OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

QUALITY ASSURANCE AUDIT PLAN

AUDIT NO. YMP-92-13

OF

UNITED STATES GEOLOGICAL SURVEY

AT

THE NEVADA TEST SITE

AND

DENVER, COLORADO

APRIL 1 THROUGH APRIL 10, 1992

Prepared by: Charles C. Warren Date: 2-21-92
Charles C. Warren
Audit Team Leader
Yucca Mountain Quality Assurance Division

Approved by: [signature] Date: 2/25/92
Donald G. Horton
Director
Office of Quality Assurance

FILED IN BOULDER
LOG A

ENCLOSURE

1.0 SCOPE

This limited scope audit will evaluate the effectiveness of the United States Geological Survey (USGS) Quality Assurance (QA) program in meeting the requirements and commitments imposed by the Office of Civilian Radioactive Waste Management (OCRWM).

The effectiveness of USGS QA Program requirements and implementing procedures for program elements and technical activities identified in Section 4.0 of this plan will be evaluated. A representative sample of deficiencies identified during previous QA audits and surveillances of USGS will also be included in the scope of the audit to determine effectiveness of corrective action. In addition, corrective action being taken in response to open Project Office and the U.S. Nuclear Regulatory Commission (NRC) identified deficiencies may be evaluated during the audit.

This audit will be conducted at the Nevada Test Site (NTS) and at Denver, Colorado in accordance with the schedule identified in Section 2.0.

2.0 AUDIT SCHEDULE

Pre-Audit Team/Observer Meeting (NTS)	8:30 a.m., April 1, 1992
Pre-Audit Meeting (NTS)	9:00 a.m., April 1, 1992
Conduct of Audit (NTS)	9:30 a.m. - 3:30 p.m. April 1, 1992
	8:30 a.m. - 3:30 p.m. April 2, 1992
Daily Team Debriefing (NTS)	3:30 p.m., April 1 & 2, 1992
Pre-Audit Team Observer Meeting (Denver)	12:30 p.m., April 6, 1992
Pre-Audit Meeting (Denver)	1:00 p.m., April 6, 1992
Conduct of Audit (Denver)	1:30 p.m. - 4:30 p.m. April 6, 1992
	8:00 a.m. - 4:30 p.m. April 7 - 9, 1992
	8:00 a.m. - 11:30 a.m. April 10, 1992

Daily Team Debriefing (Denver)	4:30 p.m., April 6 - 9, 1992
Post-Audit Meeting (Denver)	1:00 p.m., April 10, 1992

NOTE: Auditing may be continued at the NTS on April 3, 1992, if necessary to complete evaluations started on April 1 or 2. The Audit Team Leader will make this determination and inform USGS management of the continuation as early as possible.

3.0 REQUIREMENTS TO BE AUDITED AND APPLICABLE REFERENCES

USGS Quality Assurance Program Plan YMP-USGS-QAPP-01, Revision 5 and current Interim Change Notices

USGS Quality Management Procedures and applicable Yucca Mountain Site Characterization Project Administrative Procedures (Quality)

The audit will be conducted in accordance with the U.S. Department of Energy (DOE) documents listed below:

OCRWM Quality Assurance Administrative Procedure (QAAP) 18.2, Revision 5, Audit Program

OCRWM QAAP 16.1, Revision 4, Corrective Action

Audit Observer Inquiry

Policy for Participation of State, Tribal, and NRC Representatives as Observers on DOE Audits, Dated July 14, 1987

4.0 ACTIVITIES TO BE AUDITED

Programmatic Elements

3.0 Design Control
5.0 Instructions, Procedures, Plans, and Drawings
6.0 Document Control
17.0 Quality Assurance Records
19.0 Computer Software
20.0 Scientific Investigation Control

In addition, completion of the evaluation of Programmatic Element 1.0, "Organization", will be performed as a follow up to YMP Audit 92-02.

Technical Activities

ACTIVITY NUMBER	TITLE
8.3.1.2.2.1.2 (At NTS)	Evaluation of Natural Infiltration
8.3.1.2.1.2.1 (At NTS)	Surface-water Runoff Monitoring
8.3.1.2.1.2.2 (At NTS)	Transport of Debris by Severe Runoff
8.3.1.2.2.6.1 (At Denver)	Gaseous-Phase Circulation Study
8.3.1.5.2.1.3 (At Denver)	Evaluation of Past Discharge Areas
8.3.1.2.1.3.2 (At Denver)	Regional Potentiometric Levels & Hydrologic Framework
8.3.1.4.2.2.2 (At Denver)	Surface Fracture Network Studies

Evaluation of the above activities by Technical Specialists will include a determination of adequacy in the following areas:

1. Technical qualifications of scientific personnel.

2. Understanding of procedural requirements as they pertain to scientific investigation activities.

3. Adequacy of technical procedures

4. Development of study plans, work supporting the Site Characterization Plan, and any related work.

5.0 AUDIT TEAM MEMBERS

Charles C. Warren, Audit Team Leader, MAC Technical Services (MACTEC), Las Vegas, Nevada

James Blaylock, Auditor, U.S. Department of Energy, Las Vegas, Nevada

Terry W. Noland, Auditor, Westinghouse, Las Vegas, Nevada (Denver only)

Richard E. Powe, Auditor, Science Applications International Corporation (SAIC), Las Vegas, Nevada

Cynthia H. Prater, Auditor, SAIC, Las Vegas, Nevada (Denver only)

Kenneth T. McFall, Lead Technical Specialist, SAIC, Las Vegas, Nevada

Christine Barry, Technical Specialist, SAIC, Las Vegas Nevada (Denver only)

Paul L. Cloke, Technical Specialist, SAIC, Las Vegas, Nevada (Denver only)

Keith M. Kersch, Technical Specialist, SAIC, Las Vegas, Nevada (Denver only)

Marvin Saines, Technical Specialist, Harza, Las Vegas, Nevada (NTS only)

Loren E. Thompson, Technical Specialist, SAIC, Las Vegas Nevada (NTS only)

6.0 AUDIT CHECKLISTS

The following checklists will be used to perform the audit:

92-13-1 Programmatic Checklist

92-13-2 Technical Checklist (NTS)

92-13-3 Technical Checklist (Denver)

same as added by Warren at Entrance mtg.

AUDIT SCOPE

This limited scope audit will evaluate the effectiveness of the U.S. Geological Survey (USGS) Quality Assurance (QA) Program in meeting the requirements and commitments imposed by the Office of Civilian Radioactive Waste Management.

The effectiveness of USGS QA Program requirements and implementing procedures for selected program elements and technical activities will be evaluated.

In addition, corrective action being taken in response to open Project Office and the U. S. Nuclear Regulatory Commission identified deficiencies will be evaluated during the audit.

acceptable with comments CHL. 9/27/93

AUDIT YMP-92-13

TENTATIVE SCHEDULE OF AUDIT ACTIVITIES (DENVER)

handout 4/16/92

MONDAY 4/6/92	TUESDAY 4/7/92	WEDNESDAY 4/8/92	THURSDAY 4/9/92	FRIDAY 4/10/92
	8:00 TPO Meeting 8.3.1.5.2.1.3 Cloke/Blaylock (3,20) 8.3.1.2.2.6.1 Kersch/Powe (3,20) Warren - 1 Cox - 5 Prater - 17	8:00 TPO Meeting 8.3.1.5.2.1.3 Cloke/Blaylock (3,20) 8.3.1.2.2.6.1 Kersch/Powe (3,20) Prater - 17 Cox - 19	8:00 TPO Meeting 8.3.1.4.2.2.2 Cloke/Blaylock (3,20) 8.3.1.2.1.3.2 Kersch/Powe (3,20) Prater - 6 Cox - 19	8:00 TPO Meeting Team Follow-up Activities
	11:30-12:30 LUNCH	11:30-12:30 LUNCH	11:30-12:30 LUNCH	11:30-12:30 LUNCH
12:30 Team/Observer Meeting 1:00 Pre-Audit Meeting 8.3.1.5.2.1.3 Cloke/Blaylock (3,20) 8.3.1.2.2.6.1 Kersch/Powe (3,20) Cox - 5 Prater - 17	8.3.1.5.2.1.3 Cloke/Blaylock (3,20) 8.3.1.2.2.6.1 Kersch/Powe (3,20) Warren - 1 Cox - 5 Prater - 17 Blaylock following up on NRC audit findings	8.3.1.4.2.2.2 Cloke/Blaylock (3,20) 8.3.1.2.1.3.2 Kersch/Powe (3,20) Prater - 6 Cox - 19	8.3.1.4.2.2.2 Cloke/Blaylock (3,20) 8.3.1.2.1.3.2 Kersch/Powe (3,20) Prater - 6 Cox - 19	1:00 Post-Audit Meeting
4:30 TEAM DEFRIEFING	4:30 TEAM DEBRIEFING	4:30 TEAM DEBRIEFING	4:30 TEAM DEBRIEFING	

