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UNITED STATES GEOLOGICAL SURVEY

OCRWM AUDIT No. 93-01

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OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

QUALITY ASSURANCE AUDIT PLAN

FOR AUDIT NO. YMP-93-01

OF

U.S. GEOLOGICAL SURVEY

DENVER, COLORADO

OCTOBER 19 THROUGH 23, 1992

Prepared by: Kenneth T. McFall Date: 9/10/92
Kenneth T. McFall
Audit Team Leader
Yucca Mountain Quality Assurance Division

Approved by: K.E. Spence For Date: 9/11/92
Donald G. Horton
Director
Office of Quality Assurance

102.1

1.0 SCOPE

This audit, performed by a team of auditors from the Yucca Mountain Quality Assurance Division (YMQAD), will evaluate the U.S. Geological Survey (USGS) Quality Assurance (QA) Program to determine whether it meets the requirements and commitments imposed by the Office of Civilian Radioactive Waste Management. This will be done by verifying implementation and effectiveness of the system in place, as well as verifying compliance with requirements.

In addition to a follow-up on any open Corrective Action Requests (CARs), a representative sample of deficiencies identified during previous QA audits and surveillances of USGS will be included in the scope of this audit to determine the effectiveness of USGS corrective actions.

The programmatic and technical elements to be audited, as well as those programmatic elements not included in this audit, are identified in Section 4.0 of this plan.

2.0 AUDIT SCHEDULE

Pre-Audit Team/Observers Meeting	8:30 a.m., October 19, 1992 Denver, Colorado
Pre-Audit Conference	9:00 a.m., October 19, 1992 Denver, Colorado
Audit Activities	10:00 a.m. to 4:00 p.m. October 19, 1992
Audit Activities	8:15 a.m. to 4:00 p.m. October 20 - 22, 1992
Audit Activities	8:15 a.m. to 10:00 a.m. October 23, 1992
Post-Audit Conference	11:00 a.m., October 23, 1992 Denver, Colorado

There will be a daily YMQAD audit team/observer caucus meeting starting at 4:15 p.m. and also a daily Audit Team Leader/observer/USGS meeting starting at 8:15 a.m. to discuss potential deficiencies and establish needed liaison.

3.0 REQUIREMENTS TO BE AUDITED AND APPLICABLE REFERENCES

The requirements to be audited will be contained in the programmatic and technical checklists. These checklists will be developed from the latest available revision of the following documents:

- USGS Quality Assurance Program Description Document and implementing procedures
- Applicable Yucca Mountain Site Characterization Project Office Administrative Procedures-Quality

The conduct of the audit will be guided by the documents listed below:

- Quality Assurance Administrative Procedure (QAAP) 18.2, Revision 5, "Audit Program"
- QAAP 16.1, Revision 4, "Corrective Action Requests"

4.0 ACTIVITIES TO BE AUDITED

Programmatic Elements

4.0 Procurement Document Control
7.0 Control of Purchased Items and Services
8.0 Identification and Control of Materials, Parts, and Components
15.0 Nonconforming Materials, Parts or Components
19.0 Software Quality Assurance
20.0 Scientific Investigations*

The following programmatic elements were considered during development of this audit scope and determined to be not applicable since USGS currently has no activities for which these elements apply:

10.0 Inspection
11.0 Test Control
14.0 Inspection, Test, and Operating Status

* For the purposes of this audit, Program Element 3.0 will be combined with Program Element 20.0.

Technical Areas

8.3.1.2.2.7.1	Gaseous-Phase Chemical Investigations
8.3.1.2.2.7.2	Aqueous-Phase Chemical Investigations
8.3.1.4.2.1.1	Stratigraphic Studies
8.3.1.4.2.2.1	Geologic Mapping of Zonal Features
8.3.1.14.2	Studies to Provide Soil and Rock Properties of Potential Locations of Surface and Subsurface Access Facilities
8.3.1.2.3.1.2	Site Potentiometric-Level Evaluation
8.3.1.2.3.1.3	Analysis of Single and Multiple-Well Hydrologic Stress

If the audit team identifies a need to verify additional program elements/technical areas during the audit, they will be added to the audit scope and verified accordingly.

5.0 AUDIT TEAM MEMBERS

Kenneth T. McFall, Audit Team Leader, YMQAD, Las Vegas, Nevada
Richard L. Maudlin, Auditor, YMQAD, Las Vegas, Nevada
Thomas J. Higgins, Auditor, YMQAD, Las Vegas, Nevada
Cynthia H. Prater, Auditor, YMQAD, Las Vegas, Nevada
James Blaylock, Auditor, YMQAD, Las Vegas, Nevada
Robert E. Harpster, Lead Technical Specialist, YMQAD, Las Vegas, Nevada
Keith M. Kersch, Technical Specialist, SAIC, Las Vegas, Nevada
Thomas W. Bjerstedt, Technical Specialist, YMPO, Las Vegas, Nevada

6.0 AUDIT CHECKLIST

The following checklists will be used to perform the audit:

YMP-93-01-01, Programmatic Checklist
YMP-93-01-02, Technical Checklist

AUDIT/SURVEILLANCE NO YMP-93-01

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT U.S. DEPARTMENT OF ENERGY WASHINGTON, D.C.

QUALITY ASSURANCE CHECKLIST

ORGANIZATION EVALUATED			
USGS	[x] EXTERNAL	[x] AUDIT	PREPARED BY R. L. Maudlin/R. H. Harpster DATE 9/25/92
DATES OF EVALUATION	[ ] INTERNAL	[ ] SURVEILLANCE	

CONTROLLING DOCUMENT (Title, Number, Revision)	ACTIVITY EVALUATED
See "Characteristics to be evaluated"	QA Element 3.0, "Design and Scientific Investigation"

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
	YMP-USGS-QMP-3.04, REVISION 3, MOD NO. M2		
	Technical Review, Approval, and Distribution of YMP-USGS Publications		
	PARA. 5.1		
3-1	Technical Review: Technical review is mandatory for all YMP-USGS publications.		
	PARA 5.2		
3-2	Specifications of Technical Review: The review shall be documented using the YMP-USGS Review/Comment Resolution Form (Attachment 2).		

* INDICATE RESULTS: SATISFACTORY (SAT), UNSATISFACTORY (UNSAT), NOT APPLICABLE (N/A)

