

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

AUDIT REPORT

OF

CRWMS M&O

AUDIT NUMBER HQ-94-02

VIENNA, VA JUNE 6-10, 1994
LAS VEGAS, NV JUNE 20-24, 1994

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Approved By: R. G. Horton Date: 8/15/94
~~By~~ Donald G. Horton
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1.0 EXECUTIVE SUMMARY

As a result of Quality Assurance (QA) Audit HQ-94-02, the audit team determined that the adequacy and implementation of the CRWMS Management & Operating (M&O) QA program in accordance with the QA Requirements and Description document (DOE/RW-0333P) and associated implementing procedures is marginal.

This audit was designed to achieve two objectives: 1) evaluate the M&O QA Program adequacy and implementation as described in the Quality Assurance Requirements and Description Matrix and the related implementing procedures used to perform M&O activities; and 2) assess the adequacy and effectiveness of the M&O training process (performance-based).

As a result of the performance-based (PBA) portion of Quality Assurance (QA) Audit HQ-94-02, the audit team determined that the M&O implementation of the QA program and process controls for the overall training activity is marginal.

In summary, of the fifteen QA Program Elements audited for adequacy and implementation to procedures identified in the QARD Matrix, seven were determined to be satisfactory, six were determined to be marginal, and two had insufficient activity.

The audit team identified thirty-three deficiencies requiring fourteen Corrective Action Requests (CAR). Another 30 deficiencies, requiring only remedial action, were corrected during the audit. Twenty recommendations were identified for M&O management consideration. The deficiencies and recommendations are described in Section 5 of this report.

The audit team believes that the M&O has made significant progress since the previous audit. This is especially demonstrated by the M&O identification of problem areas. The audit team encourages the M&O to rigorously implement their corrective action program to eliminate the identified problems. In addition, the audit team recommends that problems identified at one location be evaluated to assure that effective corrective actions at all locations are considered.

M&O procedural adequacy is being further evaluated through the review of the M&O Requirements Matrix, currently in process.

2.0 SCOPE

The audit was conducted to evaluate the adequacy and implementation of the CRWMS M&O QA Program as described in the Quality Assurance Requirements and Description matrix and the related implementing procedures used to perform M&O activities.

The QA program elements and requirements evaluated during the audit, in accordance with the published 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
- 12.0 Control of Measuring and Test Equipment
- 15.0 Control of Nonconforming Items
- 16.0 Corrective Action
- 17.0 Quality Assurance Records
- 18.0 Audits
- SI Computer Software
- SIII Scientific Investigation
- AppC MGDS

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
- AppA High Level Radioactive Waste Form Production
- AppB Transportation

Requirements were drawn from DOE/RW-0333P, *Quality Assurance Requirements and Description* document (QARD), revision 0 and the M&O implementing Quality Administrative Procedures (QAPs) and related M&O 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>ORGANIZATION</u>	<u>QA PROGRAM ELEMENT/REQUIREMENT</u>
AUDITORS		
Marlin Horseman	QATSS	Audit Team Leader
Hugh Lentz	QATSS	Audit Team Coordinator
Walter Coutier	QATSS	Element 2, 16, 18, & PBA
Norm Frank	QATSS	Element 2, 16, 18, & PBA
Don Hendrix	QATSS	Element 2, 16, 18, & PBA
Richard Powe	QATSS	Element 3, 17, & 19
John Matras	QATSS	Element 3, 17, & 19
Richard Peck	QATSS	Element 3
Rob Howard	QATSS	Element 3
Dennis Threatt	QATSS	Element 4, 5, 6, 7, 17, & 18
Bob Holliday	QATSS	Element 4, 5, 6, 7, 17, & 18
Ken Gilkerson	QATSS	Element 3
Pat Cotter	QATSS	Element 6 & 17

OBSERVERS

Bill Belke	NRC
Bob Brient	NRC
Jack Spraul	NRC
Tom Colandrea	M&O Management Assessment
Susan Zimmerman	State of Nevada
Englebrecht von Tiesenhasen	Clark County, Nevada

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

Preaudit meetings were held at the M&O offices in Vienna, VA on June 6, 1994 and Las Vegas, NV on June 20, 1994. 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 June 10, 1994 and in Las Vegas, NV on June 24, 1994. 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 effectiveness for the scope of this audit is marginal. Individually, QA Program Elements 1.0, 6.0, 7.0, 12.0, 15.0, and 18.0 are being satisfactorily implemented. QA Program Elements 2.0, 3.0, 4.0, 5.0, 16.0, 17.0, and SI were determined to be marginal. Implementation of QA Program Elements SIII and App C could not be evaluated due to a lack of activity.

As a result of the performance-based evaluation, the overall effectiveness of the M&O training process is considered to be marginal because self-study training assignments require improved controls to ensure effective implementation and visibility.

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 Technical Activities

Because the audit was conducted to evaluate adequacy and implementation of the CRWMS M&O QA Program, the audit team did not evaluate any technical activities.

5.5 Summary of Deficiencies

The audit team identified thirty-three deficiencies during the audit for which fourteen CARs have been issued. Thirty additional deficiencies were identified and corrected prior to the postaudit meeting.

