)]

Requirements:

- A record of all design output documents reviewed and the status of that review is maintained in a log by QA.

Results:

The Study/Analysis Review Checklist Log, the Title II Drawing Review Checklist Log, and the Title II Specification Review Checklist Log were reviewed and it was determined that there have been no design output document reviews conducted since 1992. Thus, there has been no implementation of this procedure.

Design Methodology (PP-03-02)

Requirements:

- All verbal input, received by RSN personnel, is documented on YMP Record of Verbal Communication (RVC) Form LV-186 and sent to the communicant(s) for concurrence.

Results:

The Consolidated Conceptual Design Report and its associated documentation were examined and it was determined that there have been no quality-affecting design activities since the last audit by YMPO. Thus, there has been no implementation of this procedure.

Surface Based Borehole Programs (PP-03-20)

Requirements:

- Each drilling program includes site preparation activities, drilling activities, and perhaps one or more additional work activities. These activities may be written as separate work programs, or as a part of an overall drilling program document. If prepared separately, each document contains the following information:

  - General Requirements, as specified under Paragraph 6.2.1.

  - Specific Requirements, as specified under Paragraphs 6.2.2, 6.2.3, or 6.2.4, as applicable.

- General information applicable to all drilling and additional work activities programs include as a minimum, the following:

  - References: Criteria documents, letters, etc.
  - Hole designation.
  - RSN QA Grading Report number applicable to the work program.
  - Signature approval and date by RSN Project Engineer, RSN TPO, RSN QA, User or Participating Organization Representative, and DOE/YMPO Representative. The DOE/Yucca Mountain Site Characterization Project Office (YMPO) approval date is the effective date of the drilling program.
  - Preconstruction conditions.
  - Present Conditions - A statement describing existing conditions at the drillsite.
  - Include requirements for QC to perform verifications.
  - QA records generated by the work are identified as lifetime records.

- The requirements for drilling all types of boreholes for the YMP include, but are not limited to the following:

  - Recommended class of drill rig to be used.
  - Bit size and minimum depth of hole to be drilled/cored.
  - Required circulating system.
  - Types of geophysical logs and surveys to be conducted and the User Designated Contact for Logging (UDCL).
  - User Designated Representative.
  - Mobilization and demobilization of drill rig and equipment.

- Other pertinent information such as:
  - Estimated depth to water table.
  - Covering of unattended hole.
  - Marking and identifying hole.
  - Geologic data.
  - Estimated drilling time, if required.
- Requirements for casing and cementing.
- Requirements for any additional work to be performed.

- A draft of the drilling program is circulated for review. The reviewers include: 1) an RSN Project Engineer, 2) RSN Quality Assurance Representative (QAR), 3) User or Project Participant, 4), REECo drilling representative, and 5) YMPO representative. The reviewers document their comments on RSN Review Comment Record Form LV-495.

- A history of changes, i.e., work programs and additional work activities and the reason for the changes, is documented and maintained.

Results:

Generic and specific requirements for three work programs were reviewed and it was determined that, with the exception of the deficiency identified in CAR YM-94-017 (Attachment 4), this procedure is being adequately implemented.

Field Change Control Process (PP-03-23)

Requirements:

- The TPO appoints an RSN employee to be the Field Change Control Board Representative (FCCBR) of RSN on the Field Change Control Board (FCCB).
  - The FCCBR also has the authority delegated to him to sign Section 2 of the FCRs submitted by RSN on behalf of the TPO.

- The responsible Cognizant Technical Individual shall complete the Internal Participant Evaluation Checklist, determine which documents require a change, sign and date the checklist, obtain the QARs concurrence on the checklist, and forward the package to the FCCBR with any recommendations

- The evaluations of FCRs are logged in the FCR Evaluation Log (Attachment 5) kept by the Field Engineering Office.

- The Change Evaluation (CE) is signed by the cognizant technical evaluator or in the case of the evaluation being conducted by FAX or phone, the evaluators name is entered on the form and initialed by the FCCBR or alternate who spoke with the cognizant technical evaluator and an explanation of the circumstances entered in Block 6 of the CE form.

  NOTE: Information/evaluations transmitted orally are documented on RVC Form LV-186.

- The following are lifetime QA records:

  - Completed FCRs
  - Completed Internal Evaluation Checklists
  - Completed Change Evaluations
  - Completed RVC

Results:

The FCR Log and its associated documentation, as well as 12 FCRs, were reviewed and found to adequately implement this procedure. One condition concerning the use of an outdated form was corrected during the audit, as described in Section 5.5.2.3 of this report.

Summary for the QA Program Element

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. With the exception of the deficient conditions identified in the results noted above and to the extent that quality-affecting work is being conducted, implementation of QA Program Element 3.0 is satisfactory and effective.

4.0 PROCUREMENT DOCUMENT CONTROL
7.0 CONTROL OF PURCHASED ITEMS AND SERVICES

The evaluation of these QA program elements was based on interviews with RSN management and examination of objective evidence to determine compliance with selected requirements from PP-04-01 and QAP-7.1(Y), -7.2(Y) and -7.4(Y). In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of adequacy, compliance and effectiveness are listed below.

Procurement Document Control (QARD, Section 4.0)

Requirements:

- Procurement documents issued by each affected organization shall include the following provisions, as applicable to the item or service being procured:
  - A statement of the scope of work to be performed by the supplier.
  - Technical requirements.
  - QA program requirements.
  - Right of access to supplier facilities.
  - Provisions for establishing hold points.
  - Documentation required to be submitted.
  - Purchaser requirements for supplier to report nonconformances.
  - Identification of any spare and replacement parts or assemblies.
- Procurement document reviews shall be performed and documented prior to issuance of the procurement documents to the supplier.
- A review of the procurement documents and any changes thereto shall be made to verify that documents include appropriate provisions to ensure that items or services will meet the governing requirements.
- Reviews shall ensure that all applicable technical and QA program requirements are included.
- Reviews shall be performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and scope of the procurement.
- Procurement document reviewers shall include representatives from the technical and QA organizations.
- Procurement documents shall be approved.
- Changes to the scope of work, technical requirements, QA program requirements, right of access, documentation requirements, nonconformances, hold points, and lists of spare and replacement parts delineated in procurement documents, shall be subject to the same degree of control as used in the preparation of the original documents.

Control of Purchased Items and Services (QARD, Section 7.0)

Requirements:

- Procurements shall be planned and documented to ensure a systematic approach to the procurement process. Procurement planning shall:

  - Identify procurement methods and organizational responsibilities.
  - Identify what is to be accomplished, who is to accomplish it, how it is to be accomplished, and when it is to be accomplished.
  - Identify and document the sequence of actions and milestones needed to effectively complete the procurement.
  - Provide for the integration of activities.
  - Be accomplished as early as possible, and no later than at the start of those procurement activities which are required to be controlled.
  - Be performed relative to the level of importance, complexity, and quantity of the item or service being procured and the supplier's quality performance.
  - Include the involvement of the QA organization.

- Supplier selection shall be based on an evaluation, performed before the contract is awarded, of the supplier's capability to provide items or services in accordance with procurement document requirements.

- The organizational responsibilities for source evaluation and selection shall be identified an shall include the QA organization.

- Measures for evaluating and selecting procurement sources shall include one or more of the following elements:

  - Evaluation of the supplier's history.
  - Evaluation of supplier's current quality assurance records.
  - Evaluation of the supplier's technical and quality capability.

- The results of procurement source evaluation and selection shall be documented.

- The proposal/bid evaluation process shall include a determination of the extent of conformance to the procurement document requirements.

- Before the contract is awarded, the purchaser shall resolve, or obtain commitments to resolve, unacceptable quality conditions identified during the proposal/bid evaluation.

- Supplier QA programs shall be evaluated either before or after contract placement, and any deficiencies that would affect quality shall be corrected before starting work subject to QARD requirements.

- Supplier QA programs shall be accepted by the purchaser before the supplier starts work subject to QARD requirements.

- The purchaser of items and services shall establish measures to interface with the supplier and to verify supplier's performance.

- The extent of purchaser verifications shall be a function of the relative importance, complexity, and quantity of items or services being procured, and the supplier's quality performance.

- Purchaser verifications shall be conducted as early as practical and shall not relieve the supplier of the responsibility for the verification of quality achievement.

- Supplier generated documents shall be controlled, processed, and accepted in accordance with the requirements established in the procurement documents.

- Measures shall be implemented to ensure that the submittal of these documents is accomplished in accordance with the procurement document requirements.

- Methods for accepting supplier furnished items or services are appropriate to the items or services being procured.

- The supplier shall verify that furnished items or services comply with the purchaser's procurement requirements before offering the items or services for acceptance.

- The supplier shall provide the purchaser objective evidence that items or services conform to procurement documents.

- Where design specifies the use of commercial-grade items, prescribed requirements are an acceptable alternative to other requirements of this section.

Purchasing (Services) (PP-04-01)

Requirements:

- Appropriate QA participation is requested for evaluation and selection of suppliers, verification of suppliers activities and receivables.

- The Purchase Requisition (PR) Form RSN 219 is sent to Procurement with the technical requirements, any known sources, applicable quality requirements, and the work order number.

- Procurement reviews the PR and technical requirements to ensure that they are accurate, complete and clear.

- Procurement prepares the request for proposal and provides a copy to QA and the responsible technical department for review prior to issuance of the request for proposal.

- The technical review is conducted using YMP Procurement Document Technical Review Checklist, Form LV-383 (Attachment 3). The QA review and approval are conducted using the Quality Assurance Procurement Document Review Checklist, Form LV-354 (Attachment 4). When changes (modifications) to the procurement documents are required, the changes require the same review and approval as the original documents with the exception of changes that do not have an impact on quality or technical requirements.

- Upon completion of the evaluation by procurement personnel, the total package is be sent to the responsible technical department or group and to QA for their evaluation and concurrence.

- Prior to the issuance of a subcontract or Purchase Order (PO) for quality-affecting work, suppliers are qualified in accordance with QAP-7.1(Y).

- The TPO sends a copy of the subcontract/PO to the appropriate YMP personnel. Procurement will also send a copy of all quality-affecting subcontracts/POs to QA.

- All subcontracts and POs issued by Procurement for the YMP will designate whether or not the procurement is quality-affecting.

- Approved and completed Technical Review Checklists, PRs, POs, subcontracts, and approved submittals, if they are determined to be quality-affecting, are lifetime QA records.

Results:

Nine procurements and the associated PR Forms, Technical Review Checklist Forms, Quality Assurance Procurement Document Review Checklist Forms, and PO Forms were examined to determine compliance with procedural requirements. Objective evidence could not be located to demonstrate that technical and QA reviews and concurrences had been provided prior to the award of subcontract 94YMP0005 to BPB,

Instruments, Inc. on November 24, 1993. The required reviews, conducted and documented during the audit, determined that there was no adverse impact to the resultant subcontract. This condition is noted in Section 5.5.2.5 of this report.