Programmatic Checklist

OCRWM AUDIT CHECKLIST NO. 92-13-1

1 ORGANIZATION USGS

3 AUDIT ITEM NO.	4 QUALITY REQUIREMENT REFERENCE(S)	5 QUALITY REQUIREMENT/GUIDELINE	6 RESULTS S,X,N/A	7 SUMMARY OF INVESTIGATION	8 PERSON CONTACTED
		ORGANIZATION			
1-1	QAPP-01, Rev. 5, ICN No. 7, para. 1.2	1. Verify written agreements with outside organizations for conduct of portions of the technical program, specify how the YMP-USGS program will be addressed by those organizations.			
		2. Verify that specified QA program requirements for outside organizations has been evaluated in accordance with USGS requirements.			

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1-2	QMP-1.01, Rev. 4, para. 4.12	Verify that organizations outside of YMPO, with activities that support YMP-USGS, comply with requirements of the YMP-USGS QA Program Plan as in wspecified ritten agreements. Evaluation of these organizations' QA programs shall be in accordance with applicable QMPs.			
1-3	QMP-2.02, Rev. 5, para. 5.2	Verify that personnel performing YMP-USGS quality-affecting activities have been permanently to assigned USGS organization positions and that standard USGS position descriptions have been submitted to the TPO for these positions.			

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3-1	QMP-3.05, Rev. 2, MI para. 5.1	WORK REQUEST FOR NTS CONTRACTOR SERVICES (CRITERIA LETTER) 1. Verify that criteria letters contain the following information: 1) Name, address, and phone number of PI. 2) Purpose of work. 3) Source of funding. 4) General description of work. 5) Description of location of work. 6) Specific criteria, requirement, and applicable procedures for work to be performed by NTS contractor. 7) Equipment to be provided by USGS. 8) Attachment of applicable QALAs. 9) Reference or identification of applicable QMPs and/or TPs. 10) Requester start dated and duration or schedule. 11) Points of contact if different from 1) above. 12) Identification of hold-and-Witness point, if any.			

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	para. 5.2	2. Verify identification designator of criteria letter YMP-USGS (Subject number) - (Revision number).			
	paras. 5.3 and 5.4	3. Verify criteria letter reviewed and approved by QA Manager and TPO or designees.			
	para. 5.9	4. Verify changes to criteria letters approved by QA Manager and TPO or designees.			

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3-2	QMP-3.13, Rev. 1	DESIGN INPUT			
	para. 5.1	1. Verify written communication from ES Test Manager to USGS ESF Coordinator requesting new or updated input.			
	para. 5.4	2. Verify such input includes written documentation to include a copy of applicable calculations, preliminary analyses, or applicable reviews.			
	para. 5.5	3. Verify such input underwent a technical review per QMP-3.07 prior to submittal of input to ES Test Manager.			
	para. 5.6	4. Verify all such input underwent a quality assurance review.			

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3-3	QMP-3.02, Rev. 1	USGS QA LEVEL ASSIGNMENT Verify any QALAs initiated since 3/90 done in accordance with procedure.			

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3-4	AP-5.28Q, Rev. 2 para. 5.?	QUALITY ASSURANCE GRADING (QAG) Verify the TPO initiates the following steps: 1. Select individual to review Q-List and evaluate importance of assigned items or activities within area of responsibility. 2. Complete worksheet for characteristics of items or activities appearing on Q-List or Q-Activities List 3. Prepare QAG Report for items/activities identified above with signature and date of preparer, QA Manager, and TPO prior to submittal to the Quality Review Board (QRB). 4. Upon return of QAG Report, revise and resubmit, dispute, or withdraw the report with approvals as per number 3. above. 5. Upon approval of QAG Report by QRB, perform impact analysis of requirements in new or revised QAGR on products previously generated for items or activities, and take appropriate action to correct deficiencies identified by impact analysis. 6. Review changes to Q-List/Q-Activities List to determine need for revision, if revision is needed, and verify if done in accordance with initial requirements.			

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3-5	AP-6.17Q, Rev. 0	DETERMINATION OF IMPORTANCE OF ITEMS AND ACTIVITIES What are the USGS responsibilities in implementing AP-6.17Q?			

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3-6	AP-1.10Q, Rev. 4	STUDY PLANS Verify the following has occurred with preparation, review, and approval of study plans: 1. TPO assigns qualified individual to author study plan. 2. Format and content of draft. a. Consistent with DOE/NRC agreement. b. Includes abstract in front of Table of Contents. c. Has undergone a technical review. 3. Forwarded to YMP for review. 4. Resolve comments from YMP, prepare final daft, and transmit to RSED. Revision of Approved Study Plans: 1. Identify need and reason for revision, and vertical change bars to show proposed text changes. Submit to RSED Director. 2. Prepare CR in accordance with AP-3.3Q to bring SCPB into agreement with major changes proposed for SCP SP.			

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		TECHNICAL REVIEW AND DISTRIBUTION OF PUBLICATION			
3-7	YMP-USGS-QMP 3.04, Rev. 3, M2	Determine who is:			
		a. Chief, GSP			
		b. Chief, HIP			
		c. Regional Research Hydrologist, WRD			
		d. District Chief, Nevada District, WRD			
3-8		Determine if there have been any USGS-YMP Publications issued:			
		a. Since 5/24/91 (Last Audit)			
		b. Since 10/15/91 (effective, date for Mod 2)			
		(NOTE: Look for publication dealing with technical areas of interest, see Audit Plan)			

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3-9	QMP-3.04, Rev. 3, M2, para. 5.1.1	Select Sample of publications to review and obtain QA Record Package Segments. Determine how qualified reviewers are selected. Review representative sample of "Review Selection Form"			
3-10	QMP-3.04, Rev. 3, paras. 5.2 and 5.3	Documentation of Comments. Review a representative sample of Review Comment Sheets for appropriate resolution of comments. (NOTE: Only substantive comments are placed on the Review Comment Sheets. Review recommendations and editorial comments are marked on draft-not on Review Comment Sheet 5) How have Technical Reviews changed since M2 added paragraphs 5.2.1, 5.2.2 and 5.2.3 on 10/15/91?			

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3-11	QMP-3.04, Rev. 3, para. 5.3.3	Verify manuscripts are approved by the appropriate official			
3-12	QMP-3.04, Rev. 3, para. 5.3.5	Verify manuscripts with non USGS/DOE authors have authorization for release.			
3-13	QMP-3.04, Rev. 3, para. 5.3.5	Verify, if appropriate, milestone completion is addressed in letters of transmittal to the DOE.			