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

5.5.1 Corrective Action Requests (CARs)

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

CAR HQ-94-015

Problems exist with M&O QAP-2-0 Work Control evaluations in the areas of the activity description, the rationale for determining the application of QARD controls, and the identification of the appropriate procedures and controlling documents.

CAR HQ-94-016

QA Classification of the Multi-Purpose Canister (MPC) Subsystem, revision 0 identifies that the MPC Subsystem is Important to Waste Isolation and Important to Radiological Safety for the MGDS. There is no objective evidence that this evaluation was provided to those responsible for updating the MGDS Q-List.

CAR HQ-94-017

The M&O Trend Program is ineffective in obtaining correction of identified trends. Examples include:

- a) Although eight recurring trends and two new trends are identified in the March 31, 1994 Quality Assurance Program Status and Trend Report, no CARs were issued nor were any investigation or corrective actions recommended for the trends.
- b) The March 31, 1994 trend report identifies the number of significant conditions adverse to quality but does not identify which of the adverse conditions are significant.
- c) The definition of trends in QAP-2-4 is being changed:
From - A collection of conditions adverse to quality on a similar subject, that reveals the existence of repetitive violations of procedure or failure to satisfy a requirement.

To - Ten or more violations of a specific QARD Subsection (e. g. 2.2.5) within a 3 month period adversely impacting the QA Program, thereby necessitating corrective action.

CAR HQ-94-018

Para. 5.6 of QAP-3-9 requires that if Design Verification is not required, then it shall be documented on the analysis cover sheet. Existing cover sheets for design analyses indicate that QAP-3-2 design verification is not required without notation or other methodology to assure that design verification will occur at some later time.

The Classification analysis for the MPC Transportation Cask does not identify design inputs, regulatory criteria, or other sources of information.

The Bare Spent Fuel classification analysis was not signed off in accordance with QAP-3-9, (procedural compliance issue). Dates are different within the checking process.

On page 42 of 51 of Rev. 4 of the MPC DPS Requirements Backup Analysis -the values generated for gamma, neutron, and decay heat for the long cavity design do not reflect consistency in rounding and truncating. Additionally the numerical value for the neutron source term for the long cavity design in table 5.1.1.2.2.3-1 of the MPC Design procurement Specification do not agree with the values in the table 10.1-1 of the MPC DPS Requirements Backup Sheets.

Document Identifiers for two classification analyses are not in accordance with procedure, QAP-3-13.

CAR HQ-94-019

Requests have been made requiring the inputs for the MPC to receive design verification in accordance with QAP-3-2. Responses to the request and the transmittal of information indicate that the verification was performed in reality; however, it appears that the design verification did not actually occur.

In addition, the audit team identified the following deficiencies:

1. No request forms were generated.

2. Transmitted input was not marked "verification pending", as required.

CAR HQ-94-020

QAP-3-5, Revision 5 *Development of Technical Documents*, did not address the control of approved technical documents that are not baselined.

Paragraph 5.5.2 of QAP-3-5 indicates that baselined technical documents are to be controlled in accordance with QAP-3-4; however the procedure does not reflect how to control documents that are not baseline controlled.

CAR YM-94-051

The QARD requires that design (conceptual through final) be controlled. It appears that the conceptual design work performed to date has not been adequately controlled by implementing documents. Specific documents include:

Waste Package Design Status Report
Controlled Design Assumptions Documents

CAR YM-94-052

The DRR for design package 1B contains numerous errors: missing signatures and dates; sections and paragraphs not noted; rejected comments not accepted by the reviewer; no acknowledgement of acceptance or rejection by the reviewer; and rejected responses not resolved.

CAR YM-94-053

Design verification documentation for package 1B was either not generated or not retrievable.

CAR YM-94-054

Paragraph 5.2.B.4 of QAP-3-5 states that input data of indeterminate quality will be identified and tracked in accordance with applicable line procedures and will be classified as "To Be Verified (TBV)". A Technical document was approved and issued without identifying TBVs.

CAR YM-94-055

Paragraph 5.1.1 of MGP-3-9 states: "The first revision to a specification shall be to show that the M&O is the A/E of record as of December 1, 1992.....". Raytheon Services (RSN) specifications have not been changed to show that the M&O is the A/E of record during the revision process.

Paragraph 5.1.2 of MGP-3-9 requires: "When the first revision to the specification is made, the RSN title sheet shall be replaced with an M&O Approval of Specification and Revision Description (Attachment IV, QAP-3-8)". Attachments to QAP-3-8 are no longer consistent with the specification cover sheet descriptions in MGP-3-9.

CAR YM-94-056

NLP-3-10, revision 1 is missing the Records Package Identifier. Also, the package is missing the review draft.

History of Change Forms are missing for the following procedures: NLP-3-16, R0, P03; NLP-3-10, R1; and NLP-17-5, R1.

The list of change histories reviewed are missing from the History of Change Form for procedures NLP-17-4 and MGP-3-8.

Implementing Line Procedure Review Records (IRRs) have non-mandatory comments attached for procedures NLP-3-10, NLP-3-20, and NLP-17-5.

An IRR indicates that a reviewer also responded to the comments. The reviewer is not indicated as the author.

The Records Package for NLP-17-5 is missing the review draft. Corrections to records are not initialed/dated.

CAR YM-94-057

Paragraph 2.8A of QARD, Supplement I requires: "the defect reporting and resolution shall be integrated with the software configuration management (CM) system". Problems with the ANSYS 5.0A were sent directly to the user, by-passing the CM System.