Supplier Selection [QAP-7.1(Y)]

Requirements:

- Prior to a supplier initiating quality-affecting work, QA Engineering evaluates the supplier's ability to provide items or services in accordance with the requirements of the procurement documents using one or more of the following methods:

  - Evaluation of the supplier's history of providing an identical or similar product which performs satisfactorily in actual use.

    - Determine which applicable items or services the supplier has provided and whether or not the items or services have performed satisfactorily. This is documented using the Supplier Review Form LV-2029 (Attachment 2).
    - Suppliers are approved on the basis of history only if the above evaluation indicates that the supplier currently has the capability to provide satisfactory services. This is documented on a Supplier Evaluation Summary Form LV-219 (Attachment 3).
    - The responsible QAR notifies the procurement organization, by letter or memo, as to the results of the supplier history evaluation.

  - Evaluation of the supplier's current quality documents supported by documented qualitative and quantitative information which can be objectively evaluated.

    - Procurement documents specify, whether or not the supplier is required to have a Quality Assurance Program Plan (QAPP) and/or procedures. If the supplier is required to submit a QAPP and/or procedures to RSN for review and approval, the RSN QAR performs the review and document the results on Form LV-2026, Quality Assurance Manual Review Checklist (Attachment 4) to determine whether it meets the requirements specified in the procurement documents.
    - When the above methods of document evaluations are used to evaluate a supplier, the comments section of Form LV-219 indicate what documents were reviewed or evaluations performed and the results of the review.

- The QAPP and/or procedures are reviewed and approved prior to the supplier commencing quality-affecting work.

- Evaluation of the supplier's technical and quality capability by a QA survey of the supplier's facilities and personnel and the implementation of its QA program by means of supplier survey.

- The QAR develops a Supplier Survey Checklist (see Form LV-415, Attachment 5) based on the requirements of the procurement documents.

- The survey team conducts the survey as follows:

  - Conduct a pre-survey meeting at the supplier's facility with the supplier's QAR and cognizant management personnel.
  - Physically review the supplier's facility to verify its technical and quality capability to provide the item or service specified in the procurement documents.
  - Complete the Supplier Survey Checklist.
  - At the conclusion of the survey, the survey team leader/individual conducts an exit meeting with the supplier's QARs and management staff.

- The results of the supplier survey evaluation is documented by the QAR on Form LV-219.

- A report of the Supplier Evaluation is issued to the responsible procurement organization within 10 working days of the QAR's return.

- The SQA is responsible for maintaining an ASL which identifies, as a minimum, the supplier, the item or service, the evaluation date and the re-evaluation date (not to exceed one year from the evaluation date).

- QAR(s) perform an annual review of quality suppliers. The QAR(s) review the initial and subsequent POs and documentation available from the supplier to determine whether or not a triennial audit is required; the supplier's performance is acceptable; the supplier's qualification status should be changed; and/or the supplier should be audited.

- The results of this review are documented on Form LV-2029, Supplier Review.

- The following documents are generated by this procedure and are lifetime QA records:

- Supplier Survey Checklist, Form LV-415
- Supplier Evaluation Summary, Form LV-219
- Quality Assurance Manual Review Checklist, Form LV-2026
- Letters or memos indicating reviews of QA Programs and Procedures.
- ASL
- Supplier Review Form, LV-2029

Results:

Six supplier qualifications and the associated Supplier Survey Checklist Forms, Supplier Evaluation Summary Forms, Quality Assurance Manual Review Checklist Forms, Supplier Review Forms and the RSN ASL for YMP were examined to determine compliance with procedural requirements. Overall, these were found to be complete and satisfactory. Training to QAP-7.1(Y) was verified for those individuals identified in Attachment 3 of this report. Follow-up to previously identified CAR YM-93-078 was performed as described in Section 5.5.3.5 of this report.

Source Verification [QAP-7.2(Y)]

There has been no implementation of this procedure.

Supplier Deviation Report [QAP-7.4(Y)]

There has been no implementation of this procedure.

Summary for the QA Program Elements

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Except for the deficiency identified within the results noted above and based on interviews and review of objective evidence, the implementation of QA Program Elements 4.0 and 7.0 is satisfactory and effective.

5.0 IMPLEMENTING DOCUMENTS
6.0 DOCUMENT CONTROL

The evaluation of these QA program elements was based on interviews with RSN organization management and examination of objective evidence to determine compliance with the requirements from PP-05-01, -06-01, -06-05, and -06-06. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of adequacy, compliance and effectiveness are listed below.

Implementing Documents (QARD Section 5.0)

Requirements:

- Work is performed according to controlled implementing documents.
- The type of document to be used to perform work is appropriate to the nature and circumstances of the work being performed.
- Implementing documents include information appropriate to the work to be performed.
- Implementing documents are reviewed, approved, and controlled according to the requirements of Section 6.0.
- Individuals comply with implementing documents.

Document Control (QARD Section 6.0)

Requirements:

- Documents that specify technical requirements, quality requirements, or prescribe work is controlled in accordance with this section.
- The responsibility for preparing and maintaining documents is assigned to the appropriate organization.
- Documents that specify technical requirements, quality requirements or prescribe work are reviewed for adequacy, correctness, and completeness prior to approval and issuance.
- The organizational position responsible for approving the document for release is identified.
- The distribution and use of documents, including changes and editorial corrections to documents, is controlled.
- Changes to documents are reviewed for adequacy, correctness, and completeness, prior to approval and issuance.
- If an activity cannot be performed as listed in the implementing document, and the change process would cause unreasonable delays, then an expedited change may be made at the work location by responsible management.

Preparation and Control of Procedures (PP-05-01)

Requirements:

- Submit written proposal or verbal request for a new procedure, revision to existing procedure, or PIC to Systems Engineering Project Engineer (for PPs) or SQA/YMP (for QAPS).
- Evaluate the proposal for acceptance. If rejected, notify the Originator and provide justification for the rejection.
- Assign personnel to coordinate the processing of the procedure.
- Prepare Draft procedure or PIC using standard forms in Attachment 1 and format noted in Appendix A.
- Distribute Draft procedure or PIC for review by the SQA/YMP and other organizations or technical disciplines affected by the procedure.
- Review procedure or PIC and comment in accordance with PP-06-06.
- Determine if revision to incorporate PIC(s) results in a change that is different from that described by the PIC(s).
- Have the work performed evaluated to determine its acceptability.
- Document the results of this review and any actions required in a memorandum or letter approved by the TPO or SQA/YMP.
- Following completion of the review, prepare a new or revised original, if necessary, and circulate it for approval to the SQA/YMP and the TPO.
- Enter procedure Effective Date on procedure Title Sheet.
- Document whether or not training is required in a memorandum to the Training Coordinator.
- Prepare a Table of Contents in accordance with Appendix A.
- Publish and distribute procedure in accordance with PP-06-01.
- Conduct procedure training in accordance with PP-02-01 if training is required.

- Process and handle records generated by this procedure, including QA records, in accordance with PP-17-01.

- The following documents generated during the implementation of this procedure are lifetime QA records:

  - PPs and revisions
  - QAPs and revisions
  - PICs
  - Training memos
  - Letter/memo stopping work
  - Letter/memo evaluating work
  - Approvals of editorial corrections

Results:

Eight QAPs and seven PPs and their associated record packages were examined to determine compliance with procedural requirements. Overall, these were found to be complete and satisfactory. Training to PP-05-01, -06-01, and -06-06 was verified for those individuals listed in Attachment 3 of this report. Training requirements were verified to be properly established for the sample of procedural revisions selected.

Controlled Document Distribution (PP-06-01)

Requirements:

- The Department Managers responsible for the documents require controlled distribution and the extent to which these documents are to be distributed.

- Design documents requiring distribution of construction is distributed in accordance with AP-1.5Q.

- Systems Engineering establishes and maintains a controlled distribution list based on information supplied by the cognizant department.

- All distributions of controlled documents are via a Document Transmittal.

- Documents that require verification distributed via this procedure is identified as to their status if the document has not been verified.

- Recipients of a controlled document are responsible for maintaining the document and for acknowledging receipt of the document by signing, dating, and returning the Document Transmittal to the Systems Engineering Department.

- If the Document Transmittal is not returned within the prescribed time frame, a follow-up notification (verbal or written) is made and documented.

- If no response to the follow-up notification is received within seven days, Systems Engineering sends a formal notification to the individual advising him/her that the document assigned has been decontrolled and that he/she will no longer be on controlled distribution for the subject document. This action is noted on the Controlled Distribution List.

- An up-to-date listing of controlled documents issued is maintained.

Results:

Six Project Procedures Manuals and six QAP Manuals were examined to assure proper updating and control. It was identified that controlled copy numbers 10 and 123 of the Project Procedures Manuals failed to contain copies of PP-03-02, Revision 1, PIC 2, effective August 23, 1993, and PP-02-01, Revision 3, effective October 8, 1993, respectively. These manuals were updated during the audit to reflect the latest revisions of the subject procedures. This condition is noted in Section 5.5.2.6 of this report. Document transmittals were examined and found to be conducted in accordance with requirements. This was the subject of the previously identified CAR YM-93-079 as discussed in Section 5.5.3.6 of this report.

Submittal Control and Review (PP-06-05)

There has been no implementation of this procedure.

Review of Documents (PP-06-06)

Requirements:

- Prepare the review package which consists of the Review Comment Record (RCR) and continuation page, draft document(s) to be reviewed, and any background information, if not readily available to the reviewers.

- Review the document(s) using the criteria in Attachment 2 and any criteria established by the controlling procedure.

- Prepare responses to the major comments and resolve these with the reviewers.

- Finalize responses in Block No. 13 and incorporate resolutions into document(s).

- All YMP Records generated by this procedure, including QA Records, will be handled in accordance with PP-17-01.

- The RCRs are lifetime QA Records generated during the implementation of this procedure.

Results:

Eight QAPs and seven PPs and their associated record packages were examined to determine compliance with procedural requirements and determined to be satisfactory.

Summary for the QA Program Elements

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Except for the deficiency identified within the results noted above and based on interviews and review of objective evidence, the implementation of QA Program Elements 5.0 and 6.0 are satisfactory and effective.

10.0 INSPECTION
14.0 INSPECTION,TEST AND OPERATING STATUS

The evaluation of these QA program elements were based on interviews with RSN QA, SBT, and Field Office personnel and by examination of objective evidence to determine compliance with selected requirements from implementing procedures PP-10-01, -02, -03, QAP-10.1(Y),QAP-10.3(Y), QAP-10.4(Y) and AP-6.22Q. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Inspection (QARD, Section 10.0)

Requirements:

- Inspection planning shall be performed, documented and include identification of each work operation where inspection is necessary to ensure quality and implementing documents that will be used to perform the inspections.