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3-14	QMP-3.04, Rev. 3, para. 5.3.6	Verify Branch Science Advisor has determined if other YMP participants should receive the report.			
3-15	QMP-3.04, Rev. 3, para. 5.3.7	Verify DOE concerns, if any, have been resolved prior to final manuscript preparation.			
3-16	YMP-USGS QMP 3.07, Rev. 3, M1 and M2	YMP-USGS REVIEW			
	para. 2	Determine what documents (criteria letters, scientific planning documents, design inputs, and technical procedure) have been reviewed since 5/24/91 (last audit), (NOTE: Look for documents dealing with technical areas of interest, see Audit Plan).			

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3-17	QMP-3.07, Rev. 3,	Select Sample of documents to review and obtain QA Record Package Segments.			
	para. 5.1	Determine how qualified reviewers are selected. Review representative Sample of Review Selection forms.			
3-18	para. 5.2	Documentation of Comments. Review a representative sample of Review/Comment Sheets for appropriate resolution of comments, especially major comments.			

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3-19	YMP-USGS QMP 3.10, Rev. 2, M1	VERIFICATION OF SCIENTIFIC INVESTIGATIONS			
	para. 2	Determine if there has been any Verification Activity (VA) since 5/24/91. Identify VA Team Leader.			
	para. 5.1	Determine reason for VA. a. hold point b. change of the PI c. chose-out of scientific investigation			
3-20	QMP-3.10 Rev. 2, M1	Determine if any waivers of verification have been processed. Verify QA concurrence.			

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3-21	para. 5.3	Verify independence of reviewers and that QA is represented.			
3-22	QMP-03.10, Rev. 2, M1 5.5.2	Verify VA Plans identify a. the scientific investigation (study, activity) to be verified. b. purpose and scope of the VA c. disciplines of VA personnel d. VA methodology and schedule e. acceptance criteria			
3-23	para. 5.6.1	Verify VA has been accomplished in accordance with the approved VA plan or a departure is justified and documented in the VA Completion Report.			

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3-24	QMP-3.10, Rev. 2 M1, para. 5.7.1	Verify VA Completion Report a. identifies scientific investigation, study, or activity, including the WBS number b. Date of the VA c. VA purpose and scope including the reason (hold point, change in PI, or close-out) d. List of VA team and others who are consulted. e. Describes technical assessment methodology and results including any discrepancies, or deficiencies f. Describe QA evaluations g. Recommend, where appropriate, corrective action h. Reports resolution of all identified discrepancies and/or deficiencies			

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3-25	QMP-3.10, Rev. 2 M1 para. 5.7	Verify VA Completion Reports are Submitted for review and approval within 30 days of completion of the VA.			
3-26	QMP-3.10, Rev. 2, M1 para. 6.2	Verify VA Record Package contain: VA Plan and associated documents VA Completion Report VA Report distribution letter (minimum distribution is: TPO, GD coordinator, HIP Chief, responsible PI, and VA Team Leader)			

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3-27	YMP-USGS QMP-3.11, Rev. 1, M1	PEER REVIEW			
	para. 5.1	Determine if any PEER Reviews have been conducted since 5/24/91.			
		Determine if any PEER Reviews have been conducted in the Areas of Interest (See Audit Plan).			
3-28	QMP-3.11, Rev 1, para. 5.3	Verify that verifiable technical credentials have been submitted by peer reviewers.			

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3-29	para. 5.3.2	Verify that when the independence criteria cannot be met, a documented rational was included in the peer review report.			
3-30	QMP-3.11, Rev 1, para. 5.4.1	1. Verify that a peer review plan was developed prior to initiating the peer review.			
		2. Verify that the peer review plan describes the work to be reviewed, the size and spectrum of the peer review group, the suggested method and schedule necessary to produce a peer review report.			

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3-31	QMP-3.11, Rev 1 para. 5.4.2	Verify that the following items were reported on in the Peer Review Report:			
		a. Validity of assumptions			
		b. Alternate interpretations			
		c. Uncertainty of results and consequences if incorrect			
		d. Appropriateness and limitations of methodology and procedures			
		e. Adequacy of applications			
		f. Accuracy of calculations			
		g. Accuracy of requirements and criteria			
		h. Validity of conclusions.			

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3-32	QMP-3.11, Rev 1, para. 5.4.3	Verify that documents have been prepared to indicate the results of meetings, deliberations and activities of the peer review process.			
3-33	para. 5.5	Verify that a peer review report, documenting the results of the review, was prepared and signed by each peer review member. Verify that the peer review report includes items a through d, below. a. A clear description of the work or issue that was peer reviewed. b. Conclusions reached by the peer review process c. Individual statements by peer review group members reflecting dissenting view or additional comments, as appropriate. d. Listing of the peer and the technical qualification and evidence of independence for each peer, including potential technical and/or organizational partiality.			

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3-34	QMP-3.11, Rev 1, para. 5.6	Verify that all comment resolution changes, decisions, discussions, or correspondence have been fully documented.			
3-35	para. 6.2	Verify that the following documents have been submitted to the USGS records Center. o Peer review plan o Peer review group selection approval documentation o Reports, manuscripts and other documents reviewed o Documents of peer review meetings, deliberations, and activities o Peer review report o Comment resolution documentation o Technical qualification documentation for external peer reviewers			

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		SCIENTIFIC NOTEBOOK SYSTEM			
3-36	YMP-USGS, QMP-5.05, Rev. 2, M1, para. 5.3	Determine if any Scientific Notebook Plans exist for the areas of interest (see Audit Plan).			
		Obtain status of Notebook Plans. Obtain a representative sample of Notebook Plans and verify proper implementation of the procedure.			

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		SCIENTIFIC NOTEBOOK CONTROL OF TECHNICAL ACTIVITIES			
3-37	QMP-5.05, Rev. 2, para. 5.3 Rev. 2, 11/5/90 Rev. 1, 7/28/89	Verify that a "T" is placed after the document identification number of the scientific notebook.			
3-38	para. 5.4.1	Verify that the following topics are addressed to initiate and justify the scientific notebook procedure, as appropriate: o Title of the experiment or research o Description of the experiment's objectives o Description of the proposed approach or procedure o Name of the qualified individual(s) performing the work activity o Special personnel qualification or training requirements o Equipment and materials to be employed during the experimenter research, including any necessary fabrication of experimental equipment and any needed characterization of starting material			

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3-38 con't	QMP-5.05, Rev. 2, para. 5.4.1	o Calibration requirements o Potential sources of uncertainty and error o Input data that is suspect or whose quality is beyond the control of the performing organization o Documentation of suitable and controlled environmental conditions o Required levels of precision and accuracy o Dated signature of the individual(s) making the initial entry			

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3-39	QMP-5.05, Rev. 2, para. 5.4.1.1	1. Verify that the Scientific Notebook Plan has been completed and entered into the official record. 2. Verify that a copy of the Scientific Notebook Plan is permanently attached to the front of the scientific notebook.			

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3-40	QMP-5.05, Rev. 2, para. 5.4.1.2	1. Verify that when modifications to describe approach are made, full details of the modification are recorded in the scientific notebook. 2. Verify that when it has been determined that the modification will have an impact on the quality of data, a Nonconformance Report has been issued.			

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3-41	QMP-5.05, Rev. 2, para. 5.4.2	Verify that in-process entries provide the following information, as appropriate: o Date and name of individual making entry o Description of the experiment or research attempted, including detailed step-by-step process followed; either by reference to implementing procedure or by actual entry into the notebook o Provisions for assuring that prerequisites have been met o Conditions which adversely affect the results of the experiment or research investigation o Identification of samples collected and/or used and any additional equipment and materials not included as part of the initial entries o Entry of data or reference to identification and location of data record(s), including notation of any unaccepted results o Any deviations from the planned experiment or research o Computer software invoked o Interim conclusions reached, as appropriate o Final disposition of facilities			

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3-42	QMP-5.05, Rev. 2, para. 5.4.2.2	1. Verify that the scientific notebook is permanently bound and pages are consecutively numbered up to the last page used. 2. Verify that a control number has been assigned to each notebook examined. 3. Verify that the control number is displayed on the first page of each volume. 4. Verify that there are no open spaces left on pages and that a diagonal black line is drawn across blank spaces to indicate no further entries.			