CAR YM-94-058

No objective evidence was identified that indicates that ESF BFD, revision 2 preparation complies with procedure NLP-3-20.

5.5.2 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 (V)

- | | | |
|----|---------|---|
| V1 | QAP-1-0 | M&O personnel were not working within the organizational structure described in the current revision of QAP-1-0. The procedure was revised during the audit and adequately describes the new organization structure and the related quality responsibilities and authorities. |
| V2 | QAP-2-1 | The Reading/Self Study Record for William M. Hodson, located in the training files, was initialled as having been read after it had been signed as complete by Hodson and his supervisor, W. R. Standley. The record was dated correctly during the audit. |
| V3 | QAP-2-1 | The Reading/Self Study Record dated 10/27/93 for Meraj Rahimi had not been initialled by Rahimi. The Reading/Self Study Record for Keith W. Rees for QAP-2-1, PCN, R04, P05 was incorrectly dated as having been read on 6/7/95. During the audit, the records were initialled and dated correctly by the respective M&O personnel. |
| V4 | QAP-3-0 | QAP-3-0 requires the Cognizant Office Manager to develop an Implementing Line Procedure for the documentation of information which is transmitted external to the design organization orally or by other means. This deficiency has been documented in M&O CAR and has been corrected by a PCN to QAP-3-0, rev. 2. |

- V5 QAP-3-13 M&O personnel are not consistently implementing the Document Identifiers. During the audit, a PCN was issued that clarifies the types of documents that require a Document Identifier number.
- V6 QAP-4-1 The SNL procurement - Offerer/Proposal Evaluation Record, dated 5/9/94, indicates that the basis for the evaluation was the offerer quality history. The response to the CAR issued against the SNL procurement indicates that the basis for the supplier evaluation was a review of the quality program. During the audit, the Evaluation Record was corrected to document that the basis for the supplier evaluation was the quality program.
- V7 QAP-5-1 Appropriate review criteria are not being selected for assigned reviewers. A CAR initiated by the M&O included a commitment to change the procedure and an evaluation of specified review criteria for reviews performed for the last six months. The audit team reviewed the identified Corrective Actions during the audit.
- V8 QAP-5-1 There was no evidence that approved Impact Review Forms (IRFs) were provided to DCC. A M&O CAR was written. The response committed to M&O CAR indicated IRFs were reviewed and provided to the DCC.
- V9 QAP-5-1 VLP-17-8, rev. 0, identified the procedure author. An IRR included in the records package in the CRF identified the author as one of the formal reviewers. Also, the author was not shown on the IRRs as the person resolving mandatory comments. During the audit, the M&O identified the correct author (not the reviewer) as the person who resolved the mandatory comments. The deficiency was corrected by issuing a memo to file identifying the correct procedure author and by issuing a Procedure Change Notice to correct the cover page of the procedure

- V10 QAP-7-1 The Procurement Document Approval Record (PDAR) for the MPC System RFP did not contain all the required information; however, it had been signed indicating completion. During the audit, the required information was added to the PDAR.
- V11 QAP-7-1 The PDAR for the MPC System Procurement documents indicated ut was for the Procurement Package and the Solicitation Package. Documentation indicated that only the Solicitation Package was submitted for review with the PDAR. The package was resubmitted for review under a separate PDAR during the audit.
- V12 QAP-16-1 Repetitive CARs require retraining and are not classified as significant. M&O CAR (94-QN-C-018) has been issued. Response to the CAR was accepted by the M&O QA and was reviewed by the audit team.
- V13 QAP-16-2 The procedural process described for meeting the requirements is inadequate. Thirteen items were identified from the review and flowcharting of the procedure. During the audit, the procedure was revised to describe an acceptable process for meeting the requirements.
- V14 QAP-17-1 Discrepancies were identified in records packages: 94-02-0034, 94-02-0092, and 94-04-0094. During the audit, the discrepancies were corrected and verified.
- V15 QAP-17-1 Record sources are submitting records packages to the LRC that do not meet the requirements of the procedure. On 5/6/94, the M&O issued a significant CAR (94-QV-C-20) which documented that M&O personnel do not consistently follow requirements detailed in their governing procedures that directly pertain to the creation, completion, and/or submission of QA records. During the audit, the audit team reviewed the M&O planned corrective actions.

V16 QAP-19-1/4 While comparing a magnetic record with a description of what was on the magnetic record, it was found that the a file (CLIPATH.BAT) was missing from the description. The file name was added to the description during the audit.

LAS VEGAS, NV (L)

- L1 QAP-2-2 The experience was not verified for one M&O employee. The work experience was verified during the audit.
- L2 QAP-2-1 The Reading/Self Study record for M. Penovich's review of QAP-2-1, P05 was not available. The record was located during the audit.
- L3 QAP-2-1 The Reading/Self Study Record for F. Tsai for review of QAP-17-1, R03, P03 was provided to the training files during the audit.
- L4 QAP-5-2 The Records Package for NLP-17-5 was missing the review draft. Corrections made to records were not initialed/dated. During the audit, review drafts were added to the records package and corrections were initialed and dated.
- L5 QAP-5-2 MGP-3-8, R0, P03 was missing the Records Package Identifier. During the audit, the records package identifier was added.
- L6 QAP-5-2 Records Packages submitted to LRC used out-of-date forms. Records Packages were resubmitted on correct forms during the audit.
- L7 QAP-12-1 The "Out-of-calibration tag" was not attached to the instrument, as required. The deficiency was corrected by completing and affixing the required tag during the audit.
- L8 QAP-12-1 Equipment Calibration/History records were not completed for two items of M&TE. The records were completed and verified during the audit.