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	YMP-USGS-QMP-3.07, REVISION 4, MOD NO. M1 AND M2		
	YMP-USGS Review Procedure		
	PARA. 5.1		
3-3	Selection of qualified reviewers shall be accomplished by the Chief, HIP/GSP, QA Manager, or the Chief, YMPB, or delegates. Documentation of this selection (Attachment 1) is necessary only for reviewers 1) whose qualifications have not previously been documented under QMPs -2.02 or -2.08, or 2) who are directly involved in the development of the document under review. For reviewers who have been directly involved in the development of the document under review, the QA Manager's approval is required.		
	PARA. 5.2		
3-4	The review shall be documented using the YMP-USGS Review Comment Resolution Form (Attachment 2).		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	PARA. 5.3.1		
3-5	The preparer of the document under review shall respond in writing to each major comment, indicating acceptance or rejection of the comment. If the comment is rejected, the preparer shall provide written justification on the form or, if necessary, using additional sheets attached to the form.		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	YMP-USGS-QMP-3.10, REVISION 2, MOD NO. 1		
	Verification of Scientific Investigations		
	PARA. 5.1		
3-6	Initiation of a Verification Activity: A VA as described in this procedure is initiated when a scientific investigation reaches a stage where the need for a verification is determined.		
	PARA. 5.2.1		
3-7	Consent to waive any specified hold point shall be documented before work can continue beyond the designated hold point.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	PARA. 5.3		
3-8	All VA team members shall be independent of the scientific investigation (study or activity) being verified and shall not be supervised by any individual involved with the scientific investigation (study or activity) being verified.		
	PARA. 5.3.2		
3-9	The VA Plan shall identify 1) the scientific investigation (study or activity) to be verified; 2) the purpose and scope of the VA; 3) the disciplines of technical and QA personnel participating in the VA; 4) the methodology and schedule for performing the VA; and 5) the acceptance criteria for determining the verification.		
	PARA. 5.7		
3-10	The results of a VA shall be described in the VA Completion Report to be prepared under the direction of the VA Team Leader in collaboration with the VA team and submitted for review and approval within 30 days of completion of the VA.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	YMP-USGS-QMP-3.13, REVISION 1, MOD NO. M1 Design Input PARA. 5.1		
3-11	Design input requests will be made by written communication from the ES Test Manager to the USGS Exploratory Shaft Facility (ESF) Coordinator. This request may ask for either new input or an update of previously submitted input. Unsolicited design input may be submitted by PIs upon their identification of a need.		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	YMP-USGS-QMP-3.15, REVISION 0 Application of Graded Quality Assurance PARA. 5.3.1		
3-12	The analysis made using the characteristics of Attachment 3 should result in an understanding of the QA requirements that are important for the particular activity and forms a basis for justifying why other requirements are not important and hence can be omitted. Justifications for all QA requirements omissions shall be documented on the Activity Controls Specification Report with a full explanation given on continuation sheets as necessary.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	PARA. 5.4		
3-13	Full details concerning graded QA controls for selected Activities or their subparts shall be documented by completing the Activity Controls Specification Report, Attachment 1, using the instructions in Attachment 2. The Activity Controls Specification Report shall be signed by the preparer and submitted to the Grading Acceptance Committee (GAC) for review and acceptance.		
	PARA. 5.5		
3-14	The Chief, YMPB, shall establish a QA GAC consisting of a minimum of four standing members three of whom represent the GSP, HIP, and QA Offices.		
	PARA. 5.5.1		
3-15	A technical controls review of the Activity Controls Specification Report shall be performed by a GAC member in accordance with QMP-3.07 as a first step of the evaluation for acceptance.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
	YMP-USGS-QMP-3.11, REVISION 1, MOD NO. M1		
	Peer Review		
	PARA. 5.1		
3-16	Determination of Applicability of Peer Review:		
	PARA. 5.1.1		
3-17	A peer review shall be used when the adequacy of information (e.g., data, interpretations, etc.) or the suitability of procedures and methods essential to repository site characterization or demonstrating that the repository system meets or exceeds its performance requirements with respect to safety and waste isolation cannot otherwise be established through testing, alternate calculations or reference to previously established standards and practices.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
3-18	PARA. 5.3.1 The technical qualification of the peer reviewers, in their review areas, shall be at least equivalent to that needed for the original work under review. Internal (USGS) peer reviewers shall be qualified in accordance with QMP-2.02. External, contracted peer reviewers shall provide equivalent, recognized, and verifiable technical credentials to the GD YMP Coordinator and/or NHP Chief. The credentials shall be submitted as QA Records in accordance with QMP-17.01.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	PARA. 5.4.1		
3-19	As the peer review process may vary from case to case, a peer review plan shall be prepared by the GD YMP Coordinator and/or NHP Chief, or their delegates, prior to initiating a peer review.		
	PARA. 5.5		
3-20	Peer Review Report: A report documenting the results of the peer review shall be prepared (see Para. 5.4.1), signed by each peer review group member, and issued.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	YMP-USGS-QMP-5.05, REVISION 2 Scientific Notebook System PARA. 5.2		
3-21	Associated Planning Document: When it has been determined that the Scientific Notebook System is to be used, the Study Plan shall be the controlling document used to describe the proposed approach for accomplishing the work. The content of the notebook shall be sufficient to the extent that another qualified scientist can use the notebook to retrace or repeat the investigation or experiment to confirm the results, if feasible, without recourse to the PI.		
	PARA. 5.3		
3-22	Unique Identifying Number: To distinguish the identification of the scientific notebook from a technical procedure, a "T" shall be placed after the document identification number of the scientific notebook.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	PARA. 5.4		
3-23	Procedure Documentation: Documentation requirements are met by fully completing the three steps of the Scientific Notebook System: 1) Initial entry, 2) in-process entries, and 3) final entries.		
	PARA. 5.5		
3-24	Technical Review: Two different technical reviews are required by this procedure. First, the Scientific Notebook Plan and any subsequent revisions are to be reviewed. Later, when the scientific notebook is completed and the final entries are made, the second review is performed and documented in accordance with QMP-03.7.		
	PARA. 5.5.1		
3-25	The Scientific Notebook Plan shall be reviewed by a subject matter expert who is not immediately responsible for either the procedure's content or for supplying details to the preparer concerning the methods described.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	PARA. 5.6		
3-26	Quality Assurance Review: A QA review of the Scientific Notebook Plan shall be performed by a QA Office representative for compliance with applicable QA requirements of this procedure and documented in accordance with QMP-3.07.		
	PARA. 5.9		
3-27	Technical Data Record Protection: A copy of scientific notebook entries shall be made by the PI, or delegate, semi-annually following the first entry, or more frequently when required by the Project's data management procedures.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
	AP-1.10Q, REVISION 5, PREPARATION, REVIEW, APPROVAL, AND REVISION OF STUDY PLANS (ICN NO. 1)		
	PI, STEP 3		
3-28	Prepare draft SP in accordance with the following guidance:		
	A. SPs should conform to the level of detail, format, and content specified in the May 7 and 8, 1986, DOE/NRC agreement (Attachment 2) to the extent practicable.		
	TPO, STEP 4		
3-29	Ensure that a review of draft SPs is performed and documented in accordance with internal review procedures of the Participating Organization.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	PI, STEP 15		
3-30	Prepare responses or draft revisions to study plans in response to comments.		
	PI, STEP 17		
3-31	Compile revised sections and markups that resolve all mandatory comments into a verification draft of the SP.		
	PI AND TPO, STEP 28		
3-32	Identify need for and nature of revision of SP, and submit proposed revised text to the Director, RSED.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	AP-5.1Q, REVISION 2, CONTROL AND TRANSFER OF TECHNICAL DATA ON THE YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT (ICN NO. 1)		
	YMP PARTICIPANT, STEP 2		
3-33	Submit the Data Package Segment (DPS) to the appropriate Participant Data Archive within 45 days of completing data acquisition or development or on an approved schedule. Include a TDIF (Attachment 1) or the information required to create a TDIF.		