- The final inspection shall be planned to arrive at a conclusion regarding conformance of the item to specified requirements.

- Inspection planning shall be performed, documented and include identification of acceptance criteria.

- Inspection documentation shall identify the item inspected; the date of inspection; the name of the inspector, or the inspector's unique identifier, who documented, evaluated, and determined acceptability; and results indicating acceptability of characteristics inspected.

- The capabilities of a candidate for certification shall be initially determined by an evaluation of the candidate's education, experience, and training; and either examination results of capability demonstration. The evaluation shall be performed to the requirements of the applicable functional level, and education and experience requirements of this Section.

- Inspection and test personnel shall be indoctrinated to the technical objectives and requirements of the applicable codes and standards and the quality assurance program requirements that are to be employed in executing their responsibilities.

Inspection, Test and Operating Status (QARD, Section 14.0)

- Indicating Status shall be maintained through the use of status indicators (such as tags, markings, labels and stamps), or other means (such as travelers, inspection or test records).

- The authority for applying and removing status indicators shall be specified..

Field Drilling Engineer Support Activities (PP-10-01)

Requirements:

- The Field Drilling Engineer (FDE) monitors and reports field activities in accordance with approved work program and as defined by the Job Package.

- The FDE reports and initiates any nonconformances to program plans.

- The FDE ensures that the RSN subcontractor's equipment is in compliance with established QA procedures for calibration and that this is documented on the YMP Instrument Calibration Checklist.

- The FDE maintains the depth control records.

- The reference point for all depth measurements has been established at Ground Level (GL) and the elevation of GL has been established by surveying.

- Each drilled interval has a starting depth determined by subtracting the stick up measurement from the total string length.

- The starting depth is measured and calculated prior to the start of drilling and the measurements and calculations are recorded on the YMP Drilling Depth Record (DDR).

- During drilling, the following parameters are recorded on the DDR:

  - Starting time and date of drilling.
  - Ending time and date of drilling.
  - Depth interval drilled.
  - Average rate of penetration, weight on bit (WOB), and revolutions per minute (RPM).
  - Notes on variations in drilling parameters.
  - Notes on any fill or core stubs encountered

- Each core run begins with the ending depth of the previous core run.

- The YMP Core Run Record (CRR) Form LV-2053 is filled out for each coring attempt and contains coring and depth information and the FDE provides the hole number, the Work Breakdown Structure (WBS) number, and core run number.

- The following information is entered on the CRR:

  - Starting time and date of coring
  - Ending time and date of coring
  - WOB, RPM, torque and air pressure
  - Depth and time breakdown by foot
  - Notes on any variations in drilling parameters
  - Notes on any fill or core stubs

- The drilling contractor's designated representative signs the CRR to indicate the validity of the drilling parameters entered on the form.

- The FDE signs the CRR for the depth measurements.

- The SMF representative signs the CRR to indicate that the core has been received.

- After the core is retrieved to the surface, the inner core barrel laid down on the work platform, and the head and shoe loosened, custody of the core is transferred to the SMF personnel.

- The responsibility for moving the core from the work platform to the SMF logging trailer is assumed by the SMF personnel.

- A copy of the CRR is given to the SMF to accompany the core as a construction aid and as a record to determine the depth of the cored interval.

- Each ream down interval begins with the ending depth of the previous ream down interval.

- A YMP Ream Down Record (RDR) is filled out for each reamed interval and it contains both reaming and depth information.

- The FDE provides the hole number, the WBS number, and the ream down number for the RDR form.

- During reaming, the driller monitors and records the following drilling parameters on the RDR:

  - Starting time and date of ream down.
  - Ending time and date of ream down.
  - Starting and ending depth of the ream down interval.
  - Average RPM, WOB, and air pressure.
  - Notes on any variation in drilling parameters.
  - Notes on any fill or core stubs encountered.

- The FDE remains on location during all hours of operations until replaced by the next FDE.

- The FDE monitors and records on either the YMP DDR, or the YMP Daily Operations Report, for the drilling parameters.

- The FDE witnesses and reports geophysical logging and wireline surveys according to PP-10-02.

- The FDE ensures that the contractor prepares DOE/YMPO required reports, such as the International Association of Drilling Contractors (IADC) type DDR.

Results:

Four JP files for surface-based testing activities (boreholes) were reviewed at the field location (USW-NRG-7/7A bore hole drill pad) and the Documents and Records Center in Area 25. It was verified that the FDE's monitoring and reporting activities and other field work were performed in accordance with procedure PP-10-01. There were no deficiencies identified.

Field Logging Operations (PP-10-02)

Requirements:

- After consultation with the Logging Engineer (LE), the logs to be run are written into the drilling program for the particular hole by the FDE.
- The LE discusses with the UDCL, and documents any special requirements or procedures that are to be followed during the logging operation by the Logging Subcontractor and these requirements are documented on an RVC form.
- Drilling Field Manager or his designee notifies the Logging Subcontractor and the LE of the logs to be run, the location of the hole to be logged, and the time to be on location, by sending a copy of the Logging Call Out Record.
- The LE informs the Logging Subcontractor of any special requirements specified by the UDCL.
- The LE checks the Operation Maintenance (OM) procedures to ensure that they are 1) the proper revisions, 2) being followed, and 3) the responsible agency has approved them.

Results:

Three RSN Work Programs were reviewed to verify that the logs to be run had been written into the drilling programs; that notification of logs to be run had been made; and that the LE had checked OM procedures to ensure proper revisions were being followed and had been approved by the responsible agency. There were no deficiencies identified.

Construction Management Reporting (PP-10-03)

Requirements:

- Matrixed organization field work is authorized by a WI in accordance with PP-10-02.
- The Field Engineer Staff (FES) collects the required documentation to report to the Yucca Mountain Site Office, the progress and activity on the project.
- The assigned FES provides the management reporting of the work at an interval sufficient to provide a continuous record of the progress of the work.

- The assigned FES maintains a file of all pertinent documentation and initiates the as-built process in accordance with PP-03-22.

- The FES is aware of Hold and Witness Points and advises the QC of impending dates to inspect the item or activity.

- The FES maintains the RSN Log of field changes as specified in PP-03-23.

Results:

Compliance with PP-10-03 was verified by interviewing of FES engineering personnel, review of three field issued WI forms, four JPs, and FCR Evaluation Logs. The only deficiency identified was in the processing of as-built drawings which had previously been identified on RSN DR-93-O-009 and is being tracked by same DR. A recommendation was offered to RSN management to resolved the difficulty in meeting the 60-day requirement for submittal of JPs with as-built drawings. See Section 6.1 of this report for more details. No other deficiencies were identified.

Field Verification [QAP-10.1(Y)]

Requirements:

- QCRs who accept quality-affecting activities are qualified in accordance with QAP-2.6(Y).

- Technical Specialists utilized to assist in verification activities are qualified in accordance with PP-02-02.

- An Open Item Tracking Log is maintained in accordance with QAP-10.4(Y).

- QCR acceptance of document submittals is documented on Inspection Checklists (ICs), on the FVP, or on the VAR.

- The QCR monitors construction and is available for witness point verifications, unless waived by the Software Quality Control (SQC).

- The SQC documents the waiver of Witness Points and these are maintained as part of the FVP files.

- The QCR is present for verification of Hold Points and when required by a traveler, the QCR signs, dates, and enters the required information on the traveler.

- Inspection/verification (including monitoring) are accomplished at the points specified by the FVP.

- Nonconforming items are documented and NCRs are issued in accordance with YAP-15.1Q

- All required verifications are completed for closed FVPs.

- The QCR compiles the FVP package and it contains the following as applicable:

  - The FVP
  - Copies of completed NCRs and DRs associated with the FVP
  - The Open Item Tracking Log for the FVP
  - Copies of completed ICs or VARs
  - Copies of any Witness/Hold point waivers

- The QCR reviews the technical documents (specifications, drawings, procedures, etc.) and all changes to these and verifies that:

  - All required operations are completed.
  - All applicable NCRs, DRs, and action items have been satisfactorily dispositioned and closed.
  - All required verifications have been completed.
  - All Witness and Hold points have been completed or waiver documentation is available.

Results:

Compliance with QAP-10.1(Y) was verified by interviewing of RSN QC personnel, and by review of four JPs, five FVPs, five Open Item Tracking Logs, and three VARs. One deficiency, regarding JPs which lacked the required Open Item Tracking Logs, was identified. This was corrected during the audit, as noted in Section 5.5.2.11 of this report. No other deficiencies were identified. Follow-up to previously identified CARs YM-93-028 and -029 was performed as described in Sections 5.5.3.1 and 5.5.3.2 of this report.

Inspection [QAP-10.3(Y)]

Requirements:

- The QAR prepares the IC in accordance with the following :

  - Obtains a sequential IC number and records the appropriate information in the IC Log.

- The SQC maintains control number logs which identify as a minimum, the control number, the number of the IC used in the inspection, the responsible QCR, and the date(s).

- Prior to conducting the inspection the QCR obtains and lists the latest revisions of the technical documents in the appropriate blocks of the IC.

- The inspection is conducted in accordance with the instructions provided in Block 4 of the IC and the acceptability of each step is indicated where required.

- NCRs or DRs are issued as appropriate where an item is nonconforming or where activity is not performed in accordance with procedure requirements.

Results:

Three ICs prepared for FVPs and issued for field implementation were reviewed. Field implementation was also verified. There were no deficiencies identified.

Open Item Tracking (QAP-10.4)

- Upon receipt of a SVP or FVP, the QCR enters the plan number in Block 1 of the Open Item Tracking Log (Log) and the Log is maintained with the SVP or FVP.

- Open items are entered into the Open Item Log.

- Open Item resolution is entered in the Log.

Results:

There was one deficiency found in this area of the audit. Open Item Tracking Log was missing from the JP for the Solitario Canyon Fault. This was corrected during the audit. See Section 5.5.2.11 for more details. No other deficiencies were found.

Job Package Completion and Records (AP-6.22Q)

Requirements:

- At the final inspection point, the assigned actions are completed as defined by the A/E's inspection plan or the JP.

- Final inspection of completed work is performed in accordance with applicable procedures.

- Deficiencies or nonconformances are documented and dispositioned in accordance with QAP 15.1(Y).

- Copies of approved documents and any necessary supporting records are submitted to the DRC using records package training number in accordance with AP-18Q within 60 calendar days of the last scheduled acceptance.

Results:

Five FVPs, two NCRs and one DR were reviewed. RSN identified, on DR-93-0-009, noncompliance to the 60 calendar day requirement for submittal of as-built drawings. No other deficiencies were identified.