- L9 QAP-16-1 CAR Log status was not revised to reflect a change in classification of CAR 94-QV-C-025 from significant to non-significant. During the audit, the Log was corrected to indicate that subject CAR was now non-significant.
- L10 QAP-19-2 The remedial action response to CAR 94-QN-C-037 dealing with the "Final Version Description Document" was provided for audit team review. The response was considered satisfactory.
- L11 QAP-19-2 The remedial action response to CAR 94-QN-C-039 concerning model validation was provided for audit team review. The response was considered satisfactory.
- L12 QAP-19-2 Paragraph 5.6.2 requires: "Baselined CSCI documentation elements shall be submitted to Document Control in accordance with QAP-6-1". During the audit, baselined CSCI documentation was submitted to Document Control.
- L13 QAP-19-4 Paragraph 5.2.7 requires that the lifecycle plan be approved by the requesting manager. The lifecycle plan for MCNP V 4.2 was not signed by the requesting manager. During the audit, the plan was properly signed and verified.
- L14 QAP-19-4 Paragraph 5.5.5 requires: " development of an acquired-software Life Cycle Plan". An acquired-software life cycle plan was not developed for ANSYS 5.0A. During the audit, the lifecycle plan was prepared and submitted for the audit team review.

6.0 RECOMMENDATIONS

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

VIENNA, VA (V)

- V1 QAP-2-3 Assure that provisions are placed in the M&O procedures for clear and prompt revisions related to QAP-2-3 classification and the associated analyses. The analyst should have primary responsibility for this action.
- V2 QAP-2-7 To comply with the intent of the Management Assessment to improve the QA Program, the audit team recommends that the committed responses to the Management Assessment Recommendation be tracked and verified by the M&O. This requirement should be added to QAP-2-7.
- V3 QAP-3-4 This procedure is only implemented for Level III baseline changes. However, QAP-3-4 is identified in the RTN Matrix as implementing several QARD requirements (3.2.8F & 3.2.9C) that are not fully implemented by other M&O procedures. The implementing documents that are used to generate design documents and changes to design documents need to pickup the requirement. The RTN should be revised, as appropriate.
- V4 QAP-3-5 The Interface Controls Document (ICD) TDPP was issued in June, 1993. The ICDs have not been issued as of this date. The ICD functions as a key interface and facilitator document for inputs and required controls between S & T and MGDS interfaces. Basic design has been generated at both locations without this document being issued. The documents should be issued.
- V5 QAP-3-9 Provide guidance (standards) to analysts concerning calculation "round-off" to assure that all analysts are consistent.
- V6 QAP-3-10 The audit team recommends that the M&O implement an expedited program for displaying TBVs that have been released from drawings following the generation of the applicable Determination of Importance Evaluation (DIE).

- V7 QAP-16-1 The following enhancements are suggested for M&O consideration to the pending revision of procedure, QAP-16-1:
- a. Revise the significance determination decision to later in the CAR process.
 - b. Incorporate review guidance for determining repetitive conditions.
 - c. Develop guidance for any immediate actions required while evaluation of extent is being performed.
- V8 QAP-19-4 Add words to QAP-19-4, paragraph 5.5.3 that not only can the "approved" category acquired software be procured using QAP-4-1 and QAP-7-1 but it may also be acquired in accordance with an approved plan if direct procurement is not necessary.
- V9 QAP-19-4 After reviewing the Configuration Management logs, it is recommended that the logs be automated due to the vast number of CSCIs being tracked for both qualified and non-qualified Configuration Items.
- V10 TRAINING The proposed database for establishing training needs and the status of reading/self study revisions should be implemented as soon as possible.

LAS VEGAS, NV (L)

- L1 QAP-3-5 *Development of Technical Documents* requires that technical documents include:

The identification and documentation of To Be Verified data sources
The identification of assumptions
Any computer program controls

When addressing these items in a technical document the M&O should make certain that the information presented is easily identified. Consideration should be given to including a heading that describes the TBVs/assumptions and where they are located in the document. For example, when the "Seismic Design Inputs for the ESF at Yucca Mountain" document was revised to reflect that it contained unqualified data it was not clear which data was TBV.