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3-43	QMP-5.05, Rev. 2, para. 5.4.2	1. Verify that when work described in accordance with the Scientific Notebook Plan is complete, a final statement is made to indicate completion. 2. Verify that the experimenter and technical reviewer have signed and dated the notebook.			

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3-44	QMP-5.05, Rev. 2, para. 5.4.4	Verify that a statement is in the scientific notebook or technical report that includes a discussion of whether the experiment's objectives, as outlined in the initial entries, were achieved.			
3-45	para. 5.5.1	Verify that the review of the Scientific Notebook Plan, as a minimum, shows evidence that the contents of paragraph 5.4.1 have been addressed.			

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3-46	QMP-5.05, Rev. 2, para. 5.5.2	1. Verify that the review of the scientific notebook entries, as a minimum, considered the contents of paragraph 5.4.2. 2. Verify that the reviewers signature is part of the final entry in the scientific notebook.			

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3-47	QMP-5.05, Rev. 2, para. 5.6.1	1. Verify that each major QA review comment is evaluated and resolved by the PI. 2. Verify that upon completion of comment resolution, all documentation of reviewer comments and their resolution is attached to the original reviewed copy.			

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3-48	QMP-5.05, Rev. 2, para. 5.6.2	Verify that the QA review of the Scientific Notebook Plan considers the following, as a minimum: o Are the purpose, objective, and scope included? o Is the proposed Work Plan compete enough to give understanding to others? o Are special personnel qualification and training requirements addressed? o Is there a description of the required materials/equipment? o When needed, are calibration instructions addressed to the satisfaction of QMP-12.01? o Is sample handling and control addressed to the satisfaction of QMP-8.01 and Sample Management Facility Procedures? o Are data information and quantitative/qualitative criteria addressed? o Are environmental issues addressed, as appropriate? o Has a notebook number been issued?			

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3-49	QMP-5.05, Rev. 2, para. 5.7	Verify that the final draft of the Scientific Notebook Plan receives the following signatures: - PI - Technical reviewer(s) - GD Branch/NHP Chief - YMP-USGS QA Manager - YMP-USGS Technical Project Officer			
3-50	para. 5.8	Verify that when a scientific notebook is converted to a technical procedure, the technical procedure references the superseded scientific notebook.			
3-51	para. 5.9	Verify that copies of scientific notebook entries are sent to the QA Office at least semi-annually following the first entry.			

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3-52	QMP-5.05, Rev. 2, para. 5.10	Verify that the effective date of the Scientific Notebook Plan is recorded on the Plan.			
3-53	para. 6.2	Verify that the following documents are included in the Scientific Notebook Record Package: o Approved Scientific Notebook Plan o Technical Review documentation o Quality Assurance Review documentation			

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5-1	QMP-5-01 Rev. 4, para. 5.3.1	1. Verify that technical procedures contain all the requirements, at a minimum, as included on Attachment 1. 2. Verify that procedures include mandatory hold points where necessary to initiate the conduct of a verification activity.			

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5-2	QMP-5.01, Rev. 4, para. 5.4	3. Verify that the reviewer was selected by the Chief, GSP/Chief, HIP who is someone other than a person immediately responsible for (1) the procedure's content, (2) supplying details to the preparer/author concerning the methods described in the procedure, or (3) for conduct of the procedure's activities.			

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5-3	QMP-5.01, Rev.4, para. 5.4.1	4. Verify that, as a minimum, the technical review showed evidence that the following criteria were considered in the review: Is there sufficient information to support meeting the objective and purpose? Are special qualifications/training needs adequately addressed? Were appropriate concepts, methods, or techniques used? Are materials, equipment, and calibration requirements adequately addressed? Are limitations, qualitative/quantitative criteria, accuracy, sources of error and/or hold points addressed? Are data output and handling information satisfactory? Was consideration given to repeatability, impact on waste isolation capability and interference with other activities?			

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5-4	QMP-5.01, Rev. 4, para. 5.4.2	5. Verify that the reviewer has signed on the approval page of the procedure and submitted the technical review form and marked up copy to the PI. 6. Verify that documentation of reviewer comments and their resolution is attached to the original reviewed copy and submitted to the PI.			

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5-5	QMP-5-01, Rev. 4, para. 5.5.1	7. Verify that, as a minimum, the technical review showed evidence of the following criteria having been considered: - Is this procedure within the scope of the governing SIP/Study Plan? - Are the purpose, objective and scope clearly stated - Are personnel responsibilities and training addressed? - Is the methodology complete enough to give understanding to others? - Are alternate methods, assumptions, and limitations adequately described? - Is there adequate description of the required materials/equipment? - When needed, are calibration instructions adequate? - Are samples adequately addressed? - Are data information and quantitative/qualitative criteria addressed?			

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5-5 con't	QMP-5.01, Rev. 4, para. 5.5.1	- Are QA Records listed? - Are attachments included and do referenced procedures adequately address the required function - Is technical review documented, including any attached comments and/ or responses?			

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5-6	QMP-5.01, Rev. 4, para. 5.6	8. Verify that the final draft of the technical procedure, along with the appropriate review documentation, was submitted for approving signatures to at least the Principal Investigator, the Technical Reviewer(s), and branch Chief, the Chief, YMPB, and YMP-USGS QA Manager.			
5.7	para. 5.8.2	9. Verify that modification documentation included the justification for the modification and a determination of the need to revise the technical procedure.			
		10. Verify that revision to procedures, if required, as a result of a modification are completed within 90 calendar days of the field modification.			

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5-8	QMP-5.02, Rev. 3, para. 5.1.1	11. Select representative sample of drawings and verify that the proper identifier was obtained from the QA Office and printed on the drawings as "YMP-USGS-DRW-xxx" followed by a revision number beginning with zero (0).			
5-9	para. 5.2.1	12. Verify that check prints are used by the checker rather than marking the original drawings. It is labeled "Check Print".			

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5-10	QMP-5.02, Rev. 3, para. 5.2.2	13. Verify that drawings are verified, signed, and dated by the checker.			
5-11	para. 5.3	14. Verify that the appropriate signatures were applied to the drawings signifying approval.			

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5-12	QMP-5.03, Rev. 7, para. 5.2.2	15. Select five (5) QMPs at random and verify that the nine paragraphs were included regardless whether they did or did not apply.			
		16. What mechanism is in place to use APQs for performing quality affecting work.			
5.13	para. 5.3.2	17. Verify that a QA review was conducted and documented of selected QMPs in compliance with the requirements of para. 5.3.1 by an individual other than the originator. Was the document signed by the QA Manager?			

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5.14	QMP-5.03, Rev. 7, para. 5.3.1	18. Verify that the selected QMPs were reviewed and consolidated comments were adequately documented on the review/comment resolution form of QMP-3.07.			
		19. Were comment resolutions performed in accordance with QMP-3.07?			

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5-15	QMP-5.03, Rev. 7, para. 5.3.3	20. Verify that the Chief, YMPB, reviewed the comments referred to in para. 5.3.2 and signed to denote that technical management review was satisfactory and the procedure is consistent with YMP-USGS policies and procedures.			
5-16	para. 5.3.4	21. Verify that the signatures required by this paragraph were placed on the documents.			

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5-17	QMP-5.03, Rev. 7, para. 5.4.4	22. Verify that a unique identifying number was assigned and distribution was controlled per QMP-6.01. 23. Verify that modifications contained the approval signatures, an effective date, and a description of the change.			

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5-18	QMP-5.03, Rev. 7, para. 6.2	24. Verify that the following QA Records or Record Packages were submitted to the USGS Local Records Center in accordance with QMP-17.01: Quality Management Procedures or Modifications Records Packages: - Quality Management Procedure or Modification - Review form and/or comments - Correspondence concerning the proposal, review, or approval of QMPs and modifications Quality Assurance Records - Correspondence designating YMPO Administrative Procedures as direct USGS implementing procedures. 25. Verify that the above records requirements were satisfied.			

