

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

AUDIT REPORT

OF

CRWMS M&O

AUDIT NUMBER HQ-ARC-95-04

VIENNA, VA FEBRUARY 7-10, 1995  
LAS VEGAS, NV FEBRUARY 21-24, 1995

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S/c Donald G. Horton  
Director  
Office of Quality Assurance

## **1.0 EXECUTIVE SUMMARY**

As a result of Quality Assurance (QA) Audit HQ-ARC-95-04, the audit team determined that the implementation of the CRWMS Management & Operating (M&O) QA Program is satisfactory in accordance with the QA Requirements and Description document (DOE/RW-0333P) and the associated implementing procedures.

This audit was designed to evaluate the M&O QA Program implementation as described in the Quality Assurance Requirements and Description Matrix (RTN), as of November 9, 1994, and the related implementing procedures used to perform M&O activities.

In summary, of the six (6) QA Program Elements and two supplements audited for implementation to the procedures identified in the QARD Matrix, sixteen procedures were determined to be satisfactory and five (5) procedures had insufficient activity. However, the procedures with lack of activity were reviewed and determined to define a workable process and are denoted in this audit report as (Sat\*).

The audit team identified deficiencies requiring two (2) Corrective Action Requests (CARs). Another ten (10) deficiencies, requiring only remedial action, were corrected during the audit. Eleven (11) recommendations were identified for M&O management consideration. The deficiencies and recommendations are described in Section 5 of this audit report.

## **2.0 SCOPE**

This limited scope "Baseline Audit" evaluated the M&O quality assurance program compliance with applicable requirements of the Quality Assurance Requirements and Description document (QARD, DOE/RW-0333P). This audit, in addition to audit HQ-94-02, HQ-95-02, and YM-95-02, completes the baseline compliance audit activities.

The audit evaluated the M&O QA Program implementation as described in the Quality Assurance Requirements and Description Matrix and the related implementing procedures used to perform M&O activities. In addition, the audit reviewed outstanding deficiencies and major procedural revisions (June 1994 through November 1994) to evaluate their status.

The following Elements were evaluated during the audit:

- \*\*\* Policy Statement
- 1. Organization
- 2. Quality Assurance Program
- 3. Design Control
- 12. Control of Measuring and Test Equipment
- 16. Corrective Action
- 17. Quality Assurance Records
- SI. Software
- SII. Scientific Investigation
- APP. C. Mined Geologic Disposal System
- \*\*\* Impact of CARs
- \*\*\* Impact of Procedure Revisions

Implementation of Elements 4, 5, 6, 7, 15, and 18 were previously reviewed and found to be satisfactory.

The following QA Program Elements/requirements were not reviewed during the audit because the M&O currently has no assigned responsibilities in these areas.

- 8.0 Identification and Control of Items
- 9.0 Control of Special Processes
- 10.0 Inspection
- 11.0 Test Control
- 13.0 Handling, Storage, and Shipping
- 14.0 Inspection, Test and Operating Status
- SII Sample Control
- SIV Field Surveying
- APP. A High Level Radioactive Waste Form Production
- APP. B Transportation

Requirements were drawn from DOE/RW-0333P, *Quality Assurance Requirements and Description* document (QARD), Revision 1, and the M&O implementing Quality Administrative Procedures (QAPs) and related M&O location specific line procedures in effect as of November 9, 1994.