- L2 MGP-3-8 Procedures MGP-3-8, R0 & NLP-3-13 do not address "timeliness" relative to submittal of the Drawings Design Inputs Lists for incorporation into the Basis For Design Document (BFD). While 12 DP1A Packages submitted on 2/16/94 to the BDF file are awaiting revision; 33 DP1A packages Input Lists still have not been submitted to date for incorporation. The process should be reviewed to ensure timeliness.
- L3 QAP-3-13 Section 17.2.6 of the QARD addresses requirements for retrieval of QA records. Although no conditions adverse to quality regarding retrieval of QA records were identified during this audit, it was noted that retrieval of some records was difficult. M&O management should evaluate the current methods used for retrieving records, including the use of Document Identifiers, and determine if improvements can be made.
- L4 QAP-3-14 QAP-3-1, Revision 5, *Technical Document Review*, provides a form for documenting the supervisor's signature; however it does not provide for a printed or typed name of the supervisor. Some signatures are hard to read. Consideration should be given to adding a place on the form for the printed name of the supervisor.
- L5 QAP-19-1/4 The audit team observed confusion concerning the use of scientific and engineering software for quality affecting calculations as presented in the "Intended-use" Report. The confusion would be minimized if the use of scientific and engineering software was presented in an "Actual-use" report.
- L6 QAP-19-1/4 The Verification & Validation (V & V) team does not challenge the correctness of vendor supplied V & V test cases. It appears that the V & V team assumes that the V & V test cases supplied by the vendor are correct and incorporates them directly into the V & V plan.
- L7 QAP-19-1/4 Because all documentation, including supporting documentation, is being sent to Document Control for transmittal, rewrite Paragraph 5.6.2 sentence to require only baselined CSCI documentation elements be submitted to Document Control in accordance with QAP-6-1.

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
R. Andrews	Performance Assessment Manager	x		
B. Bernhardt	Subcontracts & Purchasing Manager	x	x	
J. Blandford	Storage & Transportation Manager	x	x	x
D. Boyt	Transportation Analyst	x	x	x
D. Buxton	System Planning & Integration Engineer	x	x	x
G. Carruth	System Integration Manager	x	x	x
J. Cassidy	Quality Engineering Manager	x	x	x
E. Cheatham	Site investigations		x	x
P. Chomentowski	QA Engineer	x	x	x
E. Chulick	Training Manager (VA)	x	x	x
C. Clark	Transportation Dept Engineer	x		
J. Clark	MPC Project Manager	x		
J. Cowles	Chief Engineer	x	x	x
H. Dameron	QA Sr. Technical Specialist	x		x
H. Daugherty	Lead Instructor			x
C. Denton	Transportation Design Engineer	x		
M. Donovan	Quality Engineer	x	x	x
J. Duguid	Sr. Staff, Performance Assessment	x		
P. Dunn	Engineer/SCI	x	x	x
B. Farmer	Sr. QA Specialist	x	x	x
M. Faruque	Software Developer	x		
D. Fenster	R & L Manager	x	x	x
D. Franks	QA Audits Manager		x	x
M. Franks	QA Technical Specialist		x	x
D. Gibson	System Development Manager	x	x	
S. Gibson	Records Analyst	x		
R. Godman	AGM, Operations	x	x	x
K. Green	Training Coordinator	x		x
V. Harris	QA Sr. Staff Secretary		x	x
C. Heath	ORR Team Leader	x		x
W. Hodson	Software Manager	x		
W. Hunt	QA Engineer (Char)			x
A. Jenkins	Systems Engineer	x		
G. Keener	QA Auditor Specialist	x	x	x
C. Kelly	Training Records Specialist	x	x	x
C. Kerrigan	IMS Manager		x	
S. Keyser	Records Manager	x		
A. Kubo	AGM, Waste Accept/S & T	x	x	x

ATTACHMENT 1 (Continued)

PERSONNEL CONTACTED DURING THE AUDIT
Vienna, VA

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
J. Lennon	Records Analyst	x		
J. Lim	Systems Engineer	x		
J. MacCarthy	Project Systems Engineering Manager	x	x	x
V. McCormic	Transportation Analyst			x
E. McDonnell	Contracts & Subcontracts Manager	x	x	x
A. McHenry	Records Analyst	x		
B. McLeod	Waste Acceptance/ Logistics Manager	x		
J. Miller	Systems Engineering Manager	x		x
R. Morgan	Vienna QA Manager	x	x	x
D. Nolan	Transportation Cask Supervisor	x	x	
C. Orr	HR Specialist	x		x
J. Penhaker	Configuration Management Manager	x		
M. Penovich	Training Manager (LV)	x	x	x
F. Ridolphi	Strategic Planning Manager		x	x
R. Robertson	General Manager		x	
S. Robinson	Configuration Management Specialist	x		
R. Ruth	M&O QA Manager	x	x	x
V. Sauers	SCM Manager	x		x
P. Schlereth	SR. QA Engineer	x	x	x
W. Schneider	S/C Manager		x	x
M. Shepherd	Vienna Records Center Manager	x		
V. Skrinak	IMS Manager	x	x	x
W. Standley	Modeling & Database Manager	x		x
J. Stern	Management Systems Manager		x	x
J. Stringer	MRS/MPC Design Manager	x	x	x
C. Tankersley	Systems Engineer	x		x
A. Tayfun	Records Manager	x	x	x
B. Teer	Transportation Project Manager	x	x	x
J. Tierney	Quality Engineering Support Manager	x	x	x
L. Tipton	Sr. Staff, Regulation & Licensing		x	
J. Van Ormer	Systems Engineer	x		x
M. Vance	QMIS Administrator	x		x
J. Verden	Document & Records Center Supervisor	x		
P. Viggiano	CAR Coordinator	x	x	x
J. Watson	Training Supervisor	x	x	x
R. White	Human Resources & Training Manager	x	x	x
P. White	QA Sr. Specialist	x	x	x
S. Willis	System Engineering Supervisor	x		

