

U.S. DEPARTMENT OF ENERGY

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

OFFICE OF QUALITY ASSURANCE

AUDIT OF QUALITY ASSURANCE PROGRAM ELEMENTS 1, 2, 15, 16 AND 18

AT

UNITED STATES GEOLOGICAL SURVEY
DENVER, COLORADO

OCTOBER 15 THROUGH OCTOBER 18, 1991

AUDIT NO. YMP-92-02

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Approved by: D. G. Horton For Date: 10/30/91
Donald G. Horton, Director
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EXECUTIVE SUMMARY

The audit determined that the United States Geological Survey (USGS) is satisfactorily implementing effective Quality Assurance Program controls in accordance with the USGS Quality Assurance Program Plan and implementing procedures for four of the five program elements evaluated. Effectiveness of Program Element 1.0, "Organization," could not be fully evaluated because some of the activities associated with the recent revision of this program element have not been completed. The evaluation of the USGS organization will be completed during the next scheduled Yucca Mountain Quality Assurance Division audit.

The Audit Team identified five deficient conditions during the course of the audit. All of these deficiencies were resolved prior to the post-audit meeting and are documented in Section 5.3 of this report.

1.0 INTRODUCTION

This report contains the results of the Quality Assurance (QA) audit performed at the United States Geological Survey (USGS) by a team of auditors from the Yucca Mountain Quality Assurance Division (YMQAD). The audit was conducted October 15 through 18, 1991, at Denver, Colorado and evaluated QA Program Elements 1.0, 2.0, 15.0, 16.0, and 18.0.

2.0 AUDIT SCOPE

This audit evaluated effectiveness of the USGS QA Program in meeting the requirements and commitments imposed by the Office of Civilian Radioactive Waste Management. Specifically, the audit evaluated the effectiveness of QA requirements specified in the USGS Quality Assurance Program Plan (QAPP) and implementing procedures.

Deficiencies identified during the previous YMQAD Audit 91-05 were considered during this audit to determine effectiveness of corrective action. In addition, verification of corrective action for Project Office Corrective Action Request (CAR) YM-91-050 was performed during the audit and closure is recommended.

The Programmatic Elements evaluated during the audit are identified below:

- 1.0 Organization
- 2.0 Quality Assurance Program
- 15.0 Control of Nonconforming Items
- 16.0 Corrective Action
- 18.0 Audits

3.0 AUDIT TEAM

Charles C. Warren, Audit Team Leader
A. Edward-Cocoros, Auditor for Program Elements 1.0 and 2.0
Richard L. Weeks, Auditor for Program Elements 15.0, 16.0 and 18.0

4.0 PERSONNEL CONTACTED

For personnel contacted during the audit, see Enclosure 1.

5.0 AUDIT RESULTS

5.1 Program Element Effectiveness

For Program Elements 2.0, 15.0, 16.0 and 18.0, the USGS is satisfactorily implementing effective QA Program controls in accordance with the USGS QAPP and implementing procedures. Effectiveness of Program Element 1.0, "Organization," could not be fully evaluated during the audit because this program element has recently been revised and some of the activities associated with the revision have not been completed. Incomplete activities are generally those associated with verification of compliance to specified quality requirements for work performed by the Geologic Division and permanent assignment of personnel to fill positions identified in the new organization structure. Initial activities required by the revised organization, such as issuance of Memorandums of Agreement for planned work activities and temporary assignment of personnel were evaluated and found to be effectively implemented. Completion of the evaluation of Program Element 1.0 will be performed during the next scheduled YMQAD audit of the USGS in April 1992.

5.2 Corrective Action Requests (CARs)

No CARs were issued as a result of this audit. However, verification of corrective action for previously issued Project Office CAR YM-91-050 was performed and it is recommended that this CAR be closed.