Summary for the QA Program Element

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews and review of objective evidence, the implementation of QA Program Elements 10.0 and 14.0 is satisfactory and effective.

11.0 TEST CONTROL
SUPPLEMENT II SAMPLE CONTROL

The evaluation of this QA program element was based on interviews with the RSN FO Manager and RSN MTL personnel and by examination of objective evidence to determine compliance with selected requirements from PP-11-01 and AP-6.3Q. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Test Control (QARD, Section 11.0)

Requirements:

- Test Planning shall include identification of the implementing documents to be developed to control and perform tests.

- Tests shall be performed in accordance with implementing documents that address test requirements and acceptance criteria provided based upon specified requirements contained in applicable design or other pertinent technical documents.

- Test results shall be documented and their conformance with acceptance criteria shall be evaluated by a qualified individual within the responsible organization to ensure that the test requirements have been satisfied.

Sample Control (QARD, Section Supplement II)

Requirements:

- Samples shall be controlled and identified in a manner consistent with their intended use.
- Sample identification methods shall ensure that traceability is established and maintained from the samples to applicable implementing documents or their specifying documents.
- Identification shall be maintained on the samples or in a manner which ensures that identification is established and maintained.

General Testing Procedure for the Materials Testing Laboratory Support (PP-11-01)

Requirements:

- Work requested by other participants and contractors is done in accordance with AP-5.39Q.
- Industry standards governing sample collection are listed on the WI form.
- Work requests are completed by work requester or MTL personnel for work to be completed.
- MTL personnel maintain a log of all samples received.
- Each sample is assigned a unique sample number.
- Markings and labels indicate the presence of special environments or the need for controls if necessary.
- Samples are secured in a manner suitable to prevent unauthorized handling.
- When special handling tools or equipment are used, they are tested and inspected at specified intervals.
- Industrial standard test methods are utilized for testing.

- When an industrial test method does not exist a procedure is written which addresses all elements listed in the procedure.

- Test records and final test report identify the following:

  - Item tested and MTL sample number.
  - Test procedure, including number and revision used and source.
  - Date of test.
  - Tester and/or data recorder.
  - Equipment number and most recent calibrated date M&TE used.
  - Observations.
  - Test results and, if appropriate, the acceptability or unacceptability of the test results.
  - Person evaluating test results.
  - Action taken with deviations noted.
  - Final test report contains the signature and date of supervisor reviewing and approving report.

- Test results have been evaluated to specified acceptance criteria, when appropriate.

Results:

The evaluation of these procedural requirements was based on examination of one Technical Field Work Request, six WIs to verify that industry standards were noted, four Work Requests, three final test reports, MTL Sample Log Sheet for FY 94, and interviews with RSN staff. Examined documentation was complete and met procedural requirements. The examined procedural requirements were being effectively implemented. Follow-up to previously identified CAR YM-93-081 was performed as described in Section 5.5.3.8 of this report.

Procedure For Requesting Samples for Examination at Yucca Mountain Site Characterization Project Sample Management Facility (AP-6.3Q)

There has been no implementation of this procedure.

Summary for the QA Program Element:

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews and review of objective evidence, the implementation of QA Program Elements 11.0 and Supplement II is satisfactory and effective.

12.0 CONTROL OF MEASURING AND TEST EQUIPMENT

The evaluation of this QA program element was based on interviews with the equipment custodian and examination of objective evidence to determine compliance with selected requirements from PP-12-01. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for this evaluation of compliance and effectiveness are listed below:

Control of Measuring and Test Equipment (QARD, Section 12.0)

Requirements:

- Measuring and test equipment shall be calibrated, adjusted and maintained at prescribed intervals or, prior to use, against reference calibration standards having traceability to nationally recognized standards.

- Calibrated measuring and test equipment shall be labeled, tagged, or otherwise suitably marked or documented to indicate due date or interval of the next calibration.

- Calibrated measuring and test equipment shall be uniquely identified to provide traceability to its calibration data.

Control of Measuring and Test Equipment (PP-12-01)

Requirements:

- Each M&TE device is tagged or identified to indicate its status.

- A Calibration History Log is established and maintained by the equipment custodian.

- Calibration certification identifies the information listed in this section.

    - Procedure used to perform calibration.
    - Organization performing calibration.
    - Person performing calibration.
    - Description of calibrated equipment.
    - Unique ID number of calibrated equipment.
    - Date of calibration.
    - Calibration due date or interval.
    - Tolerance.

- Initial test results (if equipment was previously used).
- Final results.
- Description of standards used to perform calibration including NIST number or other unique number indicating standards used to perform calibration.
- Prior to removing measuring and test equipment from service it is recalibrated if it has been used since last calibration.
- The Use Log is maintained by the equipment custodian and provides required information. (Refer to Attachment 4)
- Test and inspection reports reference the control number and most recent calibration date of the M&TE.

Results:

The evaluation of this QA program element was based upon the examination of M&TE records for six MTL instruments and two surveying instruments. M&TE were selected based on usage at the MTL for YMP quality-affecting test activities. Except for the deficient condition that was corrected during the audit regarding inappropriate correction of the RSN Surveying Department Use Log as described in Section 5.5.2.7 of this report, the M&TE records and instruments were found to be in compliance with procedural requirements. The specific records examined included the Calibration History Log, RSN Surveying Department Use Log, and the MTL Use Log. Follow-up to previously identified CAR YM-93-082 was performed as described in Section 5.5.3.9 of this report.

Summary for the QA Program Element:

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews and review of objective evidence, the implementation of QA Program Element 12.0 is satisfactory and effective.

15.0 NONCONFORMANCES

The evaluation of this QA program element was based on interviews with the QC Supervisor and other QC personnel and examination of objective evidence to determine compliance with procedure QAP-15.1(Y). In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Nonconformances (QARD, Section 15.0)

Requirements:

- Nonconformance documentation shall clearly identify and describe the characteristics that do not conform to specified criteria.
- Personnel performing evaluations of recommended dispositions shall have demonstrated competence in the specific area they are evaluating, an adequate understanding of the requirements, and access to pertinent background information.

Control of Nonconforming Items [QAP-15.1(Y)]

Requirements:

- For NCRs that are RSN's responsibility, RSN QC maintains a nonconformance log to track nonconforming items.
- The NCR forms are completed per Attachment 2 requirements when NCRs are closed.
- NCRs shall be distributed to responsible personnel at initiation, as required during the process, and at closure.

Results:

The evaluation of this QA program element was based upon the examination of two open and two closed quality-affecting NCRs. It was identified that QAP-15.1(Y), Revision 2, was canceled prior to closure of two open NCRs initiated in accordance with this procedure. The procedure was reissued during the audit. See Section 5.5.2.8 of this report for further details.

Summary for the QA Program Element

Except for the deficiency identified within the results noted above and based on the evaluation of objective evidence, the implementation of QA Program Element 15.0 is satisfactory and effective.

16.0 CORRECTIVE ACTION

The evaluation of this QA program element was based on interviews with RSN QA organization management and examination of objective evidence to determine compliance with selected requirements from QAPs -16.1(Y), 16-2(Y), and 16.3(Y). In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Corrective Action (QARD, Section 16.0)

Requirements:

- Conditions adverse to quality shall be documented and reported to the appropriate levels of management responsible for the conditions and to the QA organization for tracking.
- The QA organization shall verify implementation of corrective actions taken for all reported conditions adverse to quality and close the related corrective action documentation in a timely manner when actions are complete.
- The QA organization shall establish criteria for determining adverse quality trends.

Deficiency Reporting [QAP-16.1(Y)]

Requirements:

- RSN/YMP QA maintains a DR Log showing the status of DRs.
- The responsible organization is on distribution for Deficiency Report Action when the report has been initiated.
- The completed DR is returned to QA for corrective action via memo or letter on or before the designated response due date.
- Requests for extensions of the response due date are justified to QA, in writing, prior to the due date or effective date.
- Corrective actions are completed by the effective dates specified or a request for appropriate action is forwarded to the responsible organization.

- Correspondence is initiated and forwarded to the responsible organization when a DR is officially issued and closed.

- DRs and all supporting material are maintained as lifetime records in accordance with PP-17-01.

Results:

Verification of the three DRs issued since Audit YMP-93-13 were reviewed to determine that corrective action response is timely and that responsible personnel are included on distribution at each applicable interval of the corrective action. Follow-up to previously identified CAR YM-93-083 was conducted as described in Section 5.5.3.10 of this report.

Corrective Action [QAP-16.2(Y)]

There has been no implementation of this procedure.

Trend Analysis [QAP-16.3(Y)]

Requirements:

- A trend-analysis is performed by a QAR on a semi-annual basis.

- Documents used to conduct the Trend Analysis (CARs, DRs, Software Discrepancy Reports, Management Assessment findings, and NCRs) are classified by responsible organization, QA criteria, deficiency type, and when appropriate, hardware type as indicated on Attachment 2, Trend Codes.

- Trends are determined on the basis of the following conditions:

  - Excessive number of deficiencies (repetitive) relative to number of verifications performed for a particular organization, criteria, deficiency type and/or hardware type.

  - Significant increase in the number or significance of deficiencies per verification as compared to previous trend period(s).

- The Trend Analysis Report is approved by the SQA/YMP and distributed to the DOE Director, QA, and appropriate management.

- The Trend Analysis Report is maintained as a lifetime QA Record.

Results:

One Trend Analysis Report was issued for the period February 27, 1993 through August 31, 1993. No new deficiencies or adverse trends were identified. Evaluation of quality-affecting trends identified on DRs and NCRs revealed no discrepancies with the Trend Report for the period verified. The Trend Analysis Report was submitted to records as required and was retrieved for this audit activity.

Summary for the QA Program Element:

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews and review of objective evidence, the implementation of QA Program Element 16.0 is satisfactory and effective.

17.0 QUALITY ASSURANCE RECORDS

This QA program element was evaluated based on the review of objective evidence to determine compliance with selected requirements taken from implementing procedures PP-17-01 which implements AP-1.18Q, AP-5.2Q and PP-17-07. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Quality Assurance Records (QARD, Section 17.0)

Requirements:

- An individual or organization is assigned the responsibility for receiving QA Records.
- QA Records are protected from damage, deterioration, or loss when received.
- Legibility and completeness of QA Records is verified.

Records Management (PP-17-01)

Requirements:

- The TPO ensures that any YMP records that may be contained in working files are submitted to the Local Records Center (LRC) when an individual is leaving the YMP or changing jobs.

- The TPO provides the LRC with a list of personnel authorized to have access to privileged records and update as necessary.

- Record sources prepare the individual records in accordance with Appendix A, Pages 13 through 15, once the records have been identified.