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5-19	QMP-5.04, Rev. 4, para. 5.3.2	26. Verify that when directed by YMPO, compliance with the requirements of the YMP QA Plan were documented on a YMPO QA Compliance Review Checklist which identifies where each requirement is met or accepted within the YMP-USGS QAPP.			

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5-20	QMP.5.04, Rev. 4, para. 5.6.2	27. Verify that Interim Change Notices (ICNs) state the full change being made and identify what part of the document is being changed in an acceptable format.			
		28. Verify that ICNs were approved by the required persons.			
		29. Verify that the ICNs were identified in the table of contents and are reissued with each change.			

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6-1	YMP-USGS-QAPP-01, R5, Section 6 para. 6.1.2 3rd Bullet	1. Verify that the implementation of document control has provided for "Review of documents for technical adequacy, completeness, correctness, and inclusion of appropriate quality requirements, prior to approval and issuance."			
	7th Bullet	2. Verify that the implementation of document control has provided for "Coordination of interface documents."			

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6-2	QMP-6-01, R5 para. 5.2.1	1. Verify that each controlled document has on its cover page a distinctly colored indication of controlled status such as colored ink stamp or colored paper.			
6-3	QMP-6.01, R5 para. 5.2.2	1. Verify that a controlled distribution list exist for each controlled document.			
		2. Verify that each controlled distribution list is up to date.			

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6-4	QMP-6.01, R5 para. 5.2.3	1. Examine several sets of issued controlled documents and verify that the holders of the documents have all the controlled documents that are itemized on the index assigned to that person. 2. Examine several set of controlled documents to verify that the documents holders have kept their sets current to include the latest revisions and modifications.			

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6-5	YMP-USGS-QAPP-01, R5, Section 6 para. 6.3	1. Verify that the documents requiring verification are not released prior to verification or, if they must, they are uniquely identified as such and controlled.			
	QMP-6.01, R5 para. 5.2.4	2. Verify that documents that were released prior to verification have a mark on the cover page stating that it is subject to verification.			

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6-6	QMP-6.01, R5 para. 5.2.6	1. Verify that Document Transmittal Notices (DTNs) are signed and returned to the QA Manager within 30 calendar days of issue.			
6-7	QMP-6.01, R5 para. 5.2.7	1. Verify that Follow-up DTNs are issued to participants that do not sign and return the original DTN within the required 30 days.			

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6-8	QMP-6.01, R5 para. 5.2.8	1. Verify that a Configuration Check is performed on an annual basis by the distribution of a current full index of all available controlled documents in the form of a Configuration Check with an indication of the specific documents that the holder should possess and for which the holder is accountable. 2. Verify that the recipients return the completed Configuration Check document to Document Control within 30 calendar days.			

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6-8 con't	QMP-6.01, R5 para. 5.2.8	3. Verify that the Configuration Check also queries the document holders as to their continued need fo the assigned controlled documents or a need for additional controlled documents. 4. Verify that if no response is received from the document holders within 30 days that a follow-up notice is sent immediately allowing a 15-day extension for compliance.			

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6-9	QMP-6.01, R5 para. 5.3.1	1. Verify that sub-issues of controlled technical documents issued to technical personnel are recorded in a check-out log, and gives as a minimum, the persons name and/or location of assignment and the date of sub-issue.			
		2. Verify that each sub-issue of a controlled technical document is initialed by the PI on its cover page.			
	para. 5.3.3	3. Verify that procedures, manuals, or other material that are referenced in the procedure is available at the work location when step-by-step instructions from those references are followed or are available at the location of the PI's controlled procedure when used only for guidance.			

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3 AUDIT ITEM NO.	4 QUALITY REQUIREMENT REFERENCE(S)	5 QUALITY REQUIREMENT/GUIDELINE	6 RESULTS S,X,N/A	7 SUMMARY OF INVESTIGATION	8 PERSON CONTACTED
6-10	YMP-USGS-QAPP-01, R5, Section 6 para. 6.3	1. Verify that a master list or equivalent used to identify the correct, current and updated versions of documents was submitted to the YMPO PQM and the SAIC/T&MSS Project QA Department Manager.			
	QMP-6.01, R5 para. 5.4.1	2. Verify that a master list (Index) is maintained by the QA Office and that it reflects the latest revisions of controlled documents for QA Level I and II activities.			
6-11	QMP-6.01, R5 para. 5.4.2	1. Verify that a distribution status log is maintained by the QA Office and that it includes the following: o Recipient o Dates of DTN issuance and return o Dates the document was returned or superseded			

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6-12	QMP-6.01, R5 para. 5.5.1	1. Verify that revisions to controlled program documents are controlled in the same manner as the original document.			
	para. 5.5.2	2. Verify that revisions of documents that contain changes affecting quality are distributed to the recipients prior to the implementation of the change, or are covered by other provisions.			

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6-13	QMP-6.01, R5 para. 6.2	RECORDS MANAGEMENT			
	para. 6.2.1	1. Verify that Document Distribution Record Packages have been submitted to the USGS Records Center as a QA Record Package and include the following: o Document Transmittal Notices (DTNs) o overdue notice responses (follow-up DTNs) o master lists (indexes) or Table of Contents o controlled-distribution assignment lists o associated correspondence			
	para. 6.2.2	2. Verify that Configuration Check Packages have been submitted to the USGS Records Center as a QA Record Package and include the following: o configuration check document o associated correspondence o master list			

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		RECORDS MANAGEMENT			
17-1	YMP-USGS-QMP-17.01, R5, Sect. 5.1.1	1. Verify that "In lieu of the actual records, the Record Source or LRC has prepared a surrogate record (Attachment 2) to be transmitted to the CRF for processing" of submitted confidential records.			
		2. Verify that "this record identifies the materials included and the requirements for accessing the record."			
		3. Verify that there are controls for access to confidential records in accordance with the Privacy Act System.			

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17-2	QMP-17.01, R5 Sect. 5.2	1. Verify that the "following steps have been completed before the submitting of QA records and documents to the LRC:			
	5.2.1	Specification and Identification			
	5.2.2	Protection Prior to Submittal			
	5.2.3	Authentication			
	5.2.4	Protection After Authentication			
	5.2.5	QA Designation			
	5.2.6	Indexing/Completeness Para.meters			
	5.2.7	Legibility			
	5.2.8	Microfilm Suitability			
	5.2.9	Minor Corrections			
	5.2.10	Lost or Damaged Records			
	5.2.11	Regeneration			

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17-3	QMP-17.01, R5 Sect. 5.3	1. Verify that records, nonextended, have been submitted no later that 10 working days following the date of (1) completion of the last generated record, (2) the dated receipt of a non-USGS generated record, or (3) receipt of a publication by the author.			

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17-4	QMP-17.01, R5 Sect. 5.3.1	1. Verify that on each individual QA:QA record (authenticated, and which will not be a part of a package), the Record Source shall either (1) note on the record that a copy is being sent to the LRC (e.g., "cc: LRC") or (2) list the QA:QA individual records on the Submittal Form, (Attachment 7). 2. Verify that a copy of the first page of such a record, noting receipt, or a copy of the Submittal Form was returned to the Record Source, or delegate, as confirmation that the record was received by the LRC.			