ATTACHMENT 1 (Continued)

PERSONNEL CONTACTED DURING THE AUDIT
Las Vegas, NV

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
G. Abend	QA Specialist	x	x	x
S. Adame	Human Resources Manager		x	
F. Afshar	Sr. Staff		x	x
F. Arth	QA Technical Specialist	x	x	x
B. Ashworth	Security Archives President	x		
T. Badredine	Imaging Supervisor	x		
R. Bahney III	Waste Package design Engineer	x		
S. Bailey	DIE Manager	x		x
C. Bartley	QA Support Specialist	x	x	x
H. Benton	Waste Package Development Manager	x	x	x
R. Berlien	Lead Auditor	x	x	x
K. Bhattacharyya	Engineering Manager	x		
N. Biggar	Site Characterization Manager	x		
S. Bodner	Technical Data Manager	x		
S. Bonabian	Geotechnical Engineer	x		
S. Bowlinger	DRC Supervisor	x		
A. Brandstetter	Performance Assessment Engineer	x		
A. Bryant	Training Specialist	x		
C. Buckey	ESF Project Engineer	x		
J. Cassidy	Quality Engineering Manager	x		x
P. Chadwick	Training Manager	x		
N. Chaffin	Micrographics Operator	x		
P. Chomentoski	QA Engineer	x	x	x
E. Chulick	Training Manager	x	x	
I. Cottle	Staff Engineer	x		
M. DeLeon	Design Support Supervisor	x		x
E. Dembrowski	Configuration Management Engineer	x		
T. Doering	Waste Package Design Manager	x		
R. Dresel	POC Construction Management		x	
R. Elayer	Principal Geologist	x		
E. Fitch	Subsurface Design Engineer	x		
R. Fournier	MGDS Development Support Engineer	x		
J. Franl	Support Operations Manager		x	x
D. Franks	Audit Manager	x	x	x
T. Geer	MGDS System Engineering Manager	x	x	x
M. Gomez	PE/MGDS Surface Design	x	x	x
P. Gottlieb	Senior Engineer	x		
L. Hassler	Principal Engineer	x		

ATTACHMENT 1 (Continued)

PERSONNEL CONTACTED DURING THE AUDIT
Las Vegas, NV

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
P. Hastings	DIE Manager	x		x
J. Heaney	Design Control Engineering Supervisor	x	x	x
R. Heidt	Support Manager		x	
J. Herbert	Records Clerk	x		
N. Hodgson	Software Configuration Manager	x	x	x
J. Houseworth	Waste Isolation Evaluation Manager	x		x
C. Houston	Configuration Management Engineer	x		
J. Jackson	Staff Engineer	x		
B. Janota	Architect	x		
D. Jenkins	QA Engineer	x	x	x
K. Jerome	Records Clerk	x		
N. Jones	Systems Analyst	x		
R. Jurani	Staff Engineer	x		
J. Justice	Training Supervisor	x		x
R. Justice	QA Support Manager		x	x
W. Leonard	Project Engineer		x	x
J. Low	Information Resource Manager		x	
T. Mathews	Engineering Manager			x
L. Morrison	ESF BFD Preparer	x		
T. Mueller	Records Analyst	x	x	x
M. McGrath	Configuration Management Manager	x		
J. Naaf	ESF Subsurface Design Engineer	x	x	
R. Nolting	Project Engineer	x		
M. Penovich	Las Vegas Transportation Manager	x	x	x
J. Peters	Mining Engineer	x		
B. Petrie	Lead Auditor	x	x	x
P. Pimentel	MGDS Surface Design Manager		x	x
J. Pye	Lead Geotechnical Engineer	x		
R. Quittmeyer	Technical Integration Supervisor	x	x	x
J. Reitan	DRC Records Clerk	x		
S. Rindskopf	Requirements Manager	x		
R. Robertson	General Manager			x
R. Ruth	M&O QA Manager		x	x
D. Sassani	Performance Assessment Analyst	x		
J. Salchak	Design Supervisor	x		
R. Sandifer	MGDS Deputy Manager		x	x
R. Saunders	Subsurface Design Supervisor	x		
B. Savarise	Publications Supervisor			x

ATTACHMENT 1 (Continued)

PERSONNEL CONTACTED DURING THE AUDIT
Las Vegas, NV

NAME	TITLE	CONTACT	MEETINGS	
			PRE	POST
A. Segrest	MGDS Development Manager	x	x	x
D. Sestak	QA Construction Engineer	x	x	x
W. Smith	DCC Supervisor	x		
B. Standley	Principal Mining Engineer	x		
S. Sullivan	Human Resources			x
J. Taipale	ESF Design Engineer	x		
L. Tate	Records Supervisor	x		
G. Teraoka	Requirements Engineer	x		
B. Thom	Systems Engineer	x	x	x
D. Thomas	Waste Package Development Engineer	x		
F. Tsai	Senior Geotechnical Engineer	x		
D. Vanica	Principal Engineer	x		
G. Vaslos	Lead Auditor			x
R. Vawter	Dep. Site Manager		x	x
J. Verden	Records Manager	x	x	x
R. Wagster	MGDS Development Integration		x	
J. Walker	Document Control Clerk	x		
W. Wallin	Development Engineer		x	x
J. Willis	NV Quality Engineering Manager	x	x	x
S. Womack	DCC Acting Lead	x		
M. Woods	Engineering Document Control	x		
K. Worcester	RMD Work Lead	x		
J. Younker	Office Manager	x	x	x
F. Zinkevich	QA Engineer	x	x	x

ATTACHMENT 2

SUMMARY TABLE OF AUDIT RESULTS

DISCUSSION

For the sixteen QA Program elements and requirements evaluated during the audit, the implementation of six was determined to be satisfactory. Those elements were: 1.0, 6.0, 7.0, 12.0, 15.0, and 18.0. Among these six elements, there were five deficiencies corrected during the audit. The two deficiencies associated with Element 7.0 were tied to the procurement document problems of Element 4.0, *Procurement Document Control*.