- Record sources provide the following to the LRC if they have records package segments:

  - A record package title
  - A records package identifier
  - A Record Source name and organization
  - A quality-affecting designation (QA: QA or QA:N/A)
  - Configuration item identifier, as applicable

- Record sources prepare the Final Scientific and Technical Reports in accordance with Appendix A.

- Record sources protect documents that may become records or records packages in accordance with Appendix B.

- Record sources submit the records or records packages to the LRC in accordance with Appendix D.

- Record Sources generate records as, or convert records to magnetic tapes, assures that the magnetic tape record meets the requirements of Appendix A, Criteria for Electronic Records.

- QA Records that require temporary storage are maintained in a container or facility with 1-hour fire rating or are stored in dual location.

Results:

The YMP records maintained by an individual leaving YMP were in the custody of the Records Source Coordinator after termination of employment. Three records packages were verified for to compliance with AP-1.18Q. There were no magnetic records submitted at present. The Records Source Coordinator would not accept them since he had no means for reading them. At this time temporary records were adequately maintained. No deficiencies were identified.

Log Data Handling (PP-17-07)

Requirements:

- Logging tape and floppy disk labels contain:
  - Logging subcontractor company name,
  - well name
  - log type
  - run number
  - run date
  - tape number
  - depths recorded
  - Logging subcontractor's engineer's name
  - raw or edited designation
  - record density
  - tape format
  - file names
- A separate label on the logging tape contains:
  - read-check or copy verification
  - initials of logging subcontractor's engineer who verified the tape
- The LE determines the validity and completeness of the logging tape by interpreting the output of the RSN diagnostic tape program.
- The word "master or copy" is affixed to label.
- Logging prints are processed in accordance with 6.4 through 6.7.
- The Logging Data Computer Operator maintains an inventory of:
  - logging tapes in storage
  - logging video tapes in storage
  - logging floppy disks in storage including data format and location.
- The following lifetime QA Records are generated:
  - Two final prints
  - Log Quality Report
  - Record of Data Transfer

- Record of Verbal Communication
- Raw logging tapes (2)
- Logging video tapes (2)

Results:

All data, reports, and logging tapes were in the review process. The Records Source Coordinator (RSC) stated that, at present, he will not accept logging tapes because he has no means for reading or reproducing them.

Technical Information Flow To and From the YMP Technical Data Base (PP-03-18) (AP-5.2Q)

There was no implementation of this procedure. Follow-up to previously identified CAR YM-93-077 was not performed as described in Section 5.5.3.4 of this report.

Summary for the QA Program Element

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews and review of objective evidence, the implementation of QA Program Element 17.0 is satisfactory and effective.

18.0 AUDITS

The evaluation of this QA program element was based on interviews with RSN QA organization management and examination of objective evidence to determine the degree of compliance with selected requirements from QAPs -18.1(Y) and -18.2(Y). In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below.

Audits (QARD, Section 18.0)

Requirements:

- Internal audits shall be scheduled to begin as early in the life of the work as practical and shall be scheduled to continue at intervals consistent with the schedule for accomplishing the work.

- Regularly scheduled internal audits shall be supplemented by additional audits of specific subjects when necessary to provide an adequate assessment of compliance or effectiveness.

- Audits shall include technical evaluations of the applicable procedure, instructions, activities and items.

- An audit team shall be identified before beginning each audit. The audit shall include representatives from the QA organization and any applicable technical organizations.

- In the case of internal audits, personnel having direct responsibility for performing the work being audited shall not be involved in the selection of the audit team.

- Nonconformances identified during an audit shall be controlled by the audited organization according to the requirements of Section 15.0.

Audits [QAP-18.1(Y)]

Requirements:

- The SQA/YMP develops audit schedules which identify internal and external audits planned for the fiscal year.

  - Internal audits are performed annually or at least once during the life of the work, whichever is shorter.

- The audit schedule identifies the following, as a minimum:

  - Organizations to be audited
  - Audit number
  - Date of audit

- Supplier's QA programs are evaluated for audit on at least an annual basis.

  - Supplier audits for compliance shall be performed on a triennial basis when supplemented by annual evaluations.

- A determination may be made that external audits are not necessary for procuring items that are:

  - Relatively simple and standard in design, manufacture, and test; or
  - Adaptable to standard or automated inspections or tests of the end product to verify quality characteristics after delivery. The rationale for not performing an external audit shall be documented and maintained as part of the QA record,

- An audit log (Attachment 1) is maintained by QA. This log includes the audit number, audited activity, ATL, start date and close date.

- The ATL develops a plan for each audit. The SQA approves the audit plan. This plan identifies the audit scope; requirements for performing the audit; implementing documents, activities and items to be audited; audit personnel; organizations to be notified; applicable documents; schedule; and written checklists.

- Checklists for audits of readiness review as a minimum, include provisions for verifying the following activities:

  - Work activity prerequisites have been satisfied.
  - Detailed implementing documents and management controls are available and approved.
  - Personnel have been suitably trained and qualified.

- The Audit Report is issued under the signature of the Manager QA, YMP within 30 calendar days of the audit. The report includes the following information as appropriate:

  - Description of the audit scope.
  - Identification of the audit team members.
  - Identification of persons contacted during audit activities.
  - Summary of audit results, including a statement of the adequacy and effectiveness of the technical and QA program elements that were audited.
  - Description of each reported adverse deficiency, nonconformance and recommendations.
  - The documents reviewed, persons interviewed and the specific results of the reviews and interviews, that is a summary of the checklist contents.

- External audit reports are transmitted under the signature of the SQA/YMP to the supplier or subcontractor through the cognizant purchasing organization.

- QA maintains a file for each audit, which includes the following QA Records, as applicable:

  - Audit Plan
  - Audit Report
  - DRs
  - Corrective Action Reports
  - NCRs

- Records of DR Completion
- Completed Audit Checklists
- Letter closing the audit
- Audit Guide for Technical Specialists

Results:

The RSN audit schedule dated December 8, 1993 and the RSN audit log, were reviewed and it was determined that no audits have taken place or were due since the last audit by YMPO. There has been only limited implementation of this procedure which includes the audit schedule and log. What has been implemented was deemed to be adequate.

Surveillance [QAP-18.2(Y)]

Requirements:

- Surveillances are conducted by personnel who are knowledgeable in, and who have no direct responsibility for the activity or item being surveilled.

- The SQA/YMP maintains a Surveillance Log, which shows the surveillance number, date of surveillance, individual(s) who performed the surveillance and status.

- The SQA/YMP audits prepares and maintains a surveillance schedule which is based upon work schedules and the results of previous audits and surveillances.

- Personnel performing surveillances prepare a Surveillance Report which includes the following as applicable:

  - Date(s) of surveillance.
  - Objective of surveillance (Description of the activity or item under surveillance).
  - Personnel conducting surveillance.
  - Personnel contacted during surveillance.
  - Acceptance/rejection statement concerning item or activity surveilled.
  - Identification of deficiencies, as appropriate.
  - Recommendations, as appropriate.
  - M&TE used during the surveillance.

- The SQA/YMP reviews and approves the Surveillance Report.

- The surveillance remains open until all deficiencies are resolved. Upon satisfactory resolution of deficiencies, the SQA/YMP shall notify the affected organization via letter or memorandum of the closure of the surveillance.

- The following documents generated during the implementation of this procedure are lifetime QA Records which are submitted in accordance with PP-17-01.

  - Surveillance Report
  - Planning Documents
  - DRs
  - Correspondence to resolve deficiencies
  - Closure letter or memorandum

Results:

Three Surveillance Records Packages which included Surveillance Reports, Planning Documents, and Closure letters were reviewed. The Position Descriptions and Verification of Education and Experience for three personnel were also examined. It was identified that the Surveillance Log maintained by the QA Organization did not contain the dates the surveillances were performed. This was corrected during the audit, as noted in Section 5.5.2.9 of this report. No other deficiencies were identified. The implementation of this procedure was considered adequate for the scope of work presently being conducted.

Summary for the QA Program Element

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews and review of objective evidence, the implementation of QA Program Element 18.0 is satisfactory and effective.

SUPPLEMENT I SOFTWARE

This QA program element was evaluated based on the review of objective evidence to determine compliance with selected requirements taken from implementing procedures PP-19-07 and QAP-19.1(Y). In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Software (QARD, Supplement I)

Requirements:

- The software verification shall be performed and documented to ensure that the products of a lifecycle phase met the requirements established for that phase.
- Software validation activities are integrated into the software lifecycle.
- Testing is the primary method of software validation.

Certification of Computer Software (PP-19-07)

Requirements:

- The Software Configuration Management Log (SCML) is filled out in accordance with Attachment 1.
- A Design Baseline Memorandum was issued in accordance with PP-03-15.
- An Engineering Change Request was issued in accordance with PP-03-17.
- Status reporting of qualified software is in accordance with PP-03-16.
- A Software Authorization Request Form (Attachment 2) , and Software Requirements Specification, Attachment 3, are generated and approved during the Classification and Authorization Phase for Scientific and Engineering Software.
- During the Acquisition and Evaluation Phase the following documents are generated and approved:
  - Computer Receipt Inspection Report (Attachment 4)
  - User Document Review Report (Attachment 5)
  - Test Document Review Report (Attachment 6)
  - Software Verification and Validation Plan (Attachment 7)
  - Software Validation Waiver (Attachment 8)
- The SCML number is inserted in all the documents which exist in the final certified software package (documents generated from the beginning of the software authorization process all the way to the certification process) and are in the Design Record Center.

- The Using Department maintains a log documenting the use of released software items.

- The log is sufficient to allow independent repetition of the use of the software.

- A software product is placed on hold in accordance with Section 6.1.2 if a Software Discrepancy Report is issued.

Computer Software [QAP-19.1(Y)]

Requirements:

- A log is maintained by the QA of RSN computer documents received by the QA Department.

Results:

Four software packages identified in the SCML (PP-19-07) and the QAR Software Review Log [QAP-19-1 (Y)] were examined. Global Positioning Survey, Software, SCML-22, was the only software that had activity since the last audit. This software was in the final stages of the review process.

Summary for the QA Program Element

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews and review of objective evidence, the implementation of QA Program Element Supplement I is satisfactory and effective.

SUPPLEMENT IV FIELD SURVEYING

The evaluation of this QA program element was based on interviews with RSN Survey Support personnel and the examination of objective evidence to determine compliance with the requirements of implementing procedures PP-01-02, -03 and -04. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into RSN's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Field Surveying (QARD, Section Supplement IV)

Requirements:

- A permanent system of horizontal and vertical controls is established and maintained.
- This system is used in accordance with implementing documents to obtain the accurate location and relocation of designated features, including locations of sample or data collection.

