

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

QUALITY ASSURANCE AUDIT REPORT

FOR

AUDIT NUMBER YMP-92-06

OF

RAYTHEON SERVICES NEVADA

LAS VEGAS, NEVADA

DECEMBER 16 THROUGH 18, 1991

Prepared by:  Date: 1-10-92  
John S. Martin  
Audit Team Leader  
Yucca Mountain Quality Assurance Division

Approved by:  Date: 1/14/92  
Donald G. Horton  
Director  
Office of Quality Assurance

## **EXECUTIVE SUMMARY**

This report contains the results of the U.S. Department of Energy/Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance (QA) Audit No. YMP-92-06 of Raytheon Services of Nevada (RSN) that was conducted in Las Vegas, Nevada, on December 16 through 18, 1991. A team from the Yucca Mountain Quality Assurance Division of the Office of Quality Assurance conducted a limited scope audit to evaluate RSN's implementation of the OCRWM QA program to determine whether it meets the requirements and commitments imposed by OCRWM. This was accomplished by verifying implementation and effectiveness of the system in place, as well as verifying compliance with requirements.

The program elements 4, 7, 8, 9, 10, 12, 13, and 14 were considered during the planning of the audit. Program elements 8, 9, 10, 13, and 14 were not formally audited since RSN has no quality-affecting activities for which these elements apply at this time.

As a result of OCRWM QA Audit No. YMP-92-06, it was determined that RSN is implementing an effective Quality Assurance Program in accordance with the RSN Quality Assurance Program Description and implementing procedures for criteria 4, 7, and 12.

The Audit Team identified one deficiency during the course of the audit which was resolved prior to the post-audit conference. A detailed description of the deficiency and resolution is provided in Section 6.0 of this report.

## 1.0 INTRODUCTION

This report contains the results of the first limited scope audit conducted by the U.S. Department of Energy (DOE)/Office of Civilian Radioactive Waste Management (OCRWM) of Raytheon Services Nevada (RSN). Audit No. YMP-92-06 was conducted from December 16 through 18, 1991 at the RSN Yucca Mountain Site Characterization Project (YMP) offices in Las Vegas, Nevada. The purpose of the audit was to evaluate the effectiveness of implementation of the RSN Quality Assurance (QA) program as it pertains to the YMP. The audit was performed by a team of auditors from the Yucca Mountain Quality Assurance Division (YMQAD) of the Office of Quality Assurance.

## 2.0 AUDIT SCOPE

This audit evaluated selected portions of the RSN QA program to determine whether it met the requirements and commitments imposed by the OCRWM as reflected in the RSN Quality Assurance Program Description (QAPD), Revision 0 and implementing procedures. This was done by verifying implementation and effectiveness of the system in place, as well as verifying adequate compliance with requirements.

The programmatic elements evaluated during the audit are identified below:

- 4.0 Procurement Document Control
- 7.0 Control of Purchased Items and Services
- 12.0 Control of Measuring and Test Equipment

The following programmatic elements were considered during development of the audit scope and determined to be not applicable since RSN has no quality-affecting activities for which these elements apply:

- 8.0 Identification and Control of Materials, Parts, Components, and Samples
- 9.0 Control of Processes
- 10.0 Inspection
- 13.0 Handling, Storage and Shipping
- 14.0 Inspection, Test and Operating Status

## 3.0 AUDIT TEAM AND OBSERVERS

John S. Martin, Audit Team Leader, Science Applications International Corporation  
(SAIC)/YMQAD

Sandra D. Bates, Auditor-In-Training, SAIC/YMQAD, Programmatic Elements 4.0 and 7.0

Robert B. Constable, Auditor, DOE/YMQAD, Programmatic Element 12.0

Richard E. Powe, Auditor, SAIC/YMQAD, Programmatic Elements 4.0 and 7.0

John Gilray, Observer, U.S. Nuclear Regulatory Commission

#### 4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

##### 1. Pre-Audit Conference

A pre-audit conference with the RSN Technical Project Officer and his staff was conducted at 8:30 a. m. on December 16, 1991. The purpose, scope, and agenda for the audit were presented, and the auditors and observers were introduced. A list of attendees is attached as Enclosure 1.

##### 2. Persons Contacted During The Audit

See Enclosure 1 for a list of persons contacted during the audit.

##### 3. Post-Audit Conference

The post-audit conference was conducted at 1:00 p.m. on December 18, 1991. A list of attendees is attached as Enclosure 1.

#### 5.0 SUMMARY OF AUDIT RESULTS

Overall, RSN is satisfactorily implementing an effective QA Program in accordance with the RSN QAPD and implementing procedures for criteria 4.0, 7.0, and 12.0. However, implementation of Quality Assurance Procedure QAP-7.2(Y), Revision 0, "Source Verification," and QAP-7.4(Y), Revision 0, "Supplier Deviation Report," was found to be indeterminate due to lack of activity. In addition, there were several activities within the procurement process where the audit team identified opportunities for improvement, and recommendations are being offered to RSN Management for consideration in Section 7.0 of this report.