	STEP 4		
3-34	Submit the data packages, including associated TDIFs, as records to the CRF within 45 days of the end of the quarter in which the data were placed in the Participant Data Archive or on an approved schedule.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	AP-5.9Q, REVISION 2, QUALIFICATION OF EXISTING DATA DIVISION DIRECTOR (DD), STEP 1		
3-35	Identify an existing data set that will be used directly to establish a licensing position. Initiate a technical assessment (TA) or a peer review to determine if these data are suitable for use in licensing in accordance with applicable procedures.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	YMP-USGS-QMP-4.01, REVISION 3, MODIFICATIONS 1 THROUGH 4, PROCUREMENT DOCUMENT CONTROL		
4-1	Verify requisition requests were used to initiate all USGS procurements. (Para. 5.1)		
4-2	Verify the requester for QA Level I and II procurements considered the following provisions. (Para. 5.1.2) o Scope of work o Technical requirements o QA requirements o Rights of access o Documentation requirements o Supplier nonconformance o Spare and replacement parts o Special handling o Hold points o Acceptance criteria o Control of sub-tier suppliers		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
4-3	Verify the requisition request was signed by the requester and approved by the chief of the organizational unit (chief HIP: Chief GSP TPO or QA Manager, as appropriate). (Para. 5.1.3)		
4-4	Verify delegation of signature authority for reviews and approvals of requisition requests, are in writing. (Para. 5.1.3)		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
4-5	Verify the contracting officer (CO) prepared the final procurement document (PO, contract, work agreement, memorandum of understanding, inter-agency agreement, management agreement, cooperative agreement or other suitable document), ensuring all requirements specified in the requisition requests are included, including the WBS, QA Level, and QALA numbers. (Para. 5.4)		
4-6	Verify the QA Manager verified all requirements on the requisition request have been included on the final procurement document, and the supplier had been qualified. QA approval document on Attachment 3 or equivalent. (Para. 5.4.1)		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
4-7	Verify the Project AO retained copies of each issued final procurement document, it's requisition, and the requisition request. (Para. 5.5)		
4-8	Verify procurement records were submitted to the records center and include, as appropriate: (Para 6.2) o Requisition requests (Attachment I) o Requisitions o Review of final USGS procurement document (Attachment 3) o Approval of changes to procurement documents (Attachment 5)		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	YMP-USGS-QMP-4.02, REVISION 3, MODIFICATION 1, CONTROL OF MANAGEMENT AGREEMENTS		
4-9	Verify personnel preparing the management agreement, considered, as a minimum, the topics identified in Attachment I. (Para. 5.2)		
4-10	Verify QA reviewed the management agreement and performed an evaluation of the supplier of services and standards in accordance with QMP-7.01.		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
4-11	Verify the management agreement was approved by the appropriate support participant management level and the originating YMP-USGS originator or office, the chief YMPB, and the YMP-USGS QA Managers. (Para. 5.4)		
4-12	Verify revised agreements required the same review and approval, except for insufficient changes. (Para 5.6.1)		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
4-13	Verify the QA records package consists of (as appropriate): o Support participant management agreement o QA review of management agreement form o Correspondence applicable to the management agreement (Para. 6.2)		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	YMP-USGS-QMP-7.01, REVISION 4, MODIFICATIONS 1 THROUGH 3, CONTROL OF PURCHASED ITEMS AND SERVICES		
7-1	Verify suppliers are evaluated by QA prior to the purchase of an item or service. The method of evaluation shall be the supplier's QA program, audit, surveillance or history. The method used will be on the approved vendor's list. (Paras. 5.1.1 and 5.1.2)		
7-2	Verify the approved vendor's list includes: The vendor's name and address, description of the item or service, date qualified, and method of the qualifying organization that performed the qualification. (Para. 5.1.3)		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
7-3	Verify vendors not on the approved vendor's list are used only if a irrecoverable loss of data would result. After QA verbal approval, the vendor is added to the approved vendors list by written request of the QA Manager. The vendor shall be qualified within 60 days or documented on an NCR. (Para. 5.1.4)		
7-4	Verify proposal evaluations are completed by the requester prior to contract award and documented on the proposal evaluation form (Attachment 2). (Para. 5.2.2)		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
7-5	Verify the completed proposal evaluation form and pertinent procurement documents are reviewed and approved by QA. (Para. 5.2.3)		
7-6	Verify an annual re-qualification of the vendors on the approved vendor's list is accomplished by USGS. (Para. 5.3.2)		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
7-7	Verify the CO accepted the item. (Para. 5.4)		
7-8	Verify the QA Manager evaluated the QA requirements in the procurement document for compliance and performed acceptance via C of C, post-installation testing calibration or receiving reviews as specified on the procurement documents. (Para. 5.4)		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
7-9	Verify that for commercial-grade and made-to-order items requiring calibration, that the calibration meets the requirements of QMP-02-01 and the COC was approved by the QA Manager. In addition, a USGS receiving certificate (Attachment 4) is completed for made-to-order items. (Para. 5.4.2)		
7-10	Verify alternate commercial-grade items supplied include a verification from the vendor that the alternate meets the requirements. (Para. 5.4.3.1)		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
7-12	Verify when post-installation testing was used for acceptance, the post-installation test requirements and acceptance documentation were incorporated into the procurement document by USGS. (Para. 5.4.4)		
7-13	Verify USGS designated the method of accepting services on the requisition (QMP-04-01, Attachment 1). (Para. 5.5.2) o Objective evidence o Technical verification o Audit or surveillance		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
7-14	Verify commercial-grade items were identified on the procurement document by vendor's catalog number or other manufacturer's published product description. (Para. 5.7.2)		
7-15	Verify items requiring calibration were accepted after approval of the coc and successful calibration. (Para. 5.7.3)		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
7-16	Verify associated records were submitted to the USGS records center and include the following: (Para. 6.2) o Supplier evaluation for calibration services (Attachment 1) o Solicitation evaluations (Attachment 2) o Receipt of items (Attachment 3) o Receiving certificate (Attachment 4) o Purchase orders or equivalent o Documentation of supplier evaluations o Documentation of supplier interface and verification measures o Certificates of calibration, purity or traceability o Supplier deficiency notices o Audit and surveillance reports and plans		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	USGS-QMP-8.01, REVISION 2, IDENTIFICATION AND CONTROL OF SAMPLES		
8-1	Verify unique identifier on sample or sample container use of standardized sample collection form, as appropriate.		
8-2	Verify traceability of sample identifier to all documentation associated with samples to include when samples are handled by multiple organizations.		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
8-3	Verify that PIs establish a system to track samples from collection through final disposition to include: a. Any individual units which establish such a system. b. Description of collection methods, equipment, etc. within a technical procedure. Any environmental, safety or special handling will be described.		
8-4	Verify that sample storage is consistent with its intended use.		
8-5	Verify sample curation is consistent with program requirements.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	USGS-QMP-8.03, REVISION 4, CONTROL AND TRANSMITTAL OF TECHNICAL INFORMATION TO THE PROJECT TECHNICAL DATA BASE		
8-6	Verify that date submitted to the TDB is accomplished in accordance with the following steps: a. The PI completes the TDIF with bibliographic citation for published report, if any. b. Constraints, limitations or assumptions are clearly identified. c. Any necessary codes for supporting and backup information regarding the principal measurement or value are identified. d. Any other relevant information is shown/provided or identified.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
8-7	Verify TDIF used to transmit data to TDB, Branch Date, Management Coordinator, or delegate, reviewed and assured completion of TDIF and data package, parameters identified, accession number identified, and QA Manager verifies no deficiencies with significant impact are unresolved, Chief, YMPB authorizes transmittal of data by signing TDIF.		
8-8	Verify approval of USGS Director, or delegate, for release of data.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