Work Initiation (PP-01-02)

Requirements:

- The WI form is used to initiate applicable work in support of the YMP.
- WI Log is maintained to provide a history of each WI and revisions thereto.
- Field Operations maintains a separate WI Control Log at the Area 25 Field Office.
- Applicable codes, standards, and regulations, if not contained in the criteria documents, are identified with effective dates on the WI.
- WI issued for surveys contains the appropriate accuracy requirements.
- When the work has been completed or needs to be stopped the department responsible for issuing the WI issues a final revision.

Results:

The verification of the above requirements was made by the review of fourteen WI forms, by verifying that FO maintains a separate WI Log at the Area 25 Field Office and verifying that appropriate accuracy requirements are contained in the WI forms or that when not specified, the accuracy of the surveying is done to Third Order of Accuracy. The examined WIs were complete and met procedural requirements except for one which did not provide the appropriate accuracy. This was corrected during the audit and is discussed in Section 5.5.2.10.

Survey Group Work Functions (PP-01-03)

Requirements:

- All survey data (i.e., Survey Field Notes, Attachment 1), Cross Section Forms LV-2040 (Attachment 2), and Slope Staking and Layout Sheet Forms LV-2082 (Attachment 3)are reviewed, checked, and distributed in accordance with PP-01-04.

- The YMP Primary Control position accuracy is 1:100,000 and YMP Secondary Control position accuracy is 1:50,000 as noted in Standards and Specifications of Geodetic Control Networks.

- Total Station Distance Meter (TDSM) instruments have an operational check prior to use.

- The appropriate surveying instrument is positioned over or under an established control point, which has known values, (i.e., state plane coordinates).

- An adjacent established control point (backsight) is sighted. The appropriate angle is turned and a distance is measured to the new control point (foresight). The new point is established as a permanent or semipermanent monument.

- Establish a Centerline or Offset of Centerline for a Vertical Shaft from an established horizontal control point.

Results:

Four Survey Field Notes, one RVC and one TDSM were reviewed. The evaluation was limited to the verification of the Order of Accuracy that the surveys were performed. Other verifications could not be performed due to lack of on-going field surveying at the time of the audit.

Survey Department Document Control and Distribution (PP-01-04)

Requirements:

- All survey data (field notes), is recorded in self-duplicating type field books (K&E 82-0062 or equal), or when measuring tunnel cross section data is recorded on the Cross Section Form or the survey field notes per PP-01-03, or when precise leveling runs are recorded on the Precise Leveling 3-Wire Forms per PP-01-03, or when electronic data collection is used in support of the survey field books, data is

collected on the Total Station Distance Meter recording module and is published as a data collection file per PP-01-03, or when slope staking is recorded on the Slope Staking and Layout Sheet Form per PP-01-03.

- The Survey Group (SG) Computer person reviews and checks the submitted survey data for mathematical correctness. If no errors or omission are found, calculations and/or plots are finalized with a copy of the annotation tables filed. The computer person initials and dates the SG record copy of the survey data and calculations.

- A listing of primary control monuments will be maintained by the survey department. This listing will contain the name, coordinates, order of accuracy, and originator.

Results:

Four Survey Field Notes, one TDSM, and the Global Position Survey Software, SCML-22, were evaluated. The tunnel primary control points are established in a two step process. One step establishes the horizontal position from one set of primary control points; another step establishes the vertical position using elevations established in the "Elevation List and Descriptions - USGS Leveling - Yucca Mountain, Nevada."

The verification and validation of the Global Positioning Survey software and receivers were reviewed. At present, this equipment will be used to calculate horizontal position only. This equipment produced highly accurate results when compared with other established control points.

Presently the National Geodetic Survey First Order Control, which is the basis for YMP Control Points, is published in both NAD 83 and NAD 27. NAD 83 is a redefinition and readjustment of NAD 27. To avoid confusion in the use of these datums, it is recommended that NAD 83 be established as the only datum to be used on this project. See Section 6.1 of this report for more details.

Summary for the QA Program Element

The RSN implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews and review of objective evidence, the implementation of QA Program Element Supplement IV is satisfactory and effective.

ATTACHMENT 3

OBJECTIVE EVIDENCE

DOE/RW-0333P, Revision 0, "Quality Assurance Requirements and Description" was universal to all the QA Program Elements.

QA PROGRAM ELEMENT 1.0, "ORGANIZATION"

Procedures:

Compliance with the following procedures was reviewed:

PP-01-05, Revision 1, "YMP Organization"
QAP-1.1(Y), Revision 3, "Organization"

Objective Evidence Examined:

Organization Chart dated 1/1/94

Surveillance schedule dated 12/22/93

Surveillance Reports:

Surveillance Report SR(Y)-93-011
Surveillance Report SR(Y) 93-012
Surveillance Report SR(Y) 93-013

Audit Schedule dated 12/8/93

ASL dated 12/16/93

Trend Analysis for the period 2/27/93 through 8/31/93

All 42 Field Verification Plans (to the date of the audit)

DR Log

Letters of delegation of authority from D. Tunney:

YMP:QA:025:94, 11/30/93
YMP:QA:038:94, 12/22/93

Job Descriptions and Verifications of Education and Experience:

R. Bullock	R. Schreiner	D. Tunney	W. Kopatich
D. Cunningham	S. Gibson	T. Nelson	V. Thummala

QA PROGRAM ELEMENT 2.0, "QUALITY ASSURANCE PROGRAM"

Procedures:

Compliance with the following procedures was reviewed:

PP-02-01, Revision 3, "Indoctrination and Training"
PP-02-02, Revision 2, "Personnel Selection"
PP-02-03, Revision 2, "Management Assessment"
PP-02-08, Revision 1, "Training, Qualification, and Certification of Materials Testing Laboratory Personnel"
QAP-2.1(Y), Revision 1, "Quality Assurance Program Status Reporting"
QAP-2.2(Y), Revision 1, "Training and Indoctrination of Quality Assurance Personnel"
QAP-2.3(Y), Revision 1, "Qualification of Audit Personnel"
QAP-2.4(Y), Revision 2, "Stop Work Order"
QAP-2.6(Y), Revision 1, "Training, Qualification and Certification of QC Inspection Personnel"
QAP-2.7(Y), Revision 0, "Development of the Quality Assurance Program"

Objective Evidence Examined:

Job Descriptions:

J. Aamodt Engineer II	K. Olmstead Technician I	H. Straight Sr. QA Engineer	J. Moore QC Inspector II
D. Anderson Technician I	B. Patel Supervisor, MTL	P. Hale Supervisor, QC	V. Thummala Sr. Engineer
C. Herrington Sr. Specialist	R. Strote Technician II	W. Lindquist Sr. QA Specialist	

Personnel Qualification Evaluations, Form LV-304 (Convention Center Drive):

J. Aamodt, 7/6/93	K. Olmstead, 7/14/93	H. Straight, 7/6/93
D. Anderson, 7/6/93	B. Patel, 7/6/93	P. Hale, 12/22/93
C. Herrington, 7/14/93	R. Strote, 7/6/93	W. Lindquist,7/6/93V.
Thummala, 7/6/93	J. Moore, 7/15/93	

Personnel Qualification Evaluation, Form LV-304 (Summerlin):

J. Aamodt, 7/6/93
R. Strote, 7/6/93
B. Patel, 7/6/93
C. Herrington, 7/14/93
D. Anderson, 7/6/93
V. Thummala, 7/6/93
K. Olmstead, 7/6/93
J. Moore, 7/15/93

Reading files verified for training to job specific procedures:

J. Aamodt
R. Bullock
D. Anderson
C. Herrington
V. Thummala
B. Patel
K. Olmstead
E. Ferguson
B. Stanley
W. Kopatich
J. Moore
P. Dahlberg
P. Hale
W. Lindquist
R. Remington
H. Straight
D. Cunningham
R. Olson
R. Strote
R. Criddle
D. Tunney
G. Morrison

Training and Indoctrination files for QA personnel:

H. Straight, 7/6/93
P. Hale, 12/22/93
W. Lindquist, 7/6/93
J. Moore, 7/15/93

Memoranda:

Schreiner to Kopatich, Delinquent Self-Study Training Notice, dated 1/24/94, IC-4152
Schreiner to Musick, Delinquent Self-Study Training Notice, dated 1/24/94, IC-4153

Record Package Transmittal Form for training:

Transmitted by: K. Kirwan, 9/10/93
Receipt acknowledgement signed by J. Ferguson, 9/10/93

Management Assessment:

Memorandum dated 1/19/94, Mattimoe to Kopatich, JCM:llh, Management Assessment Team, schedule and plan.

Monthly Activity Reports reviewed:

October 1993 report dated 11/1/93, Tunney to Kopatich
November 1993 report dated 11/30/93, Tunney to Kopatich
December 1993 report dated 1/3/94, Tunney to Kopatich

Transmittal/Receipt Acknowledgments:

October Monthly Activity Report, Received 11/11/93
November Monthly Activity Report, Received 12/15/93
December Monthly Activity Report, Received 1/6/94 (not yet accepted)

Auditor files containing position descriptions and verifications of education and experience for:

N. Rohach W. Straight D. Tunney

Records of certification for the following QC inspection personnel were verified:

P. B. Hale, Level III Mechanical Inspector and CA/QC Inspection Level III for RSN YMP, all 10/15/93.
J. A. Moore, QC Inspector, Level II, YMP Mechanical - 7/13/93, Welding - 8/4/93, Electrical - 8/2/93.
W. A. Lindquist, Civil/Structural Level II Mechanical, Welding, Electrical - All recertification on 6/23/93.

File records of verification and experience were verified for the following personnel:

P. B. Hale-SQC,CA/Level III QC Inspector
W. A. Lindquist-Level II QC Inspector
J. A. Moore- Level II QC Inspector

Verified that written exams had been administered to the following personnel:

W. A. Lindquist and J. A. Moore

Verified that the following Inspection personnel had received an annual eye examination:

P. B. Hale, 10/15/93 W. A. Lindquist, 5/11/93 J. A. Moore, 6/21/93

Record of Certification, Attachment 1; Record of Education and Training, Attachment 2; and Qualifying Experience, Attachment 3 for the following RSN personnel:

J. Aamodt B. Patel D. Anderson R. Strote
D. Herrington V. Thummala K. Olmstead

Letters of Revocation were examined for J. Aamodt and K. Olmstead (both dated 2/15/93).

