

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

AUDIT REPORT

OF THE

**YUCCA MOUNTAIN SITE CHARACTERIZATION OFFICE
(YMSCO)**

AUDIT NUMBER HQ-ARC-95-09

LAS VEGAS, NV JULY 24-28, 1995

Prepared by: F. H. Lentz Date: 8/16/95
F. Hugh Lentz
Audit Team Leader
Headquarters QA Division

Approved By: R. W. Horton Date: 8/18/95
Donald G. Horton
Director
Office of Quality Assurance

1.0 EXECUTIVE SUMMARY

As a result of Quality Assurance (QA) Audit HQ-ARC-95-09, the audit team determined that the Yucca Mountain Site Characterization Office (YMSCO) is satisfactorily implementing an effective QA program in accordance with the U. S. Department of Energy (DOE) Quality Assurance Requirements and Description (QARD), DOE/RW-0333P, Revision 3 and associated implementing procedures.

In summary, of the nineteen QA Program Elements audited for adequacy and implementation of procedures identified in the QARD Matrix, sixteen were determined to be satisfactory and three had insufficient activity to evaluate.

The audit team identified four deficiencies, requiring only remedial action, that were corrected during the audit. These conditions are described in Section 5.5.2 of this report. In addition, three recommendations were identified for YMSCO and the Yucca Mountain Quality Assurance Division (YMQAD) management consideration. The recommendations are described in Section 6 of this report.

2.0 SCOPE

The audit was conducted to evaluate the adequacy of, compliance to, and the effectiveness of the OCRWM YMSCO QA Program as described in the QARD and the related implementing procedures used to perform YMSCO and YMQAD activities.

The QA Program Elements and requirements evaluated during the audit, in accordance with the approved audit plan, are as follows:

- 1.0 Organization
- 2.0 Quality Assurance Program
- 3.0 Design Control
- 4.0 Procurement Document Control
- 5.0 Instructions, Procedures, Plans, and Drawings
- 6.0 Document Control
- 7.0 Control of Purchased Items and Services
- 11.0 Test Control
- 12.0 Control of Measuring and Test Equipment
- 13.0 Handling, Storage and Shipping
- 15.0 Control of Nonconforming Items
- 16.0 Corrective Action
- 17.0 Quality Assurance Records
- 18.0 Audits
- SI Computer Software

SII Sample Control
SIII Scientific Investigation
SIV Field Surveying
AppC MGDS

The following QA Program Elements and Appendices were not reviewed during the audit because neither YMSCO nor YMQAD currently have any assigned responsibilities in these areas:

8.0 Identification and Control of Items
9.0 Control of Special Processes
10.0 Inspection
14.0 Inspection, Test and Operating Status
AppA High Level Radioactive Waste Form Production
AppB Transportation

Requirements were drawn from the QARD and the YMSCO implementing Quality Administrative Procedures (QAPs), Administrative Procedures (APs & YAPs), and related YMSCO location-specific line procedures.

3.0 AUDIT TEAM AND OBSERVERS

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

<u>NAME</u>	<u>TITLE/ORGANIZATION</u>	<u>QA PROGRAM ELEMENT/REQUIREMENT</u>
F. Hugh Lentz	Audit Team Leader/QATSS	Element SIV & App C
Gary Wood	Auditor/QATSS	Elements 5, 11, 17, SII
Raul Hinojosa	Auditor/QATSS	Elements 2, 12, 13, SIII
Dennis Threatt	Auditor/QATSS	Elements 4, 7, 16, 18, SI
Jack Walsh	Auditor/QATSS	Elements 2,3
Charles Betts	Auditor/QATSS	Elements 2, 5, 6
Robert Klemens	Auditor/QATSS	Elements 1,2,17
Carl Weber	Observer/DOE	

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

A preaudit meeting was held at the YMSCO offices in Las Vegas, NV on July 24, 1995. A daily debriefing and status meeting was held with YMSCO management and staff to discuss issues and potential deficiencies. The audit was concluded with a postaudit meeting held at YMSCO offices in Las Vegas, NV on July 28, 1995. Personnel contacted during the audit are listed in Attachment 1. The list also identifies 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 YMSCO Quality Assurance 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, 11.0, 15.0, 16.0, 17.0, 18.0, SII and SIII are being satisfactorily implemented. Implementation of QA Program Elements SI, SIV, and Appendix C could not be evaluated due to a lack of activity.

5.2 Stop Work or Immediate Corrective Actions Taken

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

5.3 QA Program Audit Activities

A summary table of audit results is provided in Attachment 2. The details of the audit evaluation, along with objective evidence reviewed, are contained within the audit checklists. The checklists are kept and maintained as QA Records.