### 3.0 AUDIT TEAM AND OBSERVERS

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

NAME	ORGANIZATION	QA PROGRAM ELEMENT/REQUIREMENT
<b>AUDITORS</b>		
Marlin Horseman	QATSS	Audit Team Leader
Charles Betts	QATSS	Element 1, 3, 16, & Appendix C
Amy Arceo	QATSS	Element 12 & 17
Emily Reiter	QATSS	Element 12 & 17
Walt Coutier	QATSS	Element 3, Supp. I, & Supp. III
Vance Cannaday	QATSS	Element 3, Supp. I, & Supp. III
John Pelletier	QATSS	Element 3, Supp. I, & Supp. III
Hugh Lentz	QATSS	Status of Open CARs & Procedure Revisions
<b>OBSERVERS</b>		
Jack Spraul	NRC	
Bruce Mabrito	NRC	

### 4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

Preaudit meetings were held at the M&O offices in Vienna, VA on February 7, 1995 and Las Vegas, NV on February 21, 1995. A daily debriefing and status meeting was held with M&O management and staff to discuss issues and potential deficiencies. The audit was concluded with postaudit meetings held at M&O offices in Vienna, VA on February 10, 1995 and in Las Vegas, NV on February 24, 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 M&O Quality Assurance Program implementation within the scope of this audit is satisfactory. The team also reviewed and stated previously identified areas of concern where completion of effective corrective action is considered essential in complementing the successful results of this audit. These issues are identified in paragraph 5.4.1. Implementation of the following, identified in this audit report with a (SAT\*), could not be verified due to a lack of activity:

- \* QAP-1-1 Resolution of Quality Disputes
- \* QAP-3-3 Peer Review
- \* NLP-3-19 Closure of Review Comments on ESF Title 1 Design
- \* QAP-16-2 Stop Work
- \* APP. C MGDS

### 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

The details of the audit evaluation along with objective evidence reviewed are contained within the audit checklists. The checklists are submitted as QA Records.

A summary table of audit results is provided in Attachment 2.

### 5.4 Summary of Deficiencies

The audit team identified deficiencies during the audit requiring issuance of two (2) Corrective Action Requests (CARs). Ten additional deficiencies were identified and corrected prior to the postaudit meeting.

Deficiencies documented on CARs and those corrected during the audit are detailed below.

#### 5.4.1 Corrective Action Requests (CARs)

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

##### CAR HQ-95-005

QAP-3-8, Para. 5.1.3 states that Specification Revision Indicators ... Shall be indicated as "Preliminary Draft" to indicate specification is not approved or released as a quality affecting document. Specification revisions to MPC and OST/OSS DPSs did not include the required indicators.

##### CAR YM-95-028

Records and record packages associated with drawings, specifications, and analysis are not being properly authenticated for accuracy, and completeness appropriate to the work accomplished, nor are they being turned over to the LRC in a timely manner with the completion of the individual record and/or record packages or protected from deterioration, loss, or damage until turned over to the LRC. Additionally, indexing of records does not adequately provide a cross reference to the documentation or the associated activity to allow effective retrievability.

##### PREVIOUSLY IDENTIFIED ISSUES

In addition to the above CARs, five (5) previously identified issues reviewed during the audit should be resolved by the M&O in order to be considered as completely effective in implementation of the QA Program. These issues are identified on fifteen (15) previously written CARs. The five issues and their associated CARs are identified below:

1. Re-Evaluation of QAP-2-0 work activities.
  - HQ-94-13
  - HQ-94-15

2. Adequate and effective preparation of the design control procedures.
  - 94-QV-C-045 Trend
  - YM-93-070 Trend
  
3. Satisfactory implementation of the design control procedures.
  - Trend Process
    - YM-95-007
  - Overall (TBD, TBV, TBR) Tracking Process
    - 94-QN-C-032
    - 94-QN-C-040
    - HQ-94-011
  - Checking/Review Process
    - HQ-94-018
    - YM-94-065
  - Control Of Design Input Data Transmittals
    - HQ-94-019
    - YM-94-073
  
4. Satisfactory implementation of the Corrective Action process.
  - HQ-94-008
  - HQ-95-003
  
5. Effective control of the QA Records process.
  - YM-95-028

#### 5.4.2 Deficiencies Corrected During The Audit (CDA)

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:

##### VIENNA, VA

- |    |          |                                                                                                                                                                                                                                                                                                                                                                                               |
|----|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| V1 | QAP-17-1 | Surveillance Report record package (94-VIS-04) had problems with legibility, pencil, red ink and crossouts. Corrections were made and verified.                                                                                                                                                                                                                                               |
| V2 | QAP-17-1 | The Position Description of one individual was not completed in accordance with QAP-2-2 Para. 5.1.1. A new Position Description was generated and verified on 2-8-95.                                                                                                                                                                                                                         |
| V3 | QAP-17-1 | An authenticator's Qualification Record did not contain reading assignment for QAP-17-1, R03, P03 Effective (5-31-94), even though he performed work as an Authenticator in June of 1994. The required reading assignment was completed and verified. In addition, it was verified that the authenticator's training file was supplemented to include documentation of the required training. |
| V4 | QAP-17-2 | A Record Deficiency Notice (RDN) was not clear as to what the deficiency was. The RDN was regenerated, resubmitted as a supplement, and verified by the audit team                                                                                                                                                                                                                            |
| V5 | QAP-17-6 | The acceptance test of the Fire Extinguishing System by the Fire Protection Engineer was not completed. Actions were completed and verified.                                                                                                                                                                                                                                                  |
| V6 | QAP-17-6 | Five (5) electronic media diskettes were incorrectly identified. The correct batch number was searched through the RIS. The problem was corrected and verified.                                                                                                                                                                                                                               |

LAS VEGAS, NV

- L1 QAP-3-9 Inadequate objective evidence was initially available to document the mandatory interdiscipline reviews for the "Analysis of the TS North Ramp Mass Classification" segment record package (2C rev. OB) for the Electrical & Geotech disciplines. The Electrical and Geotech interdiscipline reviews were located and satisfactorily verified by the audit team as having been completed.
- L2 QAP-12-1 The calibration report for a densitometer had the incorrect model number identified, and the Calibration Process Document for a Hygrothermograph was not signed (SALV). The calibration report was corrected, and the Calibration Process Document for the Hygrothermograph was signed. Both were satisfactorily verified by the audit team.
- L3 QAP-19-1 The required "Qualification Recommendation Letter" was not generated for the Verification & Validation Plan for the Lynx version 3.06 computer software. The required "Qualification Recommendation Letter" was generated on 2-23-95 and satisfactorily verified by the audit team.
- L4 NLP-3-18 Results of LDE Verification checks for three drawings could not be found. In addition, two of three revised drawings showed that items had been deleted. This was corrected on 2-23-95 by the LDE and Originator annotating the drawings. The LDE Verification check was performed on 10-6-94 using QAP-3-10 Rev. 4 which did not provide for instructions on how the final checks are documented. QAP-3-10 Rev. 5, dated 2-3-95 now provides the instructions and documentation of LDE concurrence. Each of the above were satisfactorily verified by the audit team.

## 6.0 RECOMMENDATIONS

The following recommendations resulted during the audit and are presented for consideration by M&O management.

### VIENNA, VA

- V1 QAP-3-9 Revise "Analysis for Resolution of Issues in TBD/TBV Issue Categories 7, 18, and 19 - Design Basis Fuels" to:
- (A) Remove reference to commercial-off-the-shelf software being qualified from the assumptions and,
  - (B) Place the reference to the use of computer software in the proper section of the analysis.
- V2 QAP-17-2 QAP-17-2, Rev. 1, P02 should be revised to include the receipt of OCRWM generated records from the QRC.
- V3 QAP-17-2 QAP-17-2, Rev. 1, P02 should be revised to include the use of the RDN as a document to clarify record problems.

### LAS VEGAS, NV

- L1 Policy Statement M&O QAPs with an effective date prior to 8-1-94 should be revised to include the QA Policy Statement requirement.
- L2 Policy Statement The RTN Matrix should be revised to correctly identify the QARD implementation links as they apply to the M&O Policy Statement. (Reference the appropriate procedures in the RTN or make the Policy Statement a controlled document).
- L3 QAP-3-1 QAP-3-1 should be revised to treat "Review Comments" as QA Records. (Review the results of the current OCRWM effort to define the process for handling Review Comments).