Log for monitoring MTL personnel training

Requirements Traceability Network:

RSN Requirements Matrix Report dated 1/25/94

QA PROGRAM ELEMENT 3.0, "DESIGN CONTROL"

Procedures:

Compliance with the following procedures was verified:

QAP-3.1(Y), Revision 2, "Quality Assurance Review of Design Output Documents"
PP-03-02, Revision 1, "Design Methodology"
PP-03-20, Revision 1, "Surface Based Borehole Programs"
PP-03-23, Revision 1, "Field Change Control Process"

Objective Evidence Examined:

Study/Analysis Review Checklist Log
Title II Drawing Review Checklist Log
Title II Specification Review Checklist Log
Log for Record of Verbal Communication (RVC) and the RVC distribution
Classification Analysis for Access Roads From H Road to North Portal Pad
Consolidated Conceptual Design Report, Draft

Work Programs:

USW SD-12, Borehole Work Program, Revision 0, 1/20/04
USW NRG-7/7A, North Ramp Borehole, Revision 0, 10/14/93
USW NRG-7/7A, North Ramp Borehole, Revision 1, 12/16/93

QA Grading Report RSN-GR-003, Revision 0

RSN Review Comment Record Forms for Work Program USW SD-12 submitted by:

D. Wonderly, REECo	D. Knight, REECo	D. Kessell, SNL
C. Rautman, SNL	M. Tynan, YMPO	E. Wright, RSN

Job Packages and their associated FCRs by log number:

JP 92-10
FCR Log Nos. 93-001 and 93-002
JP 92-02
FCR Log Nos. 93-003 and 93-011

JP 92-03
FCR Log Nos. 93-017 and 93-019
JP 92-05
FCR Log Nos. 93-014 and 93-026
JP 92-20
FCR Log Nos. 93-004, 93-005, and 93-010
JP 92-19
FCR Log No. 93-013

FCR Evaluation Log located at the FOC

JP Records Packages:

JP 92-04
JP 92-10

QA PROGRAM ELEMENT 4.0 "PROCUREMENT DOCUMENT CONTROL" AND QA PROGRAM ELEMENT 7.0 "CONTROL OF PURCHASED ITEMS AND SERVICES"

Procedures:

Compliance with the following procedures was reviewed:

PP-04-01, Revision 1, PIC 3, "Purchasing (Services)"
QAP-7.1(Y), Revision 2, PIC 1, "Supplier Selection"
QAP-7.2(Y), Revision 3, PIC 2, "Source Verification"
QAP-7.4(Y), Revision 1, PIC 1, "Supplier Deviation Report"

Objective Evidence Examined:

Procurement Document Control

Purchase Requisition Forms (RSN 219), Technical Review Checklist Forms (LV-383), Quality Assurance Procurement Document Review Checklist Forms (LV-354), and Purchase Order Forms (RSN 222) were reviewed for the following procurements, as applicable:

Colorado School of Mines
PR-93-205
RFP-93-048
Sokkia Corporation
PR-93-216

BPB Instruments, Inc.
PO-94-0024AX, Mod. 1
PR-93-223
RFP-93-051
SUB 94YMP0005
Schlumberger Well Services
PO 94YMP0002
Unawarded
PR 94YMP0017

Supplier Selection

Supplier Survey Checklist Forms (LV-415), Supplier Evaluation Summary Forms (LV-219), Quality Assurance Manual Review Checklist Forms (LV-2026), and Supplier Review Forms (LV-2029) were reviewed for the following supplier qualifications, as applicable:

Sokkia Corporation
Colorado School of Mines
BPB Instruments, Inc.
RSN Nondestructive Testing
Heleco, Inc.
National Institute of Standards and Technology

Miscellaneous Documents:

RSN Approved Suppliers' List For YMP, Revision 7, dated December 16, 1993

Training records to QAP-7.1(Y) for the following individuals:

P. B. Hale	D. J. Tunney	B. Stanley	H. W. Straight
R. M. Olson	P. Dahlberg	G. L. Morrison	E. R. Morrison
W. C. Kopatich	R. L. Bullock		

QA PROGRAM ELEMENT 5.0 "IMPLEMENTING DOCUMENTS"
QA PROGRAM ELEMENT 6.0 " DOCUMENT CONTROL"

Procedures:

Compliance with the following procedures was examined:

PP-05-01, Revision 2, "Preparation and Control of Procedures"
PP-06-01, Revision 1, PIC 2, "Controlled Document Distribution"
PP-06-05, Revision 2, "Submittal Control and Review"
PP-06-06, Revision 0, "Review of Documents"

Objective Evidence Examined:

QAPs:

QAP-2.3(Y), R 1, P1	QAP-2.6(Y), R1, P1	QAP-10.1(Y), R4, P2
QAP-10.3(Y), R1, P2	QAP-16.1(Y), R1, P1	QAP-16.2(Y), R1, P1
QAP-18.1(Y), R1, P1	QAP-18.2(Y), R1, P1	

PPs:

PP-01-02, R1, P1	PP-02-01, R3	PP-03-20, R1, P2
PP-10-01, R1, P1	PP-11-01, R1, P1	PP-17-01, R3, P1
PP-19-07, R0, P2		

Books of Manual Holders Reviewed:

PPs:

R. L. Schreiner, Manual No. 10	J. L. Rue, Manual No. 23
E. L. Wright, Manual No. 27	T. S. Landaz, Manual No. 43
G. D. Woodard, Manual No. 73	R. M. Olson, Manual No. 123

QAPs:

R. L. Schreiner, Manual No. 8	J. C. Mattimoe, Manual No. 11
A. C. O'Donnell, Manual No. 12	J. L. Rue, Manual No. 17
J. E. Ferguson, Manual No. 19	E. L. Wright, Manual No. 27

Procedures (Document) Transmittals examined:

Transmittals for the issuance of those QAP revisions and the associated controlled document manual holders listed above were reviewed.
Transmittals for the issuance of those PP revisions and the associated controlled document manual holders listed above were reviewed.

Miscellaneous Documents:

YMP Project Procedure Manual Controlled Copy Distribution List, dated 1/20/94
RSN QAPs Controlled Copy Distribution List, Revision 38
Memorandums establishing the training requirements for all PPs listed above and for QAP-2.3(Y), Revision 1, PIC 1 and QAP-2.6(Y), Revision 1, PIC 1

Training records to PP-05-01, -06-01, and -06-06 for the following individuals:

P. B. Hale D. J. Tunney W. C. Kopatich J. L. Rue

QA PROGRAM ELEMENT 10.0 "INSPECTION"
QA PROGRAM ELEMENT 14.0 "INSPECTION, TEST AND OPERATING STATUS"

Procedures:

Compliance with the following procedures was reviewed:

PP-10-01, Revision 1, PIC-1, "Field Drilling Engineer Support Activities"
PP-10-02, Revision 1, "Field Logging Operations"
PP-10-03, Revision 0, "Construction Management Reporting"
QAP-10.1(Y), Revision 4, PICs 1 and 2, "Field Verification"
QAP-10.3(Y), Revision 1, PICs 1 and 2, "Inspection"
QAP-10.4, Revision 1, PIC 1, "Open Item Tracking"
AP-6.22Q, Revision 0, "Job Package Completion and Records"

Objective Evidence Examined:

DDRs dated 11-08-93 and 01-10-94 for Borehole USW NRG-7/7A
CRRs dated 01-13-94, 01-14-94, 01-24-94, 01-19-94, 01-18-94, 01-06-94, 01-03-94, and 01-05-94 No. 209 for Borehole USW NRG-7/7A
RDRs dated 10-21-93, 10-22-93, 10-27-93, 10-28-93, 10-29-93, 10-26-93, 11-01-93 and 11-04-93 for Borehole USW NRG-7/7A
Daily Operations Reports dated 01-07-94, 01-13-94, and 01-19-94 for Borehole USW NRG-7/7A
REECo DDRs dated 01-24-94, 01-21-94, and 01-18-94 for Borehole USW NRG-7/7A

Borehole Drilling Program revised 09/08/93 for the following boreholes:

UE-25 NRG-2	UE-25 NRG-2A
UE-25 NRG-2B	UE-25 NRG-3
UE-25 NRG-4	UE-25 NRG-5
UE-25 NRG-6	USW WT-2

RSN Work Programs:

YMP/WP/93-21, Revision 0 for UE 25 NRG-2A and NRG-2B
YMP/WP/93-09, Revision 1 for USW UZ-14
YMP/WP/93-08, Revision 3 for UE-25 NRG-4

RVCs:

YMP-RVC-082-94, Dated 01/07/94
YMP-RVC-071-94, Dated 12/6/93
YMP-RVC-070-94, Dated 12/3/93

Logging Callout Records Dated:

01/6/94 to BPB, 11/24/93 to BPB, and 10/15/93 to SWS (Schlumberger Well Service)

VARs dated:

06/29/93 for NRG-6
12/6/93 for NRG-3
12/4/93 for NRG-4

WI forms:

WI No. FO:WI:94-004
WI No. FO:WI:94-008
WI No. FO:WI:94-015

JPs:

JP 93-02A
JP 93-13
JP 94-02
JP 93-03

FCR Evaluation Logs for:

1993 (10/22/92 to 06/10/93)
1994 (One evaluation to date)

Open Item Tracking Logs For:

JP-94-04
JP-92-12
JP-92-05
USW-25 NRG 7/7A
Solitario Canyon Fault

FVPs:

FVP-92-036.1 (NRG-3)
FVP-92-036.1 (NRG-4)
FVP-92-036.0 (NRG-6)
FVP-93-051.0 (NRG-2B)
FVP-92-012.0 (For open item log resolution)

ICs:

IC-02110-001.0
IC-02220-001.0
IC-02224.001.0

ICs:

IC-02110-001.0, Dated 06/23/93
IC-02220-001.0, Dated 06/23/93
IC-02224-001.0, Dated 06/23/93
IC-02220.001.0, Dated 06/23/93

IC Control Log Numbers:

SVP/FVP-92-005
SVP/FVP-92-011
SVP/FVP-92-012

NCRs Verified:

NCR No. RSN-Y-0017-0
NCR No. RSN-Y-0017-1

DR-93-0-009

QA PROGRAM ELEMENT 11.0, "TEST CONTROL"
SUPPLEMENT II, "SAMPLE CONTROL"

Procedure:

Compliance with the following procedures was reviewed:

PP-11-01, Revision 1, "General Testing Procedure for the Materials Testing Laboratory Support"

AP-6.3Q, Revision 1, ICN 1, "Procedure For Requesting Samples For Examination At Yucca Mountain Site Characterization Project Sample Management Facility"

Objective Evidence Examined:

MTL Work Request Forms:

903MMC
503CCE
903CBT
61066 (REECo)

WIs:

94-004, R0
94-008, R0
94-015, R0
94-015, R1
93-070, R0
93-075, R2

Final Test Report and Test Records

No. 503CCE (MTL sample Nos. 4570, 4571, 4572, and 4602)
No. 601434
No. 903MMC (MTL sample Nos. 1258 and 1261) in process at time of audit

MTL Sample Log Sheet, FY 94

Technical Field Work Request Number 93423

QA PROGRAM ELEMENT 12.0, "CONTROL OF MEASURING AND TEST EQUIPMENT"