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17-5	QMP-17.01, R5 Sect. 5.3.2	QA RECORD PACKAGES AND ASSOCIATE SEGMENTS			
	5.3.2.1	1. Verify that "component files are established and maintained by the LRC for all package segment material submitted to the LRC until the package is completed by the Record Source."			
	5.3.2.2	2. Verify that the Table of Contents becomes part of the record package. 3. Verify that the Table of Contents lists all individual record (or groups of records) that constitute the package. 4. Verify the following is included on the Table of Contents: a) No. of Pages b) Identifiers: (QRP & WBS + sender, receipt, date, title/subject). c) Indexing (not required) d) Signature and Date o authenticator and o compiler, if different. e) Review for completeness & microfilmability (Attachments 4 & 6)			

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17-6	QMP-17.01, R5 Sect. 5.3.3	1. Verify that when an alternate schedule to the 10-day rqmnt. was needed, written notification was provided to the LRC the following: 1. the specific records affected 2. the submitting organization/personnel, 3. and, the new submittal date of up to 30 calendar days. 2. Verify that additional extensions were pre-approved by the QA Manager, or delegate. 3. Verify that the LRC returned the acknowledgment of the alternate schedule to the submitting organization, and forwarded a copy to the QA Manager.			

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17-7	QMP-17.01, R5 Sect. 5.4	1. Verify that upon receipt of a record or package, the LRC performed a quality verification check in accordance with QMP-17.03.			
		2. If rejected, it was returned to the Record Source for further action.			
	5.4.1	Correction Request			
	5.4.2	Rejection (in accord. w/ 17.03, using the LRC Record Rejection Form Attachment 9.)			

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17-8	QMP-17.01, R5 Sect. 5.5	1. Verify that the Record Source provided written or verbal notification to the LRC of any errors that were identified in previously processed records and submitted the corrected record(s) to the LRC. 2. Verify that the corrected record clearly identifies the correction, what record is being corrected, and clearly designates the the document is a "corrected record."			

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17-9	QMP-17.01, R5 Sect. 5.6	1. Verify that only authorized personnel are allowed access to the dual storage room, file cabinets, safes and fireproof containers.			
		2. Verify that authorization is by the current "Authorized Access List."			
		3. Verify that removal of records from the LRC was permitted upon receipt of a written authorization from the Records Coordinator or delegate.			
	5.6.2	4. Verify that requests for records from persons outside the YMP-USGS were processed per approval of the Chief, YMPB.			

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17-10	YMP-USGS-QMP-17.03, R0, M 1, 2, & 3 Sect. 4.2	YMP-USGS LOCAL RECORDS CENTER USGS LRC RESPONSIBILITIES 1. Verify that a QVC to review all records submitted to the LRC for completion rqmnts. and acceptance as QA records or identification as non-QA. 2. Verify that the Signature Authorization Log of USGS persons having the authority to sign and authenticate QA records and QA record packages is maintained. 3. Verify that the LRC Access Authorization List is maintained. 4. Verify that accepted records and packages are submitted to the CRF within 30 working days following LRC acceptance.			

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17-11	QMP-17.03, R0 Sect. 4.3	RECOORDINATOR RESPONSIBILITES 1. Verify that the Records Coordinator, or delegate, reviews the records designation paragraph in QMPs and technical procedures and subsequently updates the Record List as changes are noted. 2. Verify that the Records Coordinator annually verifies that QA records and packages identified by the QA program documents and procedures are received by the LRC for processing.			

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17-12	QMP-17.03, R0 Sect. 5.1 5.1 a	RECEIPT CONTROL 1. Verify that individual records are submitted to the LRC by Record Sources as they are completed or upon receipt as incoming records and require the use the YMP-USGS Records Submittal form or a note on the record that a copy is being submitted to the LRC (e.g., "cc: LRC"). 2. Verify that receipt is noted as "received" either on the submittal form or on the first page of the individual record, accompanied by the date and the initials of the LRC staff; and retruned to the Record Source/Sender. 3. Verify that record packages are prepared and submitted by Record Sources to the LRC by use of the YMP-USGS Records Submittal form for package segments or for the entire completed package. 4. Verify that the LRC acknowledges receipt by initialling and dating the form and returning it to the Record Source.			
	5.1 b				

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17-12 cont.	5.1 c	5. Verify that special dispensdation for the 30 working-day rqmt. was obtained in writing from the YMPO.			
	5.1 d	6. Verify that notification form a Record Source that specific records would be delayed in being submitted was marked a received, dated and initialed, and returned to the sender.			
		7. Verify that a copy of the receipted notice was sent to the QA Manager.			

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17-13	QMP-17.03, R0 Sect. 5.2	PROCESSING RECORDS AT THE LRC			
	Sect. 5.2.1.1	1. Verify that records which do not meet the QVC acceptance are returned to the Record Source with a Correction Request (Attachment 3) form attached identifying the required correction.			
		2. Verify that record discrepancies, which cannot be resolved through direct interaction by the LRC staff with the Record Source, are returned to the Record Source along with the LRC Rejection Form.			
		3. Verify that the LRC retains a copy to the Record Rejection Form and a copy of the record in a "records rejected" file.			
		4. Verify the process that occurs when a Record Source indicates that a better copy is not available.			

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17-14	QMP-17.03, R0 Sect. 5.2.2	1. Verify that records which meet the QVC rqmnts. are logged into the LRC computer indexing system and identified as "accepted."			
		2. Verify that a unique number is issued to each accepted individual record and to each accepted package Table of Contents.			
		3. Verify the indexing number structure. 1st 2 letters = USGS ID code (GS) 2nd 2 digits = yr. of indexing or activity 1 or 2 letters = doc. ID/location code final digits = computer generated access. #			
17-14 cont.	5.2.4	4. Verify that material received which becomes part of a package is held as a component file until the package is completed.			
	5.2.5	5. Verify tha records marked "Confidential" are			

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		retained in a lock cabinet accessible only to those authorized by the governing procedures.			
		6. Verify that the records are not to be transmitted to the CRF. NOTE: Is a surrogate record being transmitted identifying the records and their location?			
	5.2.5 a.	7. Verify that microfilm in the LRC containing confidential records is marked "Confidential" and kept in the safe.			
	5.2.5 b.	8. Verify that records which are considered "Privileged" per DOE Order 5635.A are handled in the same manner as other confidential records.			

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17-15	QMP-17.03, R0 Sect. 5.3	RECORD TRANSMITTAL TO THE CRF 1. Verify that the LRC performed the following activities for records generated or initially received by the USGS: a. Copied all "accepted" records b. Generated the specific LRC Transmittal Form c. As needed, inserted the LRC Special Instruction Sheet (SIS) d. Inserted the SIS to identify any Special Processed Records (SPRs) that were being transmitted under separate cover to the CRF. e. Attached a copy of the SIS to the original of SPR and forwarded the package under separate cover to the CRF. f. Identified each SPR that could not be filmed. g. Packaged the records in the order listed on the transmittal form and placed in the shipping envelope or box with the transmittal form. h. Transmitted the completed records to the CRF within 30 working days of LRC "acceptance." i. Protected the USGS record/package set until receipt of the shipment was acknowledged by the CRF.			

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17-15	QMP-17.03, R0 Sect. 5.4	COLLECTION & PROCESSING OF CITED REFERENCES 1. Verify that upon completion of the research, the list of Cited Reference Accession Numbers is sent to the Appropriate division for inclusion in the final printed OFR publication. 2. Verify that the photocopy or purchased copy of all Cited References for each publication is sent to the CRF by the LRC staff.			

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17-16	QMP-17.03, R0 Sect. 5.5	RECORDS STORAGE, PRESERVATION, AND SAFEKEEPING			
	5.5.1	1. Verify the placement of hard-copy records in binders, folders, or envelopes and stored in fully enclosed, lockable steel file cabinets.			
		2. Verify provisions have been made for the storage of SPRs (e.g. photographs, magnetic material, video tapes, etc.).			
		3. Verify that upon transmittal of original (or a copy) of hard-copy records and SPRs to the CRF, duplicates are retained in the LRC.			
		4. Verify that upon notification of the CRF, the second copy of the SPRs was submitted to the CRF.			

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17-17	QMP-17.01, R0 Sect. 5.5.2	PRESERVATION OF ON-OF-A-KIND RECORDS 1. Verify that all one-of-a-kind records are stored within the LRC in appropriate fire-proof containers or safes until such time that they are approved for transmittal to the CRF for processing or to commercial storage. 2. Verify that large quantities of one-of-a-kind records are stored in a YMP-USGS approved commercial facility which meets the security and 2-hour fire-proof facility storage requirements as specified in NQA-1.			