- L4 QAP-3-8 QAP-3-8, Revision 5, Para. 6.2 should be revised to require including objective evidence of the reviews, (e.g. DRRs) and not the Check Copy. (The M&O should review the results of the current OCRWM effort to define the process for handling Review Comments.)
- L5 QAP-3-9 QAP-3-9, Revision 5, Para. 6.2 should be revised to require including objective evidence of the reviews, (e.g. DRRs) and not the Check Copy. (Review the results of the current OCRWM effort to define the process for handling Review Comments.)
- L6 General Investigate the need to establish controls for the MGDS Design Bulletins and M&O Lesson Learned communications processes.
- L7 NLP-3-19 As a result of the Title I Design Review performed by Ratheon Services Nevada (RSN), the transition of activities from RSN to the M&O, and resolution of associated comments, it was concluded that NLP-3-19 added no value to the design process. A recommendation was made by the M&O to cancel NLP-3-19. During the audit of this NLP-3-19, it was noted that this NLP had never been used and that there were no plans to ever use it. Therefore, the auditor further iterated what has already been recommended, that NLP-3-19 be deleted because it added no real value to the M&O overall design process.
- L8 NLP-3-24 Although Input Lists (ILs) are being gathered by the preparers, the ILs for Design Package 2C have not been incorporated into the Bases For Design (BFD). In addition, the BFD has not been updated because there is a plan to use another method for updating design inputs other than the BFD. As a result of this, it is recommended that NLP-3-24 be revised to reflect the current practice.

## **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

Vienna, VA

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
J. Afelbil	Analyst	X		
A. Arceo	Auditor		X	X
D. Anthony	Records Analyst	X		
L. Beatty	Systems Engineer	X		
C. Betts	Auditor		X	X
J. Blandford	Storage & Transportation Manager	X		X
J. Burnette	Associate Engineer	X		
V. Cannaday	Auditor		X	X
G. Carruth	System Integration Manager	X	X	X
J. Cassidy	Quality Engineering Manager	X	X	X
P. Chomentowski	QA Engineer	X	X	X
E. Chulick	Training Manager (VA)	X	X	X
W. Coutier	Auditor		X	X
J. Cowles	Chief Engineer	X		X
M. Donovan	QA Engineer	X	X	X
B. Farmer	Sr. QA Specialist	X	X	X
J. Farnham	Internal Auditor			X
D. Franks	QA Audits Manager	X		X
M. Franks	QA Technical Specialist	X	X	X
S. Gibson	Records Analyst	X		
O.J. Gilstrap	Assisting	X	X	
V. Harris	QA Sr. Staff Secretary		X	X
M. Horseman	Lead Auditor		X	X
L. Hunter	Analyst	X		
G. Keener	QA Auditor Specialist	X	X	X
C. Kelly	Training Records Specialist	X	X	X
S. Keyser	Records Manager	X		
J. King	Systems Analyst		X	
A. Kubo	AGM, Waste Accept/S & T	X	X	X
F. H. Lentz	Auditor		X	X
B. Mabrito	Observer/USNRC		X	X
J. McConaghy	Engineering Supervisor	X		X
A. McHenry	Records Analyst	X		
R. Morgan	Vienna QA Manager	X		X
R. Peck	Senior Advisor		X	
V. Pierce	Lead Engineer	X		
E. Reiter	Auditor		X	X
G. Roues	Analyst	X		
V. Sauers	SCM Manager	X		X
M. Shepherd	Vienna Records Center Manager	X	X	X

ATTACHMENT 1 (Continued)