5.4 Technical Activities

Because the audit was conducted to evaluate programmatic adequacy and implementation by YMSCO of the OCRWM QA Program, the audit team did not evaluate any technical activities.

5.5 Summary of Deficiencies

The audit team identified four deficiencies; all were corrected prior to the postaudit meeting.

Deficiencies corrected during the audit are detailed below.

5.5.1 Corrective Action

No Performance Reports, Deficiency Reports, or Corrective Action Requests were issued as a result of the audit.

5.5.2 Deficiencies Corrected During The Audit

Deficiencies which are considered isolated in nature and only require remedial action may be corrected during the audit. The following deficiencies were corrected during the audit:

1. QAP 2.4, *Maintenance of QARD*, Paragraph 5.5c: QA Program Clarifications are not being distributed to all holders of controlled copies of the QARD manuals. The auditor verified that Document Control distributed the clarifications to 139 controlled QARD manual holders who were not on the required distribution list.
2. QAP 6.2, *Document Review*, Paragraph 5.5: Document Review Records (DRRs) of QAP 1.1 Draft A/2 contained several minor discrepancies. Discrepancies included the following:
 - a) Comments were not annotated as mandatory (*) or non-mandatory (n).
 - b) Comments were not sequentially numbered.

The auditor verified that these discrepancies were corrected appropriately.

3. YAP-13.1Q, *Determination of Quality Affecting Work*, Paragraph 5.3.2: Four Borehole Completion Reports were not reviewed and signed by the Field Test Coordinator (submitted 4/30/95). The auditor verified that the reports were signed and a review of other reports for the same deficiency was conducted.

4. QAP 18.2, *Audit Program*, Paragraph 7.0: Five discrepancies identified in audit records packages, described as follows:
- a) No documentation to support "UNSAT" checklist item.
 - b) Dates in audit plan were different from those in audit report.
 - c) No date for some initialed corrections (checklists).
 - d) Audit report has incorrect audit exit meeting date.
 - e) Incomplete identification of objective evidence.

Auditor verified that appropriate corrections were made for these deficiencies.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit, and are presented for consideration by YMSCO management:

1. Because the Document Review Records are being maintained as QA Records, the audit team recommends that the Review Coordinator emphasize the required notation for the mandatory and non-mandatory comments. Also, consideration be given to deleting the requirement in the DRR instructions for sequential numbering of comments. (Reference QAP 6.2)
2. On Borehole Access Request forms, the audit team recommends that the form initiator document the "comment" block with "none" rather than leave blank. This would assure that the requirement for the block was considered. (Reference YAP-13.1Q)
3. The audit team recommends that YMQAD consider upgrading the Nonconformance Report (NCR) database to allow sorting by the NCR originating organization, the cited organization, and the number of days the NCR is open. This would give added OQA visibility for oversight planning and trending purposes. (Reference YAP-15.1Q)

7.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: Summary Table of Audit Results

ATTACHMENT 1

Personnel Contacted During the Audit

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
J. Adams	Asst. Mgr., Administration		X	
W. Barnes	Yucca Mt. Project Manager		X	
R. Barton	Deputy Manager, AMSL	X	X	X
J. Beckett	Tech Data Base Administrator	X		
C. Betts	Auditor	X	X	X
T. Bjerstedt	Physical Scientist Licensing	X		
G. Bowman	Configuration Management	X		X
W. Boyle	Geoengineering Team Leader	X		
M. Brodsky	General Engineer	X		
K. Chang	NRC			X
J. Clark	Sr. QA Specialist	X	X	X
L. Colehour	Document Control Supv	X		
J. Coombs	Technical Illustrator	X		
R. Craun	Asst. Mgr., Engineering & Oper	X	X	
B. Cruz	Manager, YMSCO CM/CCB	X		
L. Cuba	Sr. Assurance Engineer	X		
T. Cuttaia	Administrative Asst.	X		
S. Dana	Lead QA Engineering	X		
M. Diaz	General Engineer	X	X	
J. Dyer	Deputy Project Manager	X	X	X
H. Ebner	Records Management	X	X	X
J. Estella	Staff Advisor	X		X
T. Fortner	ESF Construction Manager	X		
J. Gardiner	Project Engineer	X		