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17-18	QMP-17.03, R0 Sect. 5.5.3	SAFEKEEPING 1. Verify that the LRC has established measures to preclude the entry of unauthorized personnel and all possible efforts have been made to guard against larceny and vandalism. 2. Verify that "List" is posted in the LRC which designates those personnel who have access to the files. 3. Verify that the LRC and the cabinets are locked at all times except when the LRC is occupied by authorized access personnel.			

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17-19	QMP-17.03, R0 Sect. 5.5.4	SPECIAL PROTECTION 1. Verify that the LRC has "as needed storage" for the following kinds of records: a. One-of-a-kind items; b. Those records requiring extensive protection in an approved commercial "Single Storage Facility" (Reference NQA-1-1989) c. Dual storage for confidential records prepared for the implementation of QMP-2.07. Other confidential records are stored in the LRC in 1-hour locking containers for protection from larceny and fire.			

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17-20	QMP-17.03, R0 Sect. 5.5.5	TEMPORARY STORAGE 1. Verify that when authenticated records are not protected by dual storage, temporary storage of those records during processing, review, or use MAY BE accomplished through placement of the records in a UL 1-hour fore-rated container. Temporary storage SHOULD NOT exceed 2 years.			
	YMP-USGS-QAPP-01, R5, ICN 6 Sect. 5.6	RECORDS STORAGE 1. Verify that the "USGS provides temporary storage of records while processing for submital to the CRF, which at a minimum records shall be stored in a 1-hour fore rated container or in dual facilities. The container shall bear a UL label (or equivalent)certying 1-hour fire protection. Temporary storage shall not exceed 2 years. For storage rqmnts. that will exceed 2 years, records shall be stored in either dual storage or an NQA-1, Supplement 17S-1 compliant single storage facility ubtilreturned to the LRC for processing and submittalto the CRF.			

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17-21	QMP-17.03, R0 Sect. 5.6	RECORD RETRIEVAL			
	5.6.1	1. Verify that the USGS can retrieve records submitted to their LRC.			
	5.6.2	2. Verify that records requested from the LRC during the audit use a form similar to Attachments 9 & 10. Additionally, verify that those copies are printed on colored "Information Copy" paper.			
	5.6.3	3. Verify retrieval process for Non-USGS Project Participant Personnel.			
	5.6.4	4. Verify the retrieval process from commercial storage.			

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19-1 19-A-2	QARD, Rev. 4, para. 19.1	Each affected organization shall prepare a description of their computer software development, test,and configuration management system in their SQAP and/or procedures (Software Quality Assurance Program), submit it to the next higher program organizational level for review and approval. .....(7 bullets)			
	YMP-USGS-SQAP-01, Rev. 0	This document is the subject description.			
	YMP-USGS-QMP-3.03, Rev. 2, para. 1	1. Verify that the document has been approved by YMPO. EFFECTIVE DATE:_____			

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19-2 19-A-4	QARD, Rev. 4, para. 19.5 a	Software shall be placed under configuration management as each baseline element is approved. Software baseline shall be uniquely identified to assure positive control of all revisions; the identification of each version shall be directly related to the documentation.			
	YMP-USGS-SQAP-01 Rev. 0, para. 9 YMP-USGS-QMP-3.03 Rev. 2, paras. 5.3.1.3, 4.5, 5.2, and 6.2	1. Verify the existence of CONFIGURATION STATUS ACCOUNTING (CSA) at the SCM LIBRARY with unique configuration identifiers. 2. Verify that the CONFIGURATION STATUS LOG exists. 3. Verify that any existing actions were accomplished under review and approval by the CCC and/or SQA SPECIALIST. 4. Verify that all user's were notified of any actions taken (use directory to identify if necessary).			

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19-3 19-A-5	QARD, Rev. 4, para. 19.5 b	Changes to software (including additional software written to run the original software) shall be systematically evaluated, coordinated, and approved to assure that the impact of a change is carefully assessed prior to updating the baseline, required action is documented, and the information concerning approved changes is transmitted to all affected organizations. Changes to computer software shall be subject to the same level of approval, verification and validation as the original software.			
	YMP-USGS-SQAP-01 Rev. 0, paras. 9.1, 9.3, 9.4, 9.6, 9.7, and 6.3 YMP-USGS-QMP-3.03, Rev. 2, para. 5.8	1. Verify that any changes to software were assessed for impact, evaluated, coordinated, and baseline updated. (examine records for CCC, CF REVIEWS, CF AUDITS.)			
		2. Verify that affected users were notified.			

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19-4 19-A-6	QARD, Rev. 4, para. 19.0 a	Computer codes developed and/or modified shall be documented in accordance with the applicable elements of NUREG-0856. [This requirement may be met in part by existing documentation if properly referenced and related to NUREG-0856 requirements.]			
	YMP-USGS-SQAP-01 Rev. 0,para. 6.3 YMP-USGS-QMP-3.03 Rev. 2, para. 5.5	1. Verify that codes are documented in accordance with the applicable elements of NUREG-0856.			

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19-5	QARD, Rev. 4, para. 19.8	Reviews of computer software development activity shall be performed as each life cycle phase is completed to assure the completeness and integrity of each development phase. The procedures used for reviews shall identify the participants and their specific responsibilities during the reviews and in the preparation and distribution of the review reports. The documentation for reviews shall contain a record of review comments, a plan, timetable for resolution of the review comments, and the persons responsible for this resolution. After review comments are resolved, the approved documents shall be updated and placed under configuration management.			
	YMP-USGS-SQAP-01 Rev. 0, para. 6.3 YMP-USGS-QMP-3.03, Rev. 2, para. 5.7	1. Verify existence of technical/peer reviews, each phase. 2. Verify Configuration Control Committee (CCC) action. 3. Verify existence CF reviews and/or CF audits.			

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19-6 19-A-7	QARD, Rev. 4, para. 19.1.2 d YMP-USGS-SQAP-01 Rev. 0, para. 5.7,b YMP-USGS-QMP-3.03 Rev. 2, paras. 5.3.3.4 and 5.7	Testing of software, including new or modified software, shall be performed for those inputs and conditions conditions and to provide a suitable benchmark or sample problem for installation. [The goal of testing is to develop a set of test cases that have highest probability of detecting the most errors in order to identify what conditions the software does not perform properly.] 1. Verify that lifecycle documentation includes report(s) on the execution of test cases.			

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19-7	QARD, Rev. 4, para. 19.7	Minimum acceptable life-cycle documentation of computer software that has been developed or modified shall be specified in each affected organization's computer SQAP. 1. Verify that the minimum documentation is specified in the SQAP.			

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19-8 19-A-8	QARD, Rev. 4, para. 19.2 a.	Verification and validation of software shall be performed prior to the use of such software to perform technical calculations [n support of site characterization, performance assessment analyses, and the design, analysis, and operation of repository structures, systems, and components.]In those cases where this requirement cannot be met, the portion or portions of software which have not been verified and validated shall be identified and controlled and written justification of the reason shall be generated. In all cases, the verification and validation of software shall be completed prior to relying on the software to support the license application to the extent that the software has been used to support the license application. A schedule for verification and validation shall be generated and maintained. Model validation shall be performed and documented to such a degree that the results obtained are justified for the specific process or system that the model is intended to represent.			
	YMP-USGS-SQAP-01 Rev. 0,paras. 5.6, 8.1, and 8.4 YMP-USGS-QMP-3.03, Rev. 2, paras. 5.3.3.5 and 5.3.3.6	1. Verify existence of software verification reports. 2. Verify existence of model validation reports. 3. Verify existence of technical and peer review reports, each with a software review plan. 4. Verify actions taken on all nonconformance reports. 5. Verify action taken to resolve defects and deficiencies.			