8-9	Verify changes to data submitted to TDB: a. If minor, letter signed by Chief, YMPB, to administrator should contain accession number of original package, error to be corrected and replacement date to be entered into database. b. If change is major, TDIF must state that submittal is replacing previous submittal and accession number if superseded TDIF shown in comment section of new TDIF.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	USGS-QMP-15.01, REVISION 4, CONTROL OF NONCONFORMING ITEMS		
15-1	Verify initiation of Nonconformance Report (NCR), Part 1, to include NCR number and, as applicable, Hold Tags. a. QA Manager shall evaluate NCR to determine validity, and if valid, significance of the NCR. b. If voided, rationale to be documented. c. If significant, initiate CAR. d. If conditional release needed, see that release coordinated with QA Manager.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
15-2	Verify NCR log maintained by QA Office. a. Assign NCR number. b. Indicate use of Hold Tags. c. Indicate conditional release. d. QA review reported in open item report per QMP-16.03. e. Repetitive/recurring NCRs reported and processed as trend.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
15-3	Verify segregation of nonconforming items. a. Hold Tag shall be completed and affixed to item. b. Any justification associated with Hold Tag.		
15-4	Verify any conditional release of activity prior to implementation of disposition. a. The nonconforming item can be removed or corrected at a later date with affective date, item, activity, etc. b. The nonconforming item is accessible for examination. c. Any limitations for use of the items are established. d. Traceability and identification of the nonconforming item is maintained.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
15-5	Verify that the conditional release is referenced or included with NCR when submitted for QA Manager approval.		
15-6	Verify concurrence by YMPO for conditional release report.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
15-7	Verify that qualified personnel provide a proposed disposition for the NCR within 30 calendar days. This shall be recorded on Part II of the NCR. a. If the NCR is voided, justification shall be recorded in Part III and forwarded to QA Manager for concurrence. b. Copies of voided NCR are distributed as per Paragraph 5.5.1.2.		
15-8	Verify that if verbal method of disposition used, the following was accomplished: a. Responsible personnel provided verbal input with YMPO contacted for overall approval. b. All verbal input documented on Part IV and signatures on original NCR obtained ASAP. c. Distribution is made of original NCR as per Paragraph 5.5.2.1.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
15-9	Verify that Part III for valid NCRs, contains the requisite information, approvals, and distribution.		
15-10	Verify implementation of disposition actions to include: a. Extension of completion date, if needed, prior to scheduled completion date. b. Review of changes by qualified personnel if response to NCR revised.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
15-11	Verify completion of disposition of NCRs during an audit, surveillance or special investigation review. a. If disposition was repair or rework, verification shall be done in accordance with appropriate acceptance criteria. b. If verification is unacceptable, Part IV shall be completed and a new NCR initiated. The closed NCR will be distributed in accordance with Paragraph 5.7.2. c. If verification is acceptable, Part IV shall be completed and approved by the QA Manager and distribution made to appropriate personnel. Any Hold Tag will be removed upon approval.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
	PROGRAM ELEMENT 19: SOFTWARE QUALITY ASSURANCE PROCEDURE YMP-USGS-QMP-3.03, SOFTWARE QUALITY ASSURANCE, REVISION 3 AND MODIFICATION M-1.		
19-1	PARA. 5 "Prior to use to generate, manipulate, or transform data which may be used for licensing, engineering design, performance assessment, and/or site characterization for YMP, Software Products are required to be classified (Para. 5.1) and released (see Para. 5.5)."		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
19-2	PARA. 5 "Software Documents required for all Non-Critical and Critical Software Products shall be completed, reviewed, and approved before release for use to support the acquisition, manipulation, and/or transformation of site characterization data, engineering design data, or licensing data."		
19-3	PARA. 5.1 "The following categories shall be used to classify the types of software QA controls applied to Software Products: 5.1.1 CRITICAL: Software that generates Unique Data ....shall be deemed Critical Software. .... 5.1.2 NON-CRITICAL: Software products that do not generate Unique Data but are used to manipulate or transform data that may be used for site characterization, engineering design, performance assessment or licensing."		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
19-4	PARA. 5.2 SOFTWARE LIFE CYCLE "Software validation and software verification method(s) shall include inspection, analysis, demonstration, review, and /or test and shall be performed relative to a specific hardware configuration."		
19-5	PARA. 5.2.1 REQUIREMENTS "Software Verification activities for this phase shall consist of confirming that all requirements can be tested."		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
19-6	PARA 5.2.2 DESIGN "Software verification activities for this phase shall consist of confirming that the requirements are reflected in the design." {What are the requirements for IMPLEMENTATION AND VALIDATION and for OPERATION AND MAINTENANCE (Paragraphs 5.2.3 & 5.2.4 respectively?}		
19-7	PARA. 5.3.1 "Controls selected for Non-Critical and Critical Software shall be identified on the... SCF (Attachment 2 or equivalent) .... and shall include change control and documentation of the Software Product. The SCF shall be reviewed and approved by the Configuration Control Committee."		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
19-8	PARA. 5.4 "The SCF shall specify the documentation requirements for each Software Product as approved by the CCC. The minimum amount of additional documentation typically required for Non-Critical or Critical Software is as follows: * ... SRS (Attachment 3 or equivalent) * ... SDD " 4 " * Software Code * ... SVR " 5 " * ... SUD " 6 " * ... SRR " 7 " ..... For software acquired from outside, ... Documentation may not be available. ... Clarification should be provided on the SCF for any unavailable documentation."		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
19-9	PARA. 5.4.1 THROUGH 5.4.8 Verify that Software Life Cycle Documentation contains the information required by the applicable sub-paragraphs of Paragraph 5.4.		
19-10	PARA. 5.10.1 & .2 "Upon receipt of each SIR (Attachment 1 or equivalent) the SCM Coordinator shall assign a unique Configuration Identifier (CID) to the Software Product or version. ..... "For the SIR and for subsequent Software Documents related to a specific Software Product, a suffix shall be appended to the Software Product CID such that each Software Document revision is uniquely identified."		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
19-11	PARA. 5.10.3 "Data used for site characterization, engineering design, performance assessment, or licensing shall be uniquely related to the specific software version that produced the data by identifying the Software Product CID, as described in Para 5.10.1, in one or more of the following: * software output (hardcopy or other media; data or analyses results) * a description of the technical data (e.g. Technical Data Information Form) * a scientific notebook * a technical procedure, or * another project record".		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
19-12	PARA. 5.11 "The SCM Coordinator shall initiate and maintain a CSA Log..... The CSA Log shall record (1) the status of all the Software Documentation received, (2) all documented Software User's, (3) the status of all documented Software Problems, and (4) the status and a brief description of all software changes."		
19-13	PARA. 5.12.4.2 "The CCC, in conjunction with the TC, shall review each SCF (Attachment 2, or equivalent) for approval of the selected classification, controls, documentation requirements, and any proposed changes. Review of proposed changes shall include an evaluation of the impact on the change on classification, controls, and documentation requirements."		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
19-14	PARA. 5,12.5 "Comments generated by the Software Document reviews shall be recorded on the SDR (Attachment 10, or equivalent) and resolved as necessary".		
19-15	PARA. 5.13.1 "Membership of the CCC shall include (1) the SQA Specialist or delegate, (2) the SCM coordinator or delegate, and (3) one representative each from from the USGS GSP and the USGS HIP."		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
19-16	PARA. 6.2 "Records associated with this procedure shall be submitted to the YMP-USGS Local Records Center, in accordance with QMP-17.01, by the SCM Coordinator within 10 working days from the date of completion recorded for each record."		
19-17	PARA. 4 Verify that the individuals, identified in this procedure as responsible for its implementation, have received the required training and have acquired the knowledge necessary to meet those responsibilities.		