Procedure:

Compliance with the following procedure was reviewed:

PP-12-01, Revision 1, "Control of Measuring and Test Equipment"

Objective Evidence Examined:

Calibration tags and Calibration Certification forms for the following equipment:

MTL Equipment:

Instrument	PTL ID Number
Mettler PM6100	W1723
STD "L" Universal	W83
Fowler Caliper	W6189
Mettler PM16	W1256
Triple Beam Balance	W2618 (tagged-out-of-use)
Sieve 2"	W121

Surveying Instruments:

Instrument	ID Number
SOKKIA NET2 Electronic Distance Meter	DOE No. 260719
Wild NA-2 Level	DOE No. 259812

Logs:

RSN MTL Use Log, FY 1994
RSN Surveying Department Use Log, FY 1994

QA PROGRAM ELEMENT 15.0, "NONCONFORMANCES"

Procedure:

Compliance with the following procedure was reviewed:

QAP-15.1(Y), Revision 2, "Control of Nonconforming Items"

Objective Evidence Examined:

RSN YMP NCR Log dated November 5, 1993

Reissued QAP-15.1(Y), Revision 3

NCRs initiated in accordance with QAP-15.1(Y):

RSN-Y-0012-0, initiated 8/16/93, closed 9/14/93
RSN-Y-0013-0, initiated 9/3/93, closed 11/22/93
RSN-Y-0015-0, initiated 11/9/93, open
RSN-Y-0016-0, not issued
RSN-Y-0017-0, initiated 11/9/93, open
RSN-Y-0017-1, initiated 11/17/93 as a revision to RSN-Y-0017-0, open

Correspondence:

RSN-Y-0012-0, memo McClaskey to Distribution, dated 8/17/93, QC:YMP:93:007
RSN-Y-0012, memo Hale to Distribution, dated 9/14/93, RSN-YMP:1549:93
RSN-Y-0013-0, memo Hale to Distribution, dated 11/22/93, YMP:QC:002-94

QA PROGRAM ELEMENT 16.0, "CORRECTIVE ACTION"

Procedures:

Compliance with the following procedures was reviewed:

QAP-16.1(Y), Revision 1, "Deficiency Reporting"
QAP-16.2(Y), Revision 1, "Corrective Action"
QAP-16.3(Y), Revision 1, "Trend Analysis"

Objective Evidence Examined:

RSN DR Log dated January 4, 1994

DRs:

DR-93-0-007, Review and Approval 01/14/94
DR-93-0-008, Review and Approval 12/8/93
DR-93-0-009, Review and Approval 11/16/93

Memoranda:

Kopatich to Tunney, dated 11/8/93, YMP:IC:052:94, DR-93-0-008
Tunney to Kopatich, dated 11/9/93, YMP:QA:018:94, DR-93-0-008
Kopatich to Tunney, dated 11/10/93, YMP:IC:048:94, DR-93-0-008

Transmittal/Receipt Acknowledgment:

Transmittal No. 0305, stamped 11/17/93, CRF Acceptance 11/17/93
Transmittal No. 0293, stamped 10/25/93, CRF Acceptance 10/28/93

Trend Analysis Report, dated 10/13/93 for the period February 27, 1993 through August 31, 1993

QA PROGRAM ELEMENT 17.0, "QUALITY ASSURANCE RECORDS"

Procedures:

Compliance with the following procedures was reviewed:

PP-17-01, Revision 3, "Records Management"
PP-17-07, Revision 1, "Log Data Handling"
AP-1.18Q, Revision 1, "Records Management: Las Vegas Record Source Responsibilities"
AP-5.2Q, Revision 4, "Technical Information Flow to and from the Yucca Mountain Site Characterization Project Technical Data Base"

Objective Evidence Examined

Records Packages:

USW SD-12 FVP-93-C55
Survey Support - Land Access and Environmental Clearance of 69 KV Power Service
Transmittal of Historical Records for USW SD-12 Borehole Work Program, YMP/WP/93-18R0

Insulated Record Container Class 350-UL Rated 350-1 hr, Serial No. B016460, Model No. 4LFC-1

USW WT-2 Mag tapes, one each, ASCII, Edited, and Raw processed by FED, Principal Engineer

Logging of Well USW WT-2:

Sidewall Neutron Porosity Gamma Ray
Litho-Density Log
Dual Induction SFL Gama Ray

RCI No. 3-DR-0ECV-SW 003 SOKKIA MAP 5.0, Survey Software

DR-93-0-009

QA PROGRAM ELEMENT 18.0, "AUDITS"

Procedures:

Compliance with the following procedures was verified:

QAP-18.1(Y), Revision 1, "Audits"
QAP-18.2(Y), Revision 1, "Surveillance"

Objective Evidence Examined:

Audit Schedule dated 12/8/93

Surveillance Schedule dated 12/22/93

Surveillance Log through January 1994

Surveillance Reports for:

SR(Y) 93-011
SR(Y) 93-012
SR(Y) 93-013

Surveillance Records Packages for Surveillances SR(Y) 93-011, 012, and 013 Containing:

Surveillance Reports, Planning Documents, and Closure Letters

Position Descriptions and Verification of Education and Experience for:

N. Rohach
W. Straight
D. Tunney

SUPPLEMENT I, "SOFTWARE"

Procedures:

Compliance with the following procedures was reviewed:

PP-19-07, Revision 0, "Certification of Computer Software"
QAP-19.1(Y), Revision 1, "Computer Software"

Objective Evidence Examined:

Software Packages:

SCML-22 GPS, Global Positioning Survey Software
SCML-21 SOKKIA Map 5.0,
SCML-18 FLAC 3.0.
SCML-18-01 FLAC 3.03

QA Representative Software Review Log, FY 1993 and 1994

SUPPLEMENT IV, "FIELD SURVEYING"

Procedures:

Compliance with the following procedures was reviewed:

PP-01-02, Revision 1, "Work Initiation"
PP-01-03, Revision 2, "Survey Group Work Functions"
PP-01-04, Revision 2, "Survey Group Document Control and Distribution"
QAP-1.1(Y), Revision 3, "Organization"

Objective Evidence Examined:

RVC:FE:93-16, "Yucca Mountain Project Primary Survey Control"

Survey Field Notes:

YMP42/23-24
YMP42/25
YMP25/9
YMP42/23A-24A

Total Station Distance Meter, Wilder TC1600, Model No. 708014

Global Positioning Survey Software, SCML-22

WI forms reviewed:

93-058, Revision 0	93-065, Revision 1
93-070, Revision 0	93-072, Revision 0
93-073, Revision 3	93-075, Revision 2
94-002, Revision 1	94-004, Revision 0
94-006, Revision 0	94-008, Revision 0
94-011, Revision 0	94-015, Revision 0
94-018, Revision 0	94-022, Revision 0

Miscellaneous:

WI Log for FO verified for 1993 and as of date of audit for 1994.

Technical Field Work Request No. 93423

ATTACHMENT 4

INFORMATION COPIES

OF

CORRECTIVE ACTION REQUESTS

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

8 CAR NO.: YM-94-016
DATE: 1/31/94
SHEET: 1 OF 1
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document	2 Related Report No.
QARD DOE/RW-0333P	YMP-94-03

3 Responsible Organization	4 Discussed With
RSN PP-02-01, Revision 3	Daniel Tunney

5 Requirement:

QARD 2.2.11, I. states: "Ensure records on individuals generated by training and qualification programs are collected and maintained."

QARD 17.0, Section 17.2.1, A., 6. states in part: "Documents that meet the following requirements shall be classified as lifetime quality assurance records: "Personnel training and qualification documents for individuals executing quality assurance program requirements."

PP-02-01, Revision 3, PIC 0, Section 6.0, Step 10, directions for the Training Coordinator, states: "Maintain training files and submit training records to the records facility."

6 Adverse Condition:

Contrary to the above requirements, the latest version of Job Descriptions for matrixed RSN personnel located at the Nevada Site Offices were not forwarded to the Training Coordinator, located in the Las Vegas office complex. As a result, these job descriptions are not maintained in the training files or submitted to the records facility as required.

9 Does a significant condition adverse to quality exist? Yes___ No X_ If Yes, Circle One: A B C	10 Does a stop work condition exist? Yes___ No X_: If Yes - Attach copy of SWO If Yes, Circle One: A B C D	11 Response Due Date: Twenty Working Days from Issuance

12 Required Actions: ☒ Remedial ☒ Extent of Deficiency ☒ Preclude Recurrence ☐ Root Cause Determination

13 Recommended Actions:

7 Initiator: [signature] Date 1/31/94	14 Issuance Approved by: QADD [signature] Date 2/4/94
15 Response Accepted QAR Date	16 Response Accepted QADD Date
17 Amended Response Accepted QAR Date	18 Amended Response Accepted QADD Date
19 Corrective Actions Verified QAR Date	20 Closure Approved by: QADD Date

REV. 08/91

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

8 CAR NO: YM-94-017
DATE: 1/31/94
SHEET: 1 OF 1
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document	2 Related Report No.
QARD DOE/RW-0333P	YMP-94-03

3 Responsible Organization	4 Discussed With
RSN PP-03-20, Revision 1	Ezra Wasson

5 Requirement:

1) PP-03-02, Para. 6.2.1.m states that present conditions at the drill site be described in the work program.

2) PP-03-02, Para. 6.2.1.0 requires that QA records generated by the work program be identified as lifetime records.

3) PP-03-02, Para. 6.2.3.6.2 requires that the work program require that unattended holes be covered.

6 Adverse Condition:

1) Contrary to 1) above, a statement describing existing conditions at the drill site are not included in Revision 0 of the USW NRG-7 and USW SD-12 work programs.

2) Contrary to 2) above, lifetime QA records are not addressed in the USW NRG-7 work program.

3) Contrary to 3) above, the covering of unattended holes is not adequately addressed. The time from spudding to rigdown is not covered. The only time it is covered is after capping and locking.

9 Does a significant condition adverse to quality exist?	10 Does a stop work condition exist?	11 Response Due Date:
Yes___ No X_	Yes___ No X_ ; If Yes - Attach copy of SWO	Twenty Working Days from Issuance
If Yes, Circle One: A B C	If Yes, Circle One: A B C D	

12 Required Actions: [X] Remedial [X] Extent of Deficiency [X] Preclude Recurrence [ ] Root Cause Determination

13 Recommended Actions:

7 Initiator	Date	14 Issuance Approved by:	Date
Kenneth McGaff	1/31/94	QADD RC Gilbert	2/4/94
15 Response Accepted QAR	Date	16 Response Accepted QADD	Date
17 Amended Response Accepted QAR	Date	18 Amended Response Accepted QADD	Date
19 Corrective Actions Verified QAR	Date	20 Closure Approved by: QADD	Date

REV. 08/91