PERSONNEL CONTACTED DURING THE AUDIT  
Vienna, VA

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
C. Sisco	Records Specialist	X		
V. Skrinak	IMS Manager	X	X	X
J. Spraul	Observer/USNRC		X	X
L. Stallings	Asst. Project Manager		X	X
W. Standley	Modeling & Database Manager	X	X	X
J. Stringer	MRS/MPC Design Manager	X		X
C. Taylor	Asst. Engineer	X		
J. Tierney	Quality Engineering Support Manager	X		X
P. Viggiano	CAR Coordinator	X	X	X
J. Watson	Training Supervisor	X	X	X
S. Willis	System Engineering Supervisor	X		X

ATTACHMENT 1 (Continued)

PERSONNEL CONTACTED DURING THE AUDIT  
Las Vegas, NV

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
A. Arceo	Auditor		X	X
F. Arth	QA Technical Specialist	X	X	X
B. Ashworth	Security Archives President	X		
T. Badredine	Imaging Supervisor	X		
S. Bailey	DIE Manager	X		X
C. Bartley	QA Support Specialist	X		X
C. Betts	Auditor		X	X
S. Bonabian	Geotechnical Engineer	X		X
V. Cannaday	Auditor		X	X
J. Cassidy	Quality Engineering Manager	X		
D. Chandler	Deputy Support Ops.		X	X
P. Chomentowski	QA Engineer	X	X	X
W. Coutier	Auditor		X	X
M. DeLeon	Design Support Supervisor	X		
M. Donovan	QA Engineer	X	X	
R. Elayer	Principal Geologist	X		
T. Ferguson	Records Coordinator	X		
L. Foust	AGM, Nev. Site			X
D. Franks	Audit Manager	X	X	
T. Geer	MGDS System Eng Mgr.	X	X	X
M. Gomez	PE/MGDS Surface Design	X		
H. Greene	QA Division Manager		X	X
H. Griffith	QA Engineer		X	X
D. Gwyn	D1 Analyst	X		
P. Hastings	DIE Manager	X	X	X
J. Heaney	Design Control Eng Supv.	X		
M. Horseman	Lead Auditor		X	X
D. Horton	Director, OQA			X
J. Houseworth	Waste Isolation Evaluation Mgr.	X		X
R. Howard	Product Integrity Engineer		X	X
B. Howe	EDC	X		
W. Hunt	QA Engineer		X	X
D. Jenkins	QA Engineer	X		X
K. Jerome	Records Clerk	X		
J. Justice	Training Supervisor	X		X
R. Justice	QA Support Manager			X
J. Keifer	Staff Engineer	X		
F. H. Lentz	Auditor		X	X
W. Leonard	Project Engineer		X	X

ATTACHMENT 1 (Continued)

PERSONNEL CONTACTED DURING THE AUDIT  
Las Vegas, NV

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
B. Mabrito	Observer/USNRC		X	X
E. B. Mann	Senior Engineer	X	X	
T. Mueller	Records Analyst	X	X	X
M. McGrath	Config. Management Manager	X		
J. Naaf	ESF Subsurface Design Engineer	X		
D. Parker	ESF Engineer	X		
T. Paul	Technical Integrator	X		
J. Pelletier	Auditor		X	X
M. Penovich	Las Vegas Transportation Manager	X	X	X
J. Peters	Mining Engineer	X		
B. Petrie	Lead Auditor	X	X	X
D. Rodgers	Subsurface Design Manager	X		
T. Rodgers	Audit Lead			X
R. Ruth	M&O QA Manager	X	X	X
J. Salchak	Design Supervisor	X		
R. Sandifer	MGDS Deputy Manager			X
R. Saunders	Subsurface Design Supervisor	X		
A. Segrest	MGDS Development Manager	X		X
R. Spence	Director/YMQAD			X
J. Spraul	Observer/USNRC		X	X
L. Tate	Records Supervisor	X		X
M. Taylor	Lead Engineer	X		
J. Verden	Records Manager	X		X
R. Wagster	MGDS Development Integration		X	X
J. Willis	NV Quality Engineering Manager	X	X	X
M. Woods	Engineering Document Control	X		
K. Worcester	RMD Work Lead	X		
F. Zinkevich	QA Engineer	X	X	X