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QUALITY ASSURANCE CHECKLIST

ORGANIZATION EVALUATED			
USGS	[x] EXTERNAL	[x] AUDIT	PREPARED BY T. Bjerstedt / K. KERSCH DATE 9/30/92
DATES OF EVALUATION	[ ] INTERNAL	[ ] SURVEILLANCE	

CONTROLLING DOCUMENT (Title, Number, Revision)	ACTIVITY EVALUATED

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
	8.3.1.4.2.1.1 (SURFACE AND SUBSURFACE STRATIGRAPHIC STUDIES OF THE HOST ROCK AND SURROUNDING UNITS) 8.3.1.4.2.2.1 (GEOLOGIC MAPPING OF ZONAL FEATURES IN THE PAINTBRUSH CANYON TUFF AT 1:12,000)		
20-1	What acquired or developed data gathered from this activity has been entered into the Project's technical database?		

* INDICATE RESULTS: SATISFACTORY (SAT), UNSATISFACTORY (UNSAT), NOT APPLICABLE (N/A)

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-2	How is the content of data packages for the technical database determined?		
20-3	How does the PI interpret the 45-day requirement from YMPO AP-5.1Q, Step 2, for entry of acquired or developed data into the Project's technical database?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-4	What approved schedules from AP-5.1Q, Step 2, have been established with YMPO's technical data manager for submittal of data into the technical database?		
20-5	Who is responsible for ensuring that acquired or developed data from this activity are entered into the Project's technical database?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-6	What maps or other deliverables to YMPO are produced under activity 8.3.1.4.2.1.1?		
20-7	Where is activity 8.3.1.4.2.1.1 in relation to the network in Figure 5-1 of the study plan?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
20-8	How are the volcanistratigraphic field work in activity 8.3.1.4.2.1.1 and zonal features mapping in 8.3.1.4.2.2.1 integrated?		
20-9	What is the state of completion for the stratigraphic sections to be produced under activity 8.3.1.4.2.1.1 (Ref. Study Plan, Section 2.1.2.1)?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-10	Describe the "close communication and information exchange with scientists at Los Alamos in areas of potential overlap" in mineralogic, petrologic and diagenetic work under LANL studies 8.3.1.3.2.1 and 8.3.1.3.2.2, with activity 8.3.1.4.2.1.1 (Ref. Study Plan, Section 1.1, Page 1.3)? Is documentation available?		
20-11	How are the USGS and LANL data sets in mineralogy, petrology, and diagenesis "unique and complimentary" (Ref. Study Plan, Section 1.1, Page 1-3)?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-12	What is the scale of the topographic base maps used to plot geologic data from this activity?		
20-13	Why is this scale appropriate for this activity?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-14	What is the thinnest volcanistratigraphic unit that can be mapped at this scale under 8.3.1.4.2.1.1?		
20-15	What is the minimum-displacement on a fault that would be plotted at a map scale of 1:12,000 under 8.3.1.4.2.2.1?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-16	How many field stations are to be part of activity 8.3.1.4.2.1.1? (Ref. USGS Technical Procedure GP-01, Section 4.2)?		
20-17	Are geologic maps to be the same scale as the topographic base? Would field station data compiled from both activities be adequate to make larger scale geologic maps from the database without substantial additional field work?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-18	How are field station data plotted in the field on aerial photographs transferred to the base topographic map if each is a different scale?		
20-19	What is the intended scope of USGS Technical Procedure GP-18, "Volcanic Stratigraphic Studies," and how is it related to the scope of work in GP-01, "Geologic Mapping?"		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-20	How is descriptive information formatted from field stations that cannot be depicted on a geologic map (Ref. Study Plan, Section 2.1.1.1, Page 2-2)?		
20-21	What type of coordinate or grid system is used for plotting of two (mapped) and three dimensional (borehole) data for activity 8.3.1.4.2.1.1? Is there any software involved?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-22	Define activity 8.3.1.4.2.1.1 use of the term "model." (Ref. Study Plan, Section 2.1.2.2, Page 2-9)		
20-23	How has USGS Technical Procedure GP-20, "Volumetric Estimation of Lithophysae" been used in this activity?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-24	What are the qualifications of the staff conducting the field mapping?		
20-25	How congruent is the format for core logs prepared from this activity and those prepared by staff from the Sample Management Facility?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-26	How does activity 8.3.1.4.2.1.1 interface with the natural resource assessment (Study Plan 8.3.1.9.2.1)?		
20-27	Where are the field and borehole samples used for activity 8.3.1.4.2.1.1 now warehoused?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-28	How are drill cuttings used with downhole video camera logs and geophysical logs to determine subsurface lateral and vertical stratigraphic and lithologic variations (Ref. Study Plan, Section 2.1.1.3)?		
20-29	Have previous XRF analyses on the Yucca Mountain tuffs indicated that the elemental variation in them is such to make XRF useful as a correlation tool for cuttings? (Ref. Study Plan, Section 2.1.1.5, Page 2-5). What is the documentation for this?		
20-30	When will the study plan for each activity be revised to remove references to exploratory shaft facility?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	CHECKLIST FOR 8.3.1.14.2, STUDIES TO PROVIDE SOIL/ROCK PROPERTIES FOR POTENTIAL LOCATIONS OF SURFACE AND SUBSURFACE FACILITIES		
20-31	What data acquired, or developed, as part of this study, has been entered into the Project Technical Data Management (TDM) system?		
20-32	What acquired or developed data is intended for entry? When will Technical Data Information Forms (TDIFs) be provided to the Project technical data administrator?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-33	Who is the Project's technical data administrator?		
20-34	How does the PI now meet the 45-day requirement in AP-5.1Q for entry of acquired or developed data into the TDM system?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-35	Has any approved schedule been established with the Project technical data administrator, in accordance with AP-5.1Q, for entry of acquired or developed data into the Project TDM system that is not amenable to the 45-day requirement?		
20-36	What data evolved to date from this study is destined for entry into the Project's Reference Information Database?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-37	Does the scope of work for this study require that the PI personally ensure acquired and developed data are entered into the Project TDM system?		
20-38	Is the final site reconnaissance report for 8.3.1.14.2.1 identified in Table 5-1 and Figure 5-1, now available?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-39	Who is the Project WBS manager for this study?		
20-40	State how geotechnical parameters gathered by this study relevant to design of surface facilities, are provided to the architect/engineering participant?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-41	Section 4.2 of the Study Plan states that "Some of the siting and reconnaissance activities for the ESF ramps and ramp portals will be performed under Study Plan activity 8.3.1.4.2.2.4, "Geologic Mapping of the Exploratory Shaft and Drifts." Since the qualifier "some work" is used, what is the exact partitioning of responsibility between the work carried out under 8.3.1.14.2.1 and 8.3.1.4.2.2.4? What documentation exists to show this has taken place?		
20-42	Does Study Plan 8.3.1.4.2.2.4 include surface mapping within its scope of work to permit this interface?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-43	Section 4.2, "Interfaces with Other Site Characterization Study Plans," states, "Coordination will also be required between Study Plan 8.3.1.17.4.2 and Study Plan activity 8.3.1.14.2.1, "Preliminary and Detailed Exploration Activity," to optimize trench locations so that the objectives of both studies are met and data from each study can be used to supplement the other." What coordination has taken place?		
20-44	Of the possible geophysical and remote sensing techniques for use in Midway Valley listed in Table 2-1 of Study Plan 8.3.1.17.4.2 (Page 22), which has been used in support of Study Plan 8.3.1.14.2.1? If any of these techniques have been used, how has the evolved data been provided to the PI of 8.3.1.14.2.1?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
20-45	What geotechnical threshold(s) would have to be exceeded to warrant consideration of one of the other alternative locations for the north portal shown in Appendix C, Figure C-1?		
20-46	In what way does the identification of a presumed northwest trending bedrock fault at the north portal location in Midway Valley, impact the viability of the portal's current location?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-47	Section 2.1.1.2 states that the 8.3.1.14.2.1 reconnaissance activity is to "...identify the type and number of tests, and type number, location, spacing, and depth of subsurface borings, test pits, and trenches used to develop data in the Preliminary Exploration phase." Where are the criteria used to make these decisions documented?		
20-48	Section 2.1.1.2 states that the 8.3.1.14.2.1 reconnaissance activity is to, "...help identify the method and location of recommended geophysical surveys in the Geophysical Field Measurements Activity." What geophysical techniques are recommended to be applied?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-49	What stratigraphic framework was used to assess the quaternary stratigraphy near the north portal location?		
20-50	What acquired or developed data from this study is manipulated on computer database(s)?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-51	Section 2.1.2.1 of the Study Plan states, "The objective of the reconnaissance exploration phase will be to obtain a rough interpretive cross-section of the soil and rock stratigraphy and structure of the area." Where is this cross-section?		
20-52	What impact have comments from the NRC had on this Study Plan?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-53	What impact have comments from the State of Nevada had on this Study Plan?		
20-54	What evaluation criteria are generally used in responding to comments on Study Plans?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
	STUDY PLAN 8.3.1.2.2.7, HYDROCHEMICAL CHARACTERIZATION OF THE UNSATURATED ZONE		
20-55	Monthly progress reports indicate that there is a lot of work that is related to this study that is being conducted as prototype testing. Discuss the status of prototype testing.		
20-56	Study Plan 8.3.1.2.2.7 states that information developed in this study will be used to support the resolution of performance and design issues. How will data from this study be supplied to the people who will be examining those issues?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-57	Has any data from this study been submitted to the RIB or SEPDB?		
20-58	What criteria are used to determine if data will be submitted to the RIB or SEPDB?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
20-59	The Study Plan mentions "geochemical evolution of ground waters." How is this being done? What computer codes will be used?		
20-60	Page 2.1-3 of the Study Plan states: "If significant amounts of unsaturated-zone water were recharging the saturated-zone groundwater beneath Yucca Mountain, the isotopic and chemical compositions of both zones would be similar." Some water will be likely to move toward the surface by evaporation and recondensation on a microscopic scale because of the thermal gradient. This process competes with the tendency to flow downward because of gravity. If there is evaporation and recondensation, won't this tend to fractionate the waters resulting in lighter isotopes near the surface than are found at depth?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-61	Provide a list of recent publications or open file reports.		
20-62	What is the status of the WRI report?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-63	What use is being made of outside contractors for technical support (e.g. Colorado School of Mines, LANL)? How are their activities controlled? Do they come under the USGS QA Program or do they have their own?		
20-64	Examine some of the training records of the outside contractors, if appropriate.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-65	Have any samples been sent to LANL for 36CI analysis? Discuss traceability and the use of such data.		
20-66	Discuss gas sampling in UZ-1.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-67	Water extraction methods include squeezing, immiscible displacement (mercury, hydrocarbon, etc.), distillation, and centrifuging. To what extent are these methods used. Discuss the evidence that shows the effect of the extraction method on the chemistry of the resulting extracted water.		
20-68	The second paragraph of Section 3.2.2 of the Study Plan says that if there were a dilute composition of water in the fractures at great depth, it would imply a relatively fast travel time in the unsaturated zone. With the current conceptual model of flow in the unsaturated zone, doesn't the mere presence of water in the fractures at depth imply a very rapid travel time? Discuss.		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	ACTIVITIES: 8.3.1.2.3.1.2: WATER LEVEL MONITORING 8.3.1.2.3.1.3: ANALYSIS OF SINGLE- AND MULTIPLE-WELL STRESS TESTS		
20-69	What is the status of the report on water level monitoring during 1989? What about the report covering the period of 1985-1988?		
20-70	What other publications have been released in the past year?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-71	Examine the report, review file, and comment resolution process on the report on "Precision and Accuracy of Water-Level Measurements Taken in the Yucca Mountain Area, Nevada, 1988-90" by S. Boucher.		
20-72	Discuss regression analyses of water level transducer calibrations.		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-73	What use has been made of the regression analysis statistics on the estimation of accuracies of water-level measurements?		
20-74	What prototype activities are being conducted in support of this project? What are the procedural controls placed on the prototype testing? What are the training requirements?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-75	Discuss the monitoring of water level data during recent earthquakes in California and Nevada. Have these water level excursions been used to calculate strain changes?		
20-76	Discuss the NWIS software. How was this software treated under the USGS Software QA Program?		

QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
20-77	What use is being made of outside contractors for technical support (e.g. Colorado School of Mines, LBL)? How are their activities controlled? Do they come under the USGS QA Program or do they have their own?		
20-78	Examine training records of some outside contractors.		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-79	What is the status of the analysis of strain-related water level responses?		
20-80	What is the status of the report on the analysis of C-Hole testing?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	* RESULTS
20-81	What prototype activities are being conducted in support of this project?		
20-82	What is the status of the intraborehole flow and stress test report?		

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QUALITY ASSURANCE CHECKLIST (continuation sheet)

ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
20-83	What is the status of the well test analysis computer program. Has it been fully qualified under the USGS Software QA Program?		
20-84	What use is being made of the data from the tests conducted by USGS Carson City on the observation well drilled for the National Park Service?		

YUCCA MOUNTAIN PROJECT
AUDIT OBSERVER INQUIRY

N-QA-084
4/89

Audit No. _____

Log No. _____

Name _____ Organization _____

YMP Requirement Reference _____

Question/Concern _____

Response _____

_____
Observer's Acknowledgement

Cleared for Submittal to YMP Participant

_____
Lead Auditor / Lead Technical Specialist

☐ *Incorporated in YMP Audit Checklist...Ref* _____

_____
Audit Team Leader

MANAGEMENT PROCEDURES MANUAL

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CHAPTER 2 - QUALITY ASSURANCE PROGRAM [See also Chapter 4 for other training procedures]	
Section 1 - Management Assessment of the YMP-USGS Quality Assurance Program	QMP-2.01, R2
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CHAPTER 6 - DOCUMENT CONTROL
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REVISION RECORD

Record for Quality Assurance Program Plan (QAPP)

QAPP Number	Effective Date
NWM-USGS-QAPP-01, R0	11/01/80
NWM-USGS-QAPP-01, R1	07/15/83
NNWSI-USGS-QAPP-01, R2	08/24/85
NNWSI-USGS-QAPP-01, R3	10/27/86
NNWSI-USGS-QAPP-01, R4	01/05/88
YMP-USGS-QAPP-01, R5	05/03/89
YMP-USGS-QAPP-01, R5 ICN-1	08/04/89
YMP-USGS-QAPP-01, R5 ICN-2	02/07/91
YMP-USGS-QAPP-01, R5 ICN-3	05/21/91
YMP-USGS-QAPP-01, R5 ICN-4	05/21/91
YMP-USGS-QAPP-01, R5 ICN-5	05/21/91
YMP-USGS-QAPP-01, R5 ICN-6	10/04/91
YMP-USGS-QAPP-01, R5 ICN-7	10/15/91
YMP-USGS-QAPP-02, R5 ICN-8	03/12/92

Record for Quality Management Procedures (QMP)

	Effective Date(s)								
QMP Document Number	Rev. 0	Rev. 1	Rev. 2	Rev. 3	Rev. 4	Rev. 5	Rev. 6	Rev. 7	Rev. 8
YMP-USGS-QMP-1.01	08/24/85	10/27/86	07/28/89	02/05/90	10/15/91				
QMP-1.01-Mod.01	08/23/89	Modification superseded by QMP-1.01, R3 on 02/05/90.							
QMP-1.01,R3-M1	08/01/91	Modification superseded by QMP-1.01, R4 on 10/15/91.							
QMP-1.01,R4-M1	10/01/92								
NNWSI-USGS-QMP-1.02	10/27/86	Procedure superseded by QMP-16.02, R0 on 11/04/88.							
YMP-USGS-QMP-2.01	08/24/85	10/27/86	06/05/89						
QMP-2.01,R2-M1	10/08/91								
QMP-2.01,R2-M2	10/15/91								
YMP-USGS-QMP-2.02	08/24/85	10/27/86	*	06/23/89	*	03/11/91			
QMP-2.02,R3-M1	06/28/90	Modification superseded by QMP-2.02, R5 on 03/11/91.							
QMP-2.02,R5-M1	10/15/91								

* Effective date was not assigned - document was never distributed.