The implementation of six elements plus Supplement I were determined to be marginal (Elements 2.0, 3.0, 4.0, 5.0, 16.0, and 17.0). The unsatisfactory implementation within Element 2 is tied to two other elements: 3.0 and 16.0. Procedures QAP-2-0 and QAP-2-3 precede Element 3.0, *Design Control*. For QAP-2-0, four of nine packages reviewed contained procedural problems in the area of consistently applying procedural requirements and adequate content (Refer to CAR HQ-94-015). Element 3.0 implementation was determined to be very marginal (bordering on unsatisfactory) with nine of 16 actively used procedures considered marginally or unsatisfactorily implemented (Refer to CARs HQ-94-018 through 020, YM-94-051 through 055, and YM-94-058).

The second unsatisfactory procedure within Element 2 was QAP-2-4, *Program Status and Trend Reporting* (CAR HQ-94-017). When tied to Element 16, *Corrective Action*, the audit team determined that the overall corrective action process, including trending, was marginal.

Based on the multiple deficiencies documented on M&O CARs and the deficiencies in documentation corrected during the audit, the implementation in the area of Procurement Document Control, Element 4.0, was determined to be marginal.

Implementation of QAP-5-2 is determined to be marginal as indicated by the several deficiencies identified in CAR YM-94-056. Based on the CAR along with six deficiencies corrected during the audit, the audit team determined that the overall implementation of Element 5.0 was marginal.

Although no CARs were written within Element 17, the audit team observed that numerous records submitted to the LRC were inadequate. The LRC was handling the correction of these deficiencies by asking the record source to correct the problem. M&O has an open CAR 94-QV-C-020 addressing this issue.

ATTACHMENT 2 (Continued)

SUMMARY TABLE OF AUDIT RESULTS

After review of the procedures and discussions with the interviewed individuals, there is a need to rewrite the 19 series procedures for clarity and ease of use. CAR YM-94-057 was written during the audit plus six deficiencies were corrected and five recommendations were offered to M&O management. Implementation of Supplement I was determined to be marginal.

PERFORMANCE-BASED AUDIT - TRAINING (Vienna, VA only)

The training activity for establishing required core training to enhance functional responsibilities, implementing the training delivery system through certified instructors and approved lesson plans, and performing internal evaluation of the training program was effectively implemented. However, the responsible implementing department managers' controls for individual reading/self study training identification and status tracking was marginally effective. The M&O's proposed database tracking system of individual training assignments and completions should improve this weakness when properly implemented.

ATTACHMENT 2
 SUMMARY TABLE OF AUDIT RESULTS

AUDIT HQ-94-02 DETAIL SUMMARY

ELEMENT	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	RECOMMEND	ADEQUACY	COMPLIANCE	OVERALL
1	QAP-1-0, R1	pgs. 1-3 (V&L)		V1			SAT	SAT
	QAP-1-1, R2	pgs. 1-3 (V&L)					lack of activity	
2	QAP-2-0, R1, P1	pgs. 1-6 (V&L)	HQ-94-015				UNSAT	MARGINAL
	QAP-2-1, R4, P5	pgs. 1-3 (V&L)		V2,V3,L2,L3			SAT	
	QAP-2-2, R2, P3	pgs. 1-4 (V&L)		L1			SAT	
	QAP-2-3, R6, P1	pgs. 1-8 (V&L)	HQ-94-016		V1		MARGINAL	
	NLP-3-16, R0, P2	pgs. 1-6 (L)					SAT	
	NLP-3-17, R0	pgs. 1-9 (L)					SAT	
	NLP-3-17, R1	pgs. 1-11 (L)					SAT	
	QAP-2-4, R3	pgs. 1-5 (V&L)	HQ-94-017				UNSAT	
	QAP-2-5, R3, P1	pgs. 1-6 (V&L)					SAT	
	NLP-2-3, R0	pgs. 1-4 (L)					SAT	
	QAP-2-6, R2, P1	pgs. 1-7 (V)					SAT	
	QAP-2-7, R0	pgs. 1-4 (V)			V2		SAT	
QAP-2-9, R1, P2	pgs. 1-3 (V&L)					SAT		
3	QAP-3-0, R1	pgs. 1-7 (V&L)	YM-94-051	V4			UNSAT	MARGINAL
	QAP-3-1, R4, P1	pgs. 1-5 (V&L)	YM-94-052				MARGINAL	
	QAP-3-2, R4, P1	pgs. 1-7 (V&L)	YM-94-053				UNSAT	