5.3 Corrective Action Taken During the Audit

The following deficiencies requiring only remedial action were corrected during the audit by USGS personnel:

1. YMP-USGS-QMP-2.02, Revision 5, paragraph 5.3.2, requires that qualification of USGS personnel include the supervisor's documented evaluation of employee qualifications and provides a format for this evaluation in Attachment 2 to the procedure. Contrary to these requirements, documented evaluation of the qualification of two USGS management personnel did not include the date evaluations were performed. This deficiency was corrected by a supplemental letter from supervision to each of the personnel files documenting the dates of the evaluations.
2. YMP-USGS-QMP-2.02, Revision 5, paragraph 5.3.2, requires that supervisors of personnel send a statement to the Technical Project Officer (TPO) attesting that each employee is qualified for the duties of the position. Contrary to this requirement, the statement for the USGS QA Manager was not signed by his supervisor (Assistant Director Engineering Geology) as

indicated on the organization chart. The QA Manager's statement of qualification was signed by the Assistant Chief Hydrologist Program Coordination and Technical Support. A letter signed by the Assistant Chief Hydrologist was entered into the personnel file of the QA Manager to document his administrative reporting relationship to the Assistant Chief Hydrologist as opposed to his functional reporting relationship to the Assistant Director Engineering Geology.

3. YMP-USGS-QMP-18.02, Revision 2, paragraph 5.7, requires surveillance reports be prepared in accordance with the format shown in Attachment 4 to the procedure. Contrary to this requirement, Surveillance Report 91-S13 did not identify surveillance personnel nor address equipment needs as required by Attachment 4. Surveillance Report 91-S13 was corrected to include the information required.
4. YMP-USGS-QMP-18.01, Revision 6, paragraph 5.5.1, requires that documentation of pre-audit meetings include the date and location of the meetings. Contrary to this requirement, the location of pre-audit meetings for audits 91-08, 91-09, 91-13, and 91-17 were not documented. Documentation was corrected to indicate pre-audit meeting locations.
5. YMP-USGS-QMP-18.02, Revision 2, paragraph 5.4.1, requires that surveillance plans identify the accuracy and/or range of equipment used. Contrary to this requirement, the accuracy/range of equipment was not addressed in Surveillance Plan 91-S13. Surveillance Plan 91-S13 was corrected to address the required information regarding the use of equipment.

5.4 Audit Details

For details of items and activities examined during the audit, see Enclosures 2 and 3.

6.0 RECOMMENDATIONS

None

7.0 ENCLOSURES

- Enclosure 1: Personnel Contacted During The Audit
- Enclosure 2: Audit Details
- Enclosure 3: Objective Evidence Reviewed During The Audit

PERSONNEL CONTACTED DURING THE AUDIT

NAME	ORGANIZATION/ LOCATION	PRE-AUDIT MEETING	DURING AUDIT	POST-AUDIT MEETING
D. Appel	USGS/Denver	X	X	X
K. Burgess-Kohn	SAIC/Golden	X	X	X
K. Causseaux	USGS/Denver	X		X
T. Chaney	USGS/Denver	X	X	X
G. Ducret	USGS/Golden		X	X
A. Handy	USGS/Denver	X		X
L. Hayes	USGS/Denver	X	X	
R. Holliday	SAIC/Golden		X	
N. Karas	SAIC/Golden	X		X
A. Lykins	USGS/Denver	X	X	X
T. Mendez-Vigo	SAIC/Golden	X	X	X
M. Mustard	USGS/Denver	X	X	X
D. Porter	SAIC/Golden	X	X	X
J. Shelor	SAIC/Golden	X		X
J. Stuckless	USGS/Denver		X	X
D. Valega	SAIC/Golden	X	X	
M. Watt	SAIC/Golden			X
A. Whiteside	USGS/Denver	X	X	X
J. Woolverton	USGS/Denver	X		
J. Ziemba	SAIC/Golden	X	X	X

AUDIT DETAILS

The following is a summary of programmatic activities evaluated during the audit. A list of objective evidence reviewed for these activities is indicated in Enclosure 3.