ATTACHMENT 1

Personnel Contacted During the Audit

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
T. Grant	Oper & Maint Property Manager	X		
H. Greene	QA Division Manager			X
D. Gwyn	DIE Analyst	X		
B. Hamilton-Ray	Contract Specialist	X		
C. Hampton	QA Specialist	X	X	
J. Harper	Manager			
D. Harris	Sr. QA Specialist	X		
S. Harris	Sr. QA Specialist	X		
S. Harris-Womach	DCC/Lead	X		
D. Harrison	Engineer			
R. Helms	Sr. Staff TPO		X	X
K. Herrin	Logging Engineer	X		
R. Hinojosa	Auditor	X	X	X
R. Holliday	QA Specialist	X		
B. Hopkins	General Engineer	X	X	
S. Horton	QA Special Asst.		X	
D. Horton	Director, OQA	X	X	X
W. Hudson	Lead, Supplier Evaluation	X		
C. Humphries	QA Specialist	X		
V. Iorii	Deputy Manager, AMA		X	
E. Iversen	Manager, Training	X	X	X
K. Jerome	Records Clerk	X		
R. Jiu	Technical Staff	X		X
S. Jones	Asst. Mgr., Scientific Prgms	X	X	
K. Jones	Records Clerk	X		

ATTACHMENT 1

Personnel Contacted During the Audit

			MEETINGS	
NAME	TITLE	CONTACT	PRE	POST
N. Jones	Tech Assessment Team Scrty	X		
J. Justice	M&O Training Records Supr	X		
R. Kettell	Sr. QA Specialist	X		
R. Klemens	Auditor	X	X	X
F. Kratzinger	Sr. QA Specialist	X		
F. Lentz	Audit Team Leader	X	X	X
C. Lewis	Curator	X		
L. Linden	Field Geologist	X		
C. Lugo	Department Manager		X	
E. Lundgaard	Program Analyst		X	
R. Maudlin	Sr. QA Specialist	X		X
M. McDaniel	QA Specialist	X		
K. McFall	QA Specialist	X		X
B. McGonigle	Admin. Asst.	X		
D. Merritt	SMF Geologist	X		
S. Moore	Prod. Supervisor	X		
R. Morissette	DIE Analyst	X		
C. Newbury	TDM Physical Scientist	X		
V. Obrad	M&O WP Lead			X
A. Rabe	Sr. QA Specialist	X		
M. Rindskopf	Mgr, Systems Engineering Req.	X		
T. Roberts	Record Analyst	X	X	X
J. Schmit	Sr. QA Specilaist	X		
J. Schrecongost	Contracting Officer	X		
R. Schreiner	Project Engineer	X		

ATTACHMENT 1

Personnel Contacted During the Audit

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
A. Simmons	Geochemistry Team Leader	X		
E. Sjolie	Records Clerk	X		
M. Smith	Physical Scientist		X	X
S. Smith	SBTFD Operations Manager	X		
R. Smith	Mgr, TPP & JP Admin.	X		
R. Spence	Director, YMQAD		X	
D. Spence	Sr. Info Systems Specialist	X		
J. Spraul	NRC			X
J. Therien	QA Programs Lead		X	
L. Thompson	M&O Geophysic Manager	X		X
D. Threatt	Auditor	X	X	X
K. Thurman	OMC Analyst	X		
B. Verna	AMEFO Engineer	X	X	
J. Walsh	Auditor	X	X	X
C. Warren	QATSS Verification Lead	X	X	X
D. Warriner	Records Manager	X	X	X
R. Waters	D&M Manager	X		
C. Weber	DOE QA Specialist	X	X	X
W. White	Associate Deputy		X	
W. Wilson	Site Manager	X		
G. Wood	Auditor	X	X	X
S. Wright-Monciloric	CCB Admin. Analyst	X		
J. Zimmerman	Manager, Plans & Procedures		X	X

ATTACHMENT 2
Summary of Audit Results

Audit Report
HQ-ARC-95-09
Page 11 of 14

AUDIT HQ-ARC-95-09 DETAIL SUMMARY								
ELEM	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	PR/DR	RECOM	COMPLY	OVERALL
1	QAP 1.1, R2	pgs. 1-4					SAT	SAT
	YLP 1.1-Q R0 12	pg. 1-3					SAT	
2	QAP 2.4 R1	pgs. 1-6		No. 1			SAT	SAT
	QAP 2.5 R0 11	pgs. 1-5					SAT	
	QAP 2.6 R3	pgs. 1-4					LOA	
	QAP 2.7 R2	pgs. 1-7					LOA	
	QAP 2.8 R1	pgs. 1-6					SAT	
	YAP-2.4Q R0	pgs. 1-4					LOA	
	YAP-2.6Q R0 13	pgs. 1-4					SAT	
	YAP-2.7Q R0	pgs. 1-4					LOA	
	YAP-2.8Q R0	pgs. 1-5					SAT	
	YAP-5.4Q R0	pgs. 1-3					LOA	
	YAP-5.6Q R0 14	pgs. 1-5					SAT	
	YLP-2.1Q R1 12	pgs. 1-13					SAT	
YLP-2.2Q-Q R0	pgs. 1-4					SAT		