The following is a summary of programmatic activities covered during the audit. A list of objective evidence reviewed during this audit is shown in Enclosure 2. The full document identification number, revision status, and title for documents referenced below can be found in Enclosure 2.

##### 1. 4.0, "Procurement Document Control" and 7.0, "Control of Purchased Items and Services"

At RSN, the process for Procurement Document Control is described in Project Procedure PP-04-01 and QAP-04.1(Y), and the process for Control of Purchased Items and Services is described in QAP-7.1(Y), -7.2(Y), and -7.4(Y). RSN has not generated PPs to describe how to purchase items. To purchase items, RSN will use appropriate YMP Administrative Procedures-Quality (AP-Qs). The only applicable AP-Q to date is AP-4.1Q. RSN has not yet purchased any quality-affecting items and currently has no plans to purchase any. Except for the purchase of office equipment and supplies, only four Procurement Requisitions (PRs) had been processed since the last OCRWM audit. Three of these four PRs were selected for audit.

These PRs were traced through steps required by the RSN procedures and objective evidence such as logs, review checklists, procurement files, and survey reports were examined for completeness and accuracy. Based on observation, review of objective evidence and interviews with cognizant RSN personnel, it was determined that RSN is effectively implementing the procurement process. One deficiency, concerning a receiving report, was corrected during the audit (see Section 6.0 for details concerning the deficiency).

2. 12.0, "Control of Measuring and Test Equipment" (M&TE)

Evaluation of the RSN control of M&TE was performed to verify compliance to PP-12-01. A sample of M&TE was examined for appropriate identification, application of an appropriate calibration/status sticker and to assure that proper maintenance and storage was accomplished. Documentation was reviewed to ensure that procedural prerequisites were completed relative to qualification of suppliers of calibration services, maintenance of the Calibration History Logs, issuance of Calibration Recall Notices, evaluation of M&TE found to be out of calibration, maintenance of the M&TE Withdrawal/Return Log and M&TE Usage Log and to assure that calibration standards were traceable to the National Institute of Standards and Technology or other recognized standard or physical constant.

## 6.0 SYNOPSIS OF DEFICIENCIES

1. Corrective Action Requests

No CARs were issued as a result of this audit.

2. Deficiencies Corrected During the Audit

Deficiencies which are considered isolated in nature and only require remedial corrective action can be corrected during the audit. The following deficiency was identified and corrected during the audit:

RSN procedure PP-04-01, Revision 1, including PIC 1, Paragraph 6.11, states, "Receiving Report - When services are performed, a receiving report will be submitted to the Procurement Department by the department receiving the services. Examples of different types of receiving reports are delivery tickets, receiving reports, daily work tickets, time sheets, cost verification sheets, etc. The receiving report will be signed by an RSN representative certifying that RSN has received the services listed on the document. The Procurement Department will place a copy of the receiving document in the file and forward a copy to the Accounting Department." During the course of the audit, it was noted that there was a lack of objective evidence that a receiving report had been generated for deliverables associated with the Parsons Brinkerhoff, Quade & Douglas, Inc. subcontract for engineering services, SC-LV-88-139. This was the only RSN subcontract involving document deliverables. Upon identification of this deficiency, RSN immediately transmitted objective evidence of receipt of required deliverables to the Procurement Department for processing to the file and no further action is required of RSN at this time.

## 7.0 RECOMMENDATIONS

1. Although the deficiency regarding the receiving report for subcontract SC-LV-88-139 was corrected during the audit RSN management should evaluate the Receiving Report process described in PP-04-01 and decide if clarifications are warranted.
2. RSN PP-04-01 and other PPs refer the reader to PP-17-01 for processing records. PP-17-01 is the procedure for how the RSN Records Management Center processes records received from record sources. PP-17-03 is the procedure that describes how the record sources are to process records. PP-17-01 does refer to PP-17-03 in the references and definitions sections of the procedure but not in the scope or actual body of the procedure. RSN management should consider revising appropriate procedures to clarify that record sources are to use PP-17-03 for processing records, (i.e., revise PP-17-01 to reflect within the scope/body that record sources are to use PP-17-03 or revise PP-04-01 and other PPs to reflect PP-17-03 instead of PP-17-01).
3. The RSN QAPD, Section 7, Paragraph 7.0, states in part "...Items are procured through REECo or another procuring organization. The extent of RSN responsibility in procurement of items is described in DOE Administrative Procedures..." No RSN personnel have been assigned to read and understand YMP AP-4.1Q through the RSN training process (NOTE: Open CAR YMP-91-068 documents deficiencies concerning assignment of personnel for training). Although no quality-affecting items have been purchased by RSN through Reynolds Electrical and Engineering Company, Inc. or another organization, RSN management should consider assigning appropriate personnel to read and understand AP-4.1.