1.0 Organization

The evaluation of this element was conducted to determine compliance with Section 1 of YMP-USGS-QAPP-01, Revision 5, "USGS Quality Assurance Program Plan for Yucca Mountain Project" and QMP 1.01, Revision 4, "Organization Procedure." The organizational structure required to implement this element was recently restructured and although the new organization is in place, with personnel assignments and memorandums of agreement identified due to its newness, its implementation could not be entirely determined. The portion of the organization which stayed unchanged was evaluated and found to be effectively implemented. This evaluation was conducted by questioning key USGS personnel to determine their awareness and understanding of the following quality program items:

- Organization structure
- Authority, duties and responsibilities of the organization elements audited
- Lines of communication internally within USGS and with outside contractors
- Resolution of disputes and conflicts relative to quality assurance items
- Stop work order procedure
- Quality Concerns Program

It was found that the personnel interviewed had a clear understanding of both the requirements for the USGS YMP organization and how these requirements are being implemented. The USGS personnel interviewed were:

- Technical Project Officer
- Quality Assurance Manager
- Chief Hydrologic Studies Program

- Chief Geologic Studies Program
- Chief Program and Plans
- Geological Studies Program QA Implementation Specialists
- QA Implementation Specialist for the Technical Project Officer.

2.0 Quality Assurance Program

The evaluation of this program element was conducted by reviewing objective evidence and interviewing USGS personnel relative to the following documents:

QMP 2.01 Management Assessment of the YMP-USGS Quality Assurance Program

QMP 2.07 YMP-USGS Instruction

QMP 2.08 Non-Federal Contractor Personnel Qualification

A management assessment performed to QMP 2.01 was evaluated by reviewing the report issued July 11, 1991, and interviewing L. Hayes (TPO) and Ardell Whiteside (QA Implementation Specialist). It was concluded by the audit team that the procedure is being effectively implemented.

The evaluation of indoctrination, orientation and training of personnel was performed by review of personnel records for compliance with the requirements of QMP 2.07. A total of 33 USGS and contractors personnel files were reviewed with the resultant conclusions that this procedure is being effectively implemented.

The evaluation of the qualification of personnel was performed by reviewing personnel records for compliance with the requirements of QMP 2.02 and QMP 2.08. Twenty-one USGS and contractor personnel files were reviewed with the resultant conclusion that these procedures are being effectively implemented.

During the course of auditing this element, a review of objective evidence for remedial action taken relative to Project Office CAR YM-91-050 was performed. Seven Technical Reviewer Selection documents of USGS technical personnel were reviewed and it was verified that the deficiency had been corrected. Based on this review it will be recommended that CAR YM-91-050 be closed.

15.0 Control of Nonconforming Items

An evaluation of Control of Nonconforming Items was conducted by examination of objective evidence and discussions with responsible personnel. A total of 11 Nonconformance Reports (NCRs) were examined and found to meet the procedural requirements as stated in YMP-USGS-QMP-15.01, Revision 4, and Modifications 1 and 2. Seven of the examined NCRs were closed and four were open.

16.0 Corrective Action

An evaluation of Criteria 16 included an examination of objective evidence generated as a result of implementation of YMP-USGS-QMP-16.01, Revision 3, and Modification 1, "Control of Corrective Action Reports" and YMP-USGS-QMP-16.03, Revision 2, and Modifications 1 and 2, "Trend Analysis." Additionally, auditee personnel were interviewed for the purpose of clarification. YMP-USGS-QMP-16.02, Revision 2, "Control of Stop Work Order" has not been implemented according to auditee.

A total of seven Corrective Action Reports (CARs) were examined and found to meet procedural requirements. All but one of the examined CARs were open and in-process.

Three Status of Open Items and Trend Analysis Reports were examined and found to be in compliance with procedural requirements. Implementation of this procedure has proven to be an effective tool for the identification of adverse trends and has resulted in the generation of several CARs to identify these adverse trends.

18.0 Audits

An evaluation of Criteria 18 included an examination of objective evidence generated as a result of implementation of YMP-USGS-QMP-18.01, Revision 6 and Modification 1, "Audits" and YMP-USGS-QMP-18.02, Revision 2, "Surveillances." Discussions were held with auditee personnel for the purpose of clarification. Additionally, YMP-USGS-QMP-2.05, Revision 3, "Qualification of Audit and Surveillance Personnel" was evaluated by examination of objective evidence.