SUMMARY TABLE OF AUDIT RESULTS  
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AUDIT HQ-ARC-95-04 DETAIL SUMMARY								
ELEMENT	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	RECOMMEND	ADEQUACY	COMPLIANCE	OVERALL
	POLICY STATEMENT	Pgs. 1-5 (L)			L1, L2	N	N	N
1	QAP-1-1, R2	Pgs. 1-3 (V&L)				N	SAT*	SAT*
2	NLP-2-0, R0	Pgs. 1-4 (L)				N	SAT	SAT
3	QAP-3-1, R5	N/A			L3	N	N	SAT
	QAP-3-3, R3	Pgs. 1-5 (V&L)				N	SAT*	
	QAP-3-8, R4	Pgs. 1-8 (V&L)	HQ-95-005		L4	N	SAT	
	QAP-3-9, R4	Pgs. 1-8 (V&L)		L1	V1,L5	N	SAT	
	QAP-3-10, R4	N/A				N	Partial Review	
	NLP-3-18, R1, P3	Pgs. 1-4 (L)		L4		N	SAT	
	NLP-3-19, R0	Pgs. 1-2 (L)			L7	N	SAT*	
	NLP-3-24, R1	Pgs. 1-2 (L)			L8	N	SAT	
12	QAP-12-1, R0, P2	Pgs. 1-5 (L)		L2		N	SAT	SAT
16	QAP-16-2, R2	Pgs. 1-3 (V&L)				N	SAT*	SAT*
17	QAP-17-1, R3,P4	Pgs. 1-8 (V)	YM-95-028	V1,V2,V3		N	SAT	SAT
	QAP-17-2, R1,P2	Pgs. 1-5 (V)		V4	V2,V3	N	SAT	

SUMMARY TABLE OF AUDIT RESULTS  
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ELEMENT	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	RECOMMEND	ADEQUACY	COMPLIANCE	OVERALL
17	QAP-17-5, R1,P2	Pgs. 1-5 (V)				N	SAT	
	QAP-17-6, R2	Pgs. 1-6 (V)		V5,V6		N	SAT	
SUPP I	QAP-19-1, R3, P1	Pgs. 1-7 (V&L)		L3		N	SAT	SAT
	QAP-19-2, R3,P1	Pgs. 1-5 (V&L)				N	SAT	
	QAP-19-3, R2	Pgs. 1-5 (V&L)				N	SAT	
	QAP-19-4, R1, P3	Pgs. 1-8 (V&L)				N	SAT	
SUPP III	SCIENTIFIC INVESTIGATION	Pg. 1 (V&L)				N	SAT	SAT
IMPACT OF CARS	CAR IMPACT	Pgs. 1-3 (V&L) Pgs. 1-4 (V) Pgs. 1-5 (L)				N	N	N/A
PROCED. REV.	PROCEDURE IMPACT	Pgs. 1-4 (V&L)				N	N	N/A
APP.C	MGDS	Pg. 1 (L)				N	SAT*	SAT*
GENERAL	GENERAL	N/A			L6	N	N	N/A
<b>TOTAL</b>		172 pages	2	10	11			SAT

SUMMARY TABLE OF AUDIT RESULTS  
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CARs ..... Corrective Action Requests    V&L Separate Vienna and Las Vegas Checklists  
CDA ..... Corrected During Audit        V/L .. Single Checklist for both Vienna and Las Vegas.  
RECOMMEND .. Recommendations            V .. Vienna Checklist Only  
ADEQUACY .. Requirements in Procedures    L .. Las Vegas Checklist Only  
COMPLIANCE .. Procedures Implemented  
OVERALL .... Summary of Element  
N ..... NONE/NOT APPLICABLE  
SAT..... Lack of Activity