## 8.0 LIST OF ENCLOSURES

Enclosure 1: Personnel Contacted

Enclosure 2: Objective Evidence Observed During the Audit

**ENCLOSURE 1**

OCRWM AUDIT NO. YM-92-06  
 PERSONNEL CONTACTED

<u>Name</u>	<u>Organization</u>	<u>Title</u>	<u>Pre-Audit</u>	<u>Contacted</u>	
				<u>During Audit</u>	<u>Post-Audit</u>
Ali, Arshad	RSN	Mgr. Audits & Surveillances	X	X	X
Bates, Sandra D.	SAIC/YMQAD	Auditor-in-Training	X	X	X
Bullock, Richard L.	RSN	Technical Project Officer (TPO)	X	X	X
Calovini, Joseph C.	RSN	Deputy TPO	X		
Constable, Robert B.	DOE/YMQAD	Auditor	X	X	X
Ferguson, J. Earl	RSN	Records Management	X	X	
Fielder, Sandra E.	RSN	Clerk		X	
Gilray, John	NRC	Observer	X	X	X
Hale, Paul B.	RSN	Senior QA Specialist	X		
Herrington, Charles	RSN	Soil & Concrete Supervisor		X	
Ishii, Mei Chih	RSN	Records Clerk		X	
Jacocks, Harry	RSN	Procurement Manager	X	X	
Kirwin, Kimberly D.	RSN	Training Coordinator		X	
McNeely, John E.	RSN	Resident Engineer	X	X	
Mouser, Evert R.	RSN	Senior QA Specialist		X	
Powe, Richard E.	SAIC/YMQAD	Lead Auditor	X	X	X
Regenda, Michael J.	RSN	Manager QA	X	X	
Rue, Joseph L.	RSN	Sr. Quality Engineering Coordinator	X	X	X
Turney, Daniel J.	RSN	Manager QA Engineering	X	X	X
Schreiner, Randolph L.	RSN	Manager Systems Engineering	X		X
Stanley, Bruce T.	RSN	Design Manager		X	
Straight, H. Wayne	RSN	Senior QA Engineer	X	X	X
Tuthill, Harry R.	RSN	Manager Quality Control	X	X	
Thummala, Ven	RSN	Senior Engineer		X	
Wilson, Matthew H.	RSN	Manager Project Administration	X	X	
Wright, Edward L.	RSN	Drilling Department Chief	X		

**ENCLOSURE 2**

**OBJECTIVE EVIDENCE REVIEWED DURING AUDIT**  
(Examples of)

Element 4 Procurement Document Control  
Element 7 Control of Purchased Items and Services  
Element 12 Control of Measuring and Test Equipment

Plans

QAPD-002, Revision 0, Change Notice B, RSN Quality Assurance Program Description

Procedures

PP-04-01, Revision 0, Purchasing Services  
PIC 1

PP-17-01, Revision 1, Records Management

PP-17-03, Revision 1, Records Source Requirements

QAP-4.1(Y), Revision 0, QA Review of Procurement Documents  
PIC 1

QAP-7.1(Y), Revision 0, Supplier Selection  
PICs 1 & 2

QAP-7.2(Y), Revision 0, Source Verification

QAP-7.4(Y), Revision 0, Supplier Deviation Report

AP-4.1Q, Revision 0, Procurement  
ICNs 1, 2 & 3

PP-12-01, Revision 0, Control of Measuring and Test Equipment  
PIC 1

Purchase Requisitions

PR-YMP-91-881 - Modification to Subcontract SC-LV-88-139 (Parsons Brinkerhoff, Quade & Douglas, Inc.)

PR-YMP-91-884 - Modification to Subcontract SC-LV-91-54 (Colorado School of Mines) to include third reamer

PR-YMP-91-885 - Modification to Subcontract SC-LV-91-54 to cover additional shipping to Lang Expl

Miscellaneous

RSN PR Log for fiscal years 91 and 92

QA Procurement Document Review Log (Last entry 8/27/91)

QA Procurement Document Review Checklists for:

PR-YMP-881  
PR-YMP-884  
PR-YMP-885

Qualified Supplier List dated 10/9/91, Attached to Correspondence RSN-YMP-1201

RSN QA Supplier Survey Log (Only one entry to reflect survey of Parsons Brinkerhoff, Quade & Douglas, Inc. in March, 1991)

PB/RSN-034 - Transmittal Letter from Parsons Brinkerhoff, Quade & Douglas, Inc. to RSN,  
Transmittal of Task Files for RSN Subcontract SC-LV-88-139, dated 9/30/91

Training Records for:

Harry Jacocks  
Bruce T. Stanley  
Matthew H. Wilson

M&TE Logs Verified:

M&TE Calibration History Log  
M&TE Withdrawal/Return Log  
M&TE Usage Log

Vendors Supplying Calibration Services:

Reynolds Electrical & Engineering Co. (REECo)

M&TE Checked:

Digital Thermometer Material Testing Lab Number (MTLN) #595  
Liquid Permeameter MTLN #372  
Pan Scale MTLN #155  
Digital Pressure Indicator MTLN #222  
Flowmeter MTLN #426  
Flowmeter MTLN #421

**Calibration Certifications Reviewed:**

Gage Physical Testing Laboratory Number (PTLN) #1061  
Gage PTLN #2503  
Permeameter PTLN #2161