REVISION RECORD - (continued)

Record for Quality Management Procedures (QMP)

QMP Document Number	Effective Date(s) Rev. 0	Rev. 1	Rev. 2	Rev. 3	Rev. 4	Rev. 5	Rev. 6	Rev. 7	Rev. 8
QMP-2.02,R5-M2	03/27/92								
NNWSI-USGS-QMP-2.03	08/24/85	10/27/86	Procedure rescinded to be replaced by QMP-2.02 effective 06/05/89.						
NNWSI-USGS-QMP-2.04	08/24/85	Procedure superseded by QMP-2.02, R1 on 10/27/86.							
YMP-USGS-QMP-2.05	08/24/85	10/27/86	10/25/88	02/05/90					
QMP-2.05-Mod.01	08/23/89	Modification superseded by QMP-2.05, R3 on 02/05/90.							
YMP-USGS-QMP-2.06	11/04/88	02/01/89	Procedure rescinded 06/05/89. YMP-USGS will work to AP-5.13Q.						
YMP-USGS-QMP-2.07	07/28/89	03/29/91							
QMP-2.07,R1-M1	05/15/91	Modification superseded by QMP-2.07,R1-M2 on 05/22/91.							
QMP-2.07,R1-M2	05/22/91	Modification superseded by QMP-2.07,R1-M4 on 10/01/92.							
QMP-2.07,R1-M3	10/15/91	Modification superseded by QMP-2.07,R1-M4 on 10/01/92.							
QMP-2.07,R1-M4	10/01/92								
YMP-USGS-QMP-2.08	07/28/89	03/29/91							
QMP-2.08,R1-M1	11/13/91	Modification superseded by QMP-2.08,R1-M2 on 11/15/91.							
QMP-2.08,R1-M2	11/13/91								
QMP-2.08,R1-M3	03/27/92								
NNWSI-USGS-QMP-3.01	08/24/85	10/27/86	Procedure rescinded 06/05/89. Scope incorporated into QMP-5.05.						
NNWSI-USGS-QMP-3.02	08/24/85	10/27/86	Procedure superseded 05/18/92 by QMP-3.15, R0.						
YMP-USGS-QMP-3.03	10/27/86	07/28/89	06/04/90	02/03/92					
QMP-3.03-Mod.01	08/24/89	Modification superseded by QMP-3.03, R2 on 06/04/90.							
QMP-3.03,R2-M1	02/01/91	Modification superseded by QMP-3.03, R3 on 02/03/92.							
QMP-3.03,R2-M2	08/16/91	Modification superseded by QMP-3.03, R3 on 02/03/92.							
QMP-3.03,R3-M1	03/12/92								
YMP-USGS-QMP-3.04	08/24/85	10/27/86	06/05/89	07/27/90					
QMP-3.04,R3-M1	12/17/90	Modification superseded by QMP-3.04,R3-M2 on 10/15/91.							
QMP-3.04,R3-M2	10/15/91								
YMP-USGS-QMP-3.05	08/24/85	10/27/86	06/05/89						
QMP-3.05,R2-M1	10/15/91								
YMP-USGS-QMP-3.06	10/27/86	06/05/89							
YMP-USGS-QMP-3.07	10/27/86	11/04/88	07/28/89	04/25/90	03/30/92				
QMP-3.07-Mod.01	08/23/89	Modification superseded by QMP-3.07, R3 on 04/25/90.							
QMP-3.07-Mod.02	09/18/89	Modification superseded by QMP-3.07, R3 on 04/25/90.							
QMP-3.07,R3-M1	06/08/90	Modification superseded by QMP-3.07, R4 on 03/30/92.							
QMP-3.07,R3-M2	10/15/91	Modification superseded by QMP-3.07, R4 on 03/30/92.							
QMP-3.07,R4-M1	05/06/92	Modification superseded by QMP-3.07,R4-M2 on 08/10/92.							
QMP-3.07,R4-M2	08/10/92								

* Ef[illegible]ive date was not assigned - do[illegible]ment was never [illegible]ributed.

REVISION RECORD - (continued)

Record for Quality Management Procedures (QMP)

QMP Document Number	Effective Date(s) Rev. 0	Rev. 1	Rev. 2	Rev. 3	Rev. 4	Rev. 5	Rev. 6	Rev. 7	Rev. 8
YMP-USGS-QMP-3.10	06/05/89	02/28/90	05/08/91						
QMP-3.10-Mod.01	08/23/89	Modification superseded by QMP-3.10, R1 on 02/28/90.							
QMP-3.10,R2-M1	10/15/91								
YMP-USGS-QMP-3.11	*	06/05/89							
QMP-3.11,R1-M1	10/15/91								
YMP-USGS-QMP-3.13	06/05/89	02/28/90							
QMP-3.13-Mod.01	08/23/89	Modification superseded by QMP-3.13, R1 on 02/28/90.							
QMP-3.13,R1-M1	10/15/91								
YMP-USGS-QMP-3.14	*	07/28/89	09/01/89	11/05/90 Procedure superseded by QMP-3.03, R3 on 02/03/92.					
QMP-3.14,R2-M1	06/08/90	Modification superseded by QMP-3.14, R3 on 11/05/90.							
QMP-3.14,R2-M2	07/31/90	Modification superseded by QMP-3.14, R3 on 11/05/90.							
QMP-3.14,R3-M1	11/20/90	Modification superseded by QMP-3.03, R3 on 02/03/92.							
YMP-USGS-QMP-3.15	05/18/92								
YMP-USGS-QMP-4.01	08/24/85	10/27/86	*	06/23/89					
QMP-4.01,R3-M1	06/15/90								
QMP-4.01,R3-M2	08/01/91								
QMP-4.01,R3-M3	10/15/91								
QMP-4.01,R3-M4	11/13/91								
YMP-USGS-QMP-4.02	*	06/23/89	11/05/90	12/02/91					
QMP-4.02,R1-M1	05/22/90	Modification superseded by QMP-4.02, R2 on 11/05/90.							
QMP-4.02,R3-M1	03/12/92								
YMP-USGS-QMP-5.01	08/24/85	10/27/86	06/05/89	04/25/90	09/04/90				
QMP-5.01-Mod.01	08/23/89	Modification Superseded by QMP-5.01, R3 on 04/25/90.							
QMP-5.01,R4-M1	10/15/91								
QMP-5.01,R4-M2	06/26/92								
QMP-5.01,R4-M3	10/01/92								
YMP-USGS-QMP-5.02	10/27/86	11/04/88	06/05/89	02/05/90					
QMP-5.02-Mod.01	08/23/89	Modification superseded by QMP-5.02, R3 on 02/05/90.							
QMP-5.02,R3-M1	10/15/91								
YMP-USGS-QMP-5.03	10/27/86	02/17/88	10/04/88	02/17/89	08/04/89	05/18/90	05/01/91	10/15/91	
QMP-5.03-Mod.01	08/23/89	Modification superseded by QMP-5.03, R5 on 05/18/90.							
YMP-USGS-QMP-5.04	11/22/88	02/17/89	08/04/89	02/05/90	10/15/91				
QMP-5.04-Mod.01	09/18/89	Modification superseded by QMP-5.04, R3 on 02/05/90.							
YMP-USGS-QMP-5.05	*	07/28/89	11/05/90						
QMP-5.05-Mod.01	08/23/89	Modification superseded by QMP-5.05, R2 on 11/05/90.							