ATTACHMENT 2
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Audit Report
HQ-ARC-95-09
Page 12 of 14

ELEM	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	PR/DR	RECOM	COMPLY	OVERALL
3	QAP 3.5 R2	pgs. 1-4					LOA	SAT
	YAP-2.1Q R1	pg. 1-5					SAT	
	YAP-2.2Q R0 II	pgs. 1-6					SAT	
	YAP-3.3Q R0 II	pgs. 1					LOA	
	YAP-3.4Q R2	pgs. 1-7					SAT	
	YAP-3.5Q R0 II	pgs. 1-6					SAT	
	YAP-3-6Q R0	gs. 1-3					SAT	
4	YLP-4.1Q R0	pgs. 1-7					SAT	SAT
5	QAP 5.1 R6	pgs. 1-8					SAT	SAT
	YAP-5.1Q R2	pgs. 1-8					SAT	
	YAP-5.2Q R1	pgs. 1-3					SAT	
	YLP 5.1Q-Y R1	pgs. 1-4					SAT	
6	QAP 6.2 R2 II	pgs. 1-5		No. 2		No. 1	SAT	SAT
	YAP-6.1Q R0	pgs. 1-2					LOA	
	YAP-6.2Q R0	pgs. 1-7					SAT	
	YLP-3.2Q-A R0	pg. 1					SAT	

ATTACHMENT 2
Summary of Audit Results

Audit Report
HQ-ARC-95-09
Page 13 of 14

ELEM	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	PR/DR	RECOM	COMPLY	OVERALL
7	QAP 7.2 R0	pgs. 1-10					LOA	SAT
	AP-7.4Q R0	pgs. 1-5					SAT	
11	YAP-5.5Q R0	pgs. 1-6					SAT	SAT
12	YAP-12.1Q R0	pgs. 1-11					LOA	LOA
13	YAP-13.1Q R0	pgs. 1-5		No. 3		No. 2	SAT	SAT
15	YAP-15.1Q R1 II	pgs. 1-8				No. 3	SAT	SAT
16	QAP 16.1 R6	pgs. 1-8					SAT	SAT
	QAP 16.2 R3	pgs. 1-5					LOA	
	QAP 16.3 R0	pgs. 1-2					SAT	
17	YAP-17.1Q R0 I3	pgs. 1-9					SAT	SAT
	YAP-17.2Q R0	pgs. 1-4					SAT	
18	QAP 18.1 R4	pgs. 1-8					SAT	SAT
	QAP 18.2 R6	pgs. 1-7		No. 4			SAT	
SUPP I	YLP-SI.1Q R0	pgs. 1-2					LOA	LOA
	YLP-SI.2Q R0	pgs. 1-8					LOA	
	YLP-SI.3Q R0	pgs. 1-6					LOA	

ATTACHMENT 2
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Audit Report
HQ-ARC-95-09
Page 14 of 14

ELEM	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	PR/DR	RECOM	COMPLY	OVERALL
SUPP II	<i>YAP-SII.1Q R1 I1</i>	<i>pgs. 1-3</i>					SAT	SAT
	<i>YAP-SII.2Q R1</i>	<i>pgs. 1-3</i>					SAT	
	<i>YAP-SII.4Q R0</i>	<i>pg. 1-7</i>					SAT	
SUPP III	<i>YAP-SIII.1Q R0</i>	<i>pgs. 1-2</i>					SAT	SAT
	<i>YAP-SIII.2Q R0</i>	<i>pgs. 1-3</i>					SAT	
	<i>YAP-SIII.3Q R0</i>	<i>pgs. 1-2</i>					SAT	
	<i>YAP-SIII.4Q R0</i>	<i>pgs. 1-5</i>					SAT	
	<i>YAP-SIII.5Q R0</i>	<i>pgs. 1-2</i>					SAT	
	<i>YLP-SIII.1Q-E R0</i>	<i>pgs. 1-8</i>					SAT	
	<i>YLP-SIII.2Q-E R0</i>	<i>pgs. 1-5</i>					LOA	
SUPP IV	<i>QARD, R2</i>	<i>pg. 1</i>					LOA	LOA
APP. C	<i>QARD, R2</i>	<i>pg. 1</i>					LOA	LOA
TOTAL		<i>300 pages</i>		4		3		Satisfactory

CARs *Corrective Action Requests*
CDA *Corrected During Audit*
PR/DR *Performance/Deficiency Reports*
RECOMMEND *Recommendations*
COMPLY *Procedures Implemented*
OVERALL *Summary of Element*
SAT *Satisfactory*
LOA *Lack of Activity*