Three Audit Schedules were examined and found to be revised and issued by the QA Manager on a quarterly basis. Eight Audit Reports were examined and, except for those deficient items corrected during the audit, found to meet procedural requirements. All examined audits, except 91-12, were closed. Ten closed Audit Finding Reports (AFRs) were examined and found to be complete and meet procedural requirements.

Three Surveillance Schedules were examined and found to be revised and issued by the QA Manager on a quarterly basis. Five closed Surveillance Reports were examined and, except for those deficient items corrected during the audit, found to meet procedural requirements.

The qualifications of four audit and surveillance personnel were examined and found to comply with the procedural requirements of YMP-USGS-QMP-2.05, Revision 3.

OBJECTIVE EVIDENCE REVIEWED DURING THE AUDIT

Plans

YMP-USGS-QAPP-01 USGS Quality Assurance Program Plan
Revision 5, and
ICNs 1, 2, 3, 4, 5, 6, 7

Quality Management Procedures

QMP-1.01, Rev. 4	Organization Procedure
QMP-2.01, Rev. 2	Management Assessment of YMP-USGS QA Program
QMP-2.02, Rev. 5 & M1	USGS Personnel Qualification
QMP-2.05, Rev. 3	Qualification of Audit and Surveillance Personnel
QMP-2.07, Rev. 1 & M2	YMP-USGS Instruction
QMP-2.08, Rev. 1	Non-Federal Contractor Personnel Qualification
QMP-15.01, Rev. 4 & M1, 2	Control of Non-Conforming Items
QMP-16.01, Rev. 3 & M1	Control of Corrective Action Reports
QMP-16.03, Rev. 2 & M1,2,3	Trend Analysis
QMP-18.01, Rev. 6 & M1	Audits
QMP-18.02, Rev. 2	Surveillances

Nonconformance Reports

91-01 (closed)	91-35 (open)
91-23 "	91-37 "
91-24 "	91-38 "
91-27 "	91-39 "
91-28 "	
91-30 "	
91-33 "	

Corrective Action Requests

91-04 (closed)
91-07 (open)
91-08 "
91-09 "
91-10 "
91-11 "
92-01 "

Status of Open Items and Trend Analysis Reports

June 1991 -GS.91.A.002466
July 1991 GS.91.A.002586
August 1991 GS.91.A.003063

Audit Schedules

January 31, 1991 D. Appel GS.91.A.000346
April 30, 1991 T. Chaney GS.91.A.001097
July 31, 1991 T. Chaney GS.91.A.002469

Audit Reports

91-03 (closed)
91-08 "
91-09 "
91-11 "
91-12 (open)
91-13 (closed)
91-16 "
91-17 "

Audit Finding Reports

9013-01 (closed)
9013-02 "
9013-03 "
9013-05 "
9013-06 "
9013-07 "
9013-09 "
9101-01 "
9101-03 "
9101-06 "

Surveillance Schedules

January 31, 1991 GS.91.A.000347
April 30, 1991 GS.91.A.001086
July 31, 1991 GS.91.A.002471

Surveillance Reports

91-S08 (closed)
91-S13 "
91-S14 "
91-S15 "
91-S16 "

Miscellaneous

Qualification files for 21 USGS and non federal personnel

Indoctrination/Orientation/Training Records of 33 USGS and non federal personnel

Reorganization Memorandum from Associate Chief-YMP-USGS dated 10/8/91

Four Memorandums of Agreement between Geologic Division and the Water Resources Division

Quality Assurance Support Organization Chart

Hydrologic Studies Program Organization Chart

Status of Open Items Table effective 10/14/91

YMP-USGS Instructional Assignment documents from QA Manager

Request for YMP-USGS Instructional Assignments from the TPO

TPO Personnel QMP Reading Assignment Matrix dated 5/3/91

HIP Personnel Instruction Completion Matrix effective 4/10/91

YMP-USGS Instruction Assessment forms (completed)

YMP-USGS Instructor Qualification forms (completed)

Initial Instructor Training Attendance Record (completed)

Qualification Records for four audit personnel.