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REVISION RECORD - (continued)

Record for Quality Management Procedures (QMP)

QMP Document Number	Effective Date(s) Rev. 0	Rev. 1	Rev. 2	Rev. 3	Rev. 4	Rev. 5	Rev. 6	Rev. 7	Rev. 8
QMP-5.05,R2-M1	10/15/91								
QMP-5.05,R2-M2	06/26/92								
YMP-USGS-QMP-6.01	08/24/85	10/27/86	11/04/88	*	07/28/89	02/05/90			
QMP-6.01-Mod.01	08/23/89	Modification superseded by QMP-6.01, R5 on 02/05/90.							
QMP-6.01,R5-M1	06/30/92	06/30/92							
QMP-6.01,R5-M2	10/01/92								
YMP-USGS-QMP-7.01	10/27/86	11/04/88	*	06/23/89	08/25/89				
QMP-7.01,R4-M1	06/15/90								
QMP-7.01,R4-M2	06/28/90								
QMP-7.01,R4-M3	10/15/91								
NNWSI-USGS-QMP-7.02	10/27/86	Procedure rescinded 11/04/88. Scope incorporated into QMP-7.01.							
NNWSI-USGS-QMP-7.03	10/27/86	Procedure rescinded 11/04/88. Scope incorporated into QMP-7.01.							
YMP-USGS-QMP-8.01	08/24/85	10/27/86	02/19/88						
YMP-USGS-QMP-8.03	11/04/88	07/28/89	09/01/89	04/25/90	11/27/91				
QMP-8.03,R3-M1	01/11/91	Modification superseded by QMP-8.03, R4 on 11/27/91.							
NNWSI-USGS-QMP-9.01	10/27/86	Procedure deleted from QA Program 12/12/88. As directed in the YMP-USGS QAPP, Section 9 applies only to engineered items and not to scientific investigation.							
NNWSI-USGS-QMP-10.01	08/24/85	10/27/86	Procedure rescinded 11/04/88. Scope incorporated into QMP-5.05.						
NNWSI-USGS-QMP-11.01	08/24/85	10/27/86	Procedure rescinded 07/28/89. Scope incorporated into QMP-5.05.						
YMP-USGS-QMP-12.01	08/24/85	10/27/86	10/25/88	06/05/89	03/12/90	11/26/90			
QMP-12.01-Mod.01	08/23/89	Modification superseded by QMP-12.01, R4 on 03/12/90.							
QMP-12.01,R4-M1	06/28/90	Modification superseded by QMP-12.01, R5 on 11/26/90							
QMP-12.01,R5-M1	05/08/91								
QMP-12.01,R5-M2	05/06/92								
YMP-USGS-QMP-13.01	10/27/86	06/05/89							
YMP-USGS-QMP-15.01	08/24/85	10/27/86	10/25/88	06/05/89	02/05/90				
QMP-15.01-Mod.01	08/23/89	Modification superseded by QMP-15.01, R4 on 02/05/90.							
QMP-15.01,R4-M1	12/31/90								
QMP-15.01,R4-M2	05/22/91								
QMP-15.01,R4-M3	10/15/91								
NNWSI-USGS-QMP-15.02	10/27/86	Procedure rescinded 11/11/88. No longer required by the YMP QA Plan.							
YMP-USGS-QMP-16.01	08/24/85	10/27/86	10/11/88	02/05/90					
QMP-16.01-Mod.01	08/23/89	Modification superseded by QMP-16.01, R3 on 02/05/90.							
QMP-16.01,R3-M1	03/14/91								

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REVISION RECORD - (continued)

Record for Quality Management Procedures (QMP)

QMP Document Number	Effective Date(s) Rev. 0	Rev. 1	Rev. 2	Rev. 3	Rev. 4	Rev. 5	Rev. 6	Rev. 7	Rev. 8
YMP-USGS-QMP-16.02	11/04/88								
YMP-USGS-QMP-16.03	10/11/88	06/05/89	02/05/90						
QMP-16.03-Mod.01	08/23/89	Modification superseded by QMP-16.03, R2 on 02/05/90.							
QMP-16.03,R2-M1	03/14/91								
QMP-16.03,R2-M2	05/15/91								
QMP-16.03,R2-M3	07/02/91								
YMP-USGS-QMP-17.01	08/24/85	10/27/86	10/07/88	03/03/89	09/24/90	02/28/92			
QMP-17.01-Mod.01	08/21/89	Modification superseded by QMP-17.01, R4 on 09/24/90.							
QMP-17.01,R4-M1	10/31/90	Modification superseded by QMP-17.01, R5 on 02/28/92.							
QMP-17.01,R4-M2	12/17/90	Modification superseded by QMP-17.01,R4-M5 on 08/30/91.							
QMP-17.01,R4-M3	05/01/91	Modification superseded by QMP-17.01, R5 on 02/28/92.							
QMP-17.01,R4-M4	06/03/91	Modification superseded by QMP-17.01, R5 on 02/28/92.							
QMP-17.01,R4-M5	08/30/91	Modification superseded by QMP-17.01, R5 on 02/28/92.							
QMP-17.01,R4-M6	11/13/91	Modification superseded by QMP-17.01, R5 on 02/28/92.							
QMP-17.01,R5-M1	10/01/92								
NNWSI-USGS-QMP-17.02	10/27/86	Procedure rescinded 08/25/89. YMP-USGS will work to DOE AP-5.9Q.							
YMP-USGS-QMP-17.03	11/05/90								
QMP-17.03,R0-M1	06/03/91								
QMP-17.03,R0-M2	11/13/91								
QMP-17.03,R0-M3	02/28/92	Modification superseded by QMP-17.03,R0-M5 on 08/10/92.							
QMP-17.03,R0-M4	04/10/92								
QMP-17.03,R0-M5	08/10/92								
YMP-USGS-QMP-18.01	08/24/85	10/27/86	11/04/88	06/05/89	04/25/90	07/30/90	05/01/91		
QMP-18.01-Mod.01	11/09/89	Modification superseded by QMP-18.01, R4 on 04/25/90.							
QMP-18.01,R4-M1	04/25/90	Modification superseded by QMP-18.01, R5 on 07/30/90.							
QMP-18.01,R5-M1	10/30/90	Modification superseded by QMP-18.01, R6 on 05/01/91.							
QMP-18.01,R5-M2	12/31/90	Modification superseded by QMP-18.01, R6 on 05/01/91.							
QMP-18.01,R6-M1	05/23/91								
QMP-18.01,R6-M2	10/15/91								
YMP-USGS-QMP-18.02	11/04/88	05/18/90	05/01/91						
QMP-18.02-Mod.01	01/17/90	Modification superseded by QMP-18.02, R1 on 05/18/90.							
QMP-18.02,R1-M1	10/30/90	Modification superseded by QMP-18.02, R2 on 05/01/91.							
QMP-18.02,R2-M1	10/15/91								

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The following YMP Quality Administrative Procedures (APQs) are to be invoked in the YMP-USGS Program. This list is subject to change because the procedures are controlled by YMP document control in Las Vegas, NV. The list will be u ted generally as the YMP-USGS Management Procedures Manual is updated relative the USGS QMPs.

AP-1.10Q Preparation, Review, and Approval of SCP Study Plans

AP-5.1Q Control and Transfer of Technical Data on the Yucca Mountain Project

AP-5.9Q Qualification of Data or Data Analyses Not Developed under the Yucca Mountain Project Quality Assurance Plan

AP-5.19Q Interface Control

AP-6.3Q Procedure for Requesting Samples for Examination at the Yucca Mountain Site Characterization Project Sample Management Facility

AP-6.4Q Procedure for the Submittal, Review, and Approval of Requests for Yucca Mountain Project Geologic Specimens

AP-6.26Q Submission and Documentation of Non-Borehole Samples to the Sample Management Facility