ATTACHMENT 2
 SUMMARY TABLE OF AUDIT RESULTS

ELEMENT	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	RECOMMEND	ADEQUACY	COMPLIANCE	OVERALL
3 (con't)	QAP-3-3, R3	pgs. 1-3 (V)					lack of activity	MARGINAL
	QAP-3-4, R1, P1	pgs. 1-7 (L)			V3		SAT	
	QAP-3-5, R5	pgs. 1-5 (V&L)	YM-94-054 HQ-94-020	V14,V15	V4,L1		MARGINAL	
	QAP-3-6, R2, P2	pgs. 1-3 (V&L)					SAT	
	QAP-3-8, R3, P4	pgs. 1-6 (L)					lack of activity	
	MGP-3-8, R0, P3	pgs. 1-3 (L)	YM-94-055		L2		SAT	
	QAP-3-9, R3, P4	pgs. 1-15 (V/L)	HQ-94-018		V5		UNSAT	
	MGP-3-9, R0, P1	pgs. 1-3 (L)	YM-94-055				UNSAT	
	NLP-3-19, R0	pgs. 1-2 (L)					UNSAT	
	NLP-3-20, R0	pgs. 1-11 (L)	YM-94-058				UNSAT	
	NLP-3-13, R0, P3	pgs. 1-4 (L)					SAT	
	QAP-3-10, R3, P3	pgs. 1-6 (V&L)			V6		SAT	
	NLP-3-15, R0, P3	pgs. 1-6 (L)					SAT	
	QAP-3-12, R3, P1	pgs. 1-4 (V&L)	HQ-94-019				UNSAT	
QAP-3-13, R2	pgs. 1-4 (V&L)			V5	L3	SAT		
QAP-3-14, R2	pgs. 1-5 (V&L)				L4	lack of activity		
4	QAP-4-1, R2	pgs. 1-10 (V)		V6			MARGINAL	MARGINAL
5	QAP-5-1, R2, P4	pgs. 1-11 (V&L)		V7,V8,V9			SAT	MARGINAL
	QAP-5-2, R0, P1	pgs. 1-9 (L)	YM-94-056	L4,L5,L6			MARGINAL	

ATTACHMENT 2
 SUMMARY TABLE OF AUDIT RESULTS

ELEMENT	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	RECOMMEND	ADEQUACY	COMPLIANCE	OVERALL
6	QAP-6-1, R2	pgs. 1-4 (V&L)					SAT	SAT
	NLP-6-1, R2, P1	pgs. 1-9 (L)					SAT	
7	QAP-7-1, R2, P1	pgs. 1-20 (V)		V10,V11			SAT	SAT
12	QAP-12-1, R0, P2	pgs. 1-5 (L)		L7,L8			SAT	SAT
15	YAP-15.1Q,R1,P1	pgs. 1-5 (L)					SAT	SAT
16	QAP-16-1, R1	pgs. 1-4 (V&L)		V12,L9	V7		MARGINAL	MARGINAL
	QAP-16-2, R1	pgs. 1-4 (V&L)		V13			lack of activity	
17	QAP-17-1, R3, P1	pgs. 1-8 (V&L)		V14,V15			MARGINAL	MARGINAL
	QAP-17-2, R1, P1	pgs. 1-5 (V&L)					SAT	
	QAP-17-5, R1	pgs. 1-4 (V&L)					SAT	
	QAP-17-6, R1, P1	pgs. 1-5 (V&L)					SAT	
	NLP-17-4, R0, P2	pgs. 1-2 (L)					SAT	
	NLP-17-5, R1	pg. 1 (L)					SAT	
18	QAP-18-1, R2, P1	pgs. 1-4 (V&L)					SAT	SAT
	QAP-18-2, R2, P1	pgs. 1-4 (V&L)					SAT	
SUPP I	QAP-19-1, R3, P1	pgs. 1-7 (V&L)	YM-94-057		L5,L6,L7		MARGINAL	MARGINAL
	QAP-19-2, R3, P1	pgs. 1-5 (V&L)	YM-94-057	V16,L10,L11,L12			MARGINAL	
	QAP-19-3, R2	pgs. 1-5 (V)					lack of activity	
	QAP-19-4, R1, P3	pgs. 1-8 (V&L)	YM-94-057	L13,L14	V8,V9,L5,L6,L7		MARGINAL	

ATTACHMENT 2
 SUMMARY TABLE OF AUDIT RESULTS

ELEMENT	DOCUMENTS REVIEWED	DETAILS (✓ List)	CARs	CDA	RECOMMEND	ADEQUACY	COMPLIANCE	OVERALL
SUPP III	lack of	activity						lack of activity
APP. C	lack of	activity						lack of activity
PERFORMANCE BASED								
TRAIN'G	PROCESS STEP							
	RECRUIT/HIRING	pgs. 1-3 (V)					SAT	MARGINAL
	ID WORK TASKS	pgs. 1-3 (V)			V10		MARGINAL	
	DEFINE NEEDS	pgs. 1-2 (V)					SAT	
	DELIVERY SYST	pgs. 1-11 (V)					SAT	
	EVAL PROGRAM	pgs. 1-6 (V) x2					SAT	
TOTAL		518 pages	14	30	17			

"DOCUMENTS REVIEWED" includes the referenced procedure or process step and the associated records/objective evidence

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