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19-9	QARD, Rev. 4, para. 19.2 b. YMP-USGS-SQAP-01 Rev. 0, paras. 4.2.5 and 5.3 YMP-USGS-QMP-3.03, Rev. 2, para. 5.3.3.5	[Verification and validation plans shall assure that the software adequately and correctly performs all intended functions and that the software does not perform any unintended function that either by itself or in combination with other functions can degrade the entire system.] 1. Verify that the issue of unintended function is addressed in the software test summary (STS).			

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19-10	QARD, Rev. 4, para. 19.6	Existing software shall be qualified for use. This qualification shall be based on the ability of the software to provide acceptable results for specific applications and compliance with the requirements of this section. software that has not been developed in accordance with this QA plan may be qualified for use provided the software is verified and validated, a software baseline established, and applicable documentation prepared to support the software in accordance with the provisions of this section.			
	YMP-USGS-SQAP-01 Rev. 0, para. 7 YMP-USGS-QMP-3.03, Rev. 2, para. 5.4.	1. Verify that the lifecycle documentation is reconstructed. 2. Verify verification and validation activities. 3. Verify review and approval prior to application (CCC, SQA SPECIALIST).			

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19-11	QARD, Rev. 4, para. 19.7	Documentation of scientific and engineering software shall include the following, as a minimum: - software requirements specification; - software design and change documentation; - description of mathematical models and numerical methods; - software verification and validation documentation; - user's documentation; - code assessment and support - continuing documentation and code listings; and - software summary. Additional documentation may also be specified in the computer SQAP for each affected organization's computer software project.			
	YMP-USGS-SQAP-01 Rev. 0, para. 5.7 YMP-USGS-QMP-3.03, Rev. 2, para. 5.5	1. Verify that documentation includes mathematical derivations, physical models, etc. 2. Verify that documentation includes all phase documentation. 3. Verify that documentation includes code listings. 4. Verify that documentation includes sufficient instruction to permit replication by an independent user. 5. Verify that the documentation is a QA Record.			

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19-12 19-A-9	QARD, Rev. 4, para. 19.5a.&c.	[All participating organizations and NTS support contractors shall institute a software configuration management program appropriate to the projects they conduct and shall provide documentation of this program to the Records Management System (RMS). The minimum requirements for this Configuration Management Program shall be: (1) the inclusion of a unique identification, including software version numbers whenever feasible in the output; (2) listings of the software; and (3) a brief chronology of the software versions including descriptions of the changes made between versions.]			
	YMP-USGS-SQAP-01 Rev. 0, para. 9 YMP-USGS-QMP-3.03, Rev. 2, para. 5.1.3	1. Verify that documentation on the software configuration management system has been received b the records management system (RMS). 2. Verify that contents of packages (folders) contain the above information as a minimum. (CSA)			

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19-13	QARD, Rev. 4, para. 19.1.2 a	19.1.2 Requirements Phase Requirements that pertain to functionality, performance, design constraints, attributes, and external interfaces of the completed computer software shall be specified, documented, and reviewed. These requirements shall possess the following characteristics: - a format and language that is understood by the programming organization and the user. - enough detail to allow for objective verification. - adequate definition to provide for the response of the software to the identified input data. - the information necessary to design the software without prescribing the software design itself.			
	QARD, Rev. 4, para. 19.8 a.	19.8 a Computer Software Requirements Review The review of software requirements shall be performed at the completion of the software requirements documentation.			
	YMP-USGS-SQAP-01 Rev. 0, para. 4.2.2 YMP-USGS-QMP-3.03, Rev. 2, para. 5.3.1.2	1. Verify the completion of a software requirements specifications document and the baseline of same.			

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19-14	QARD, Rev. 4, para. 19.1.2 b.	19.1.2 b. Design Phase A software design based on the requirements shall be specified, documented, and systematically reviewed. This review shall evaluate the technical adequacy of the design approach and assure that the design complies with the criteria in the computer software requirements specification. The complexity of the computer software design may require the performance of two design reviews, one at the completion of the overall computer software architecture and the second at the completion of the total design.			
	para. 19. 7 b.	19.7 b Software Design Documentation Software Design Documentation is a document or series of documents that shall contain: component descriptions, information flow description, tolerable ranges, traceability, assessment/support documentation per NUREG-0856, and listing with software summary form.			
	YMP-USGS-SQAP-01 Rev. 0, para. 4.2.3 YMP-USGS-QMP-3.03, Rev. 2, para. 5.3.1.3	1. Verify the completion of a software design description and baseline of same.			

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19-15	QARD, Rev. 4, para. 19.1.2 c	19.1.2 c Implementation Phase The design shall be translated into code using a programming language. Only minor, if any, design issues shall be resolved at this phase. Implementation-phase verification activities shall consist of: - possible modification of test cases necessary due to design changes made during coding. - examination of source code listings to assure adherence to coding standards and conventions. - developer test and inspection of the implemented computer software to remove errors in the coding, i.e., debugging.			
	YMP-USGS-SQAP-01 Rev. 0, para. 4.2.4 YMP-USGS-QMP-3.03, Rev. 2, para. 5.3.1.4	1. Verify that the phase has been completed by examining the source code relative to requirements and by examining test designs and plans. 2. Verify that requirements and design phase documents revised after the implementation phase are reviewed the same level as the original documents.			

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19-16	QARD, Rev. 4, para. 19.1.2 d YMP-USGS-SQAP-01 Rev. 0, para. 4.2.5 YMP-USGS-QMP-3.03, Rev. 2, para. 5.3.1.5	19.1.2 d Testing Phase The design as implemented in code shall be exercised by executing the test cases. Failure to successfully execute the test cases may require the modification of the requirements, the design, the implementation, or the test plans and test cases. Testing-phase verification activities shall consist of: - evaluation of the completed software to assure adherence to the requirements. - preparation of a report on the results of software verification. Testing of computer software, including new or modified computer software, shall be performed for those inputs and conditions necessary to exercise the software, identify boundary conditions and to provide a suitable benchmark or sample problem for installation. 1. Verify the completion of a Software Test Summary (STS). 2. Verify that the STS is under a configuration management baseline. 3. Verify that the STS reports the results of verification testing.			

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19-17	QARD, Rev. 4, para. 19.1.2 e	19.1.2 e Installation and Checkout Phases Computer software becomes part of a system incorporating other software components the hardware, and production data. The process of integrating the software with other components may consist of installing hardware, installing the program, reformatting or creating databases, and verifying that all components have been included. Testing activities during this phase shall consist of executing test cases for installation and integration. Test cases from earlier phases shall be enhanced and used for Installation Testing.			
	YMP-USGS-SQAP-01 Rev. 0, para. 4.2.6 YMP-USGS-QMP-3.03, Rev. 2, para. 5.3.3.6	1. Verify that a Software Summary Form has been submitted to the QA Office upon completion of the installation and checkout phase.			
		2. Verify the review and approval of software. (timely			
		3. Verify that the software has been baselined.			

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19-18	QARD, Rev. 4, para. 19.1.2 f	Operations and Maintenance Phase The computer software shall be approved for operational use. Further activity shall consist of computer software maintenance to remove latent errors (corrective maintenance), to respond to new or revised requirements (preventive maintenance), or to adapt the computer software to changes in the computer software environment (adaptive maintenance).Computer software modifications shall be approved, documented, tested (including regression testing as appropriate), and controlled in accordance with Subsection 19.2.			
	YMP-USGS-SQAP-01 Rev. 0, para. 4.2.7 YMP-USGS-QMP-3.03	1. Verify that formal approval is given for operational use.			
	Rev. 2, para. 5.3.3.6	2. Verify that any modifications go through the review and approval process.			

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19-19	QARD, Rev. 4, para. 19.9	19.9 Discrepancy Reporting and Corrective Action A formal computer software discrepancy reporting and corrective action system shall be established. [.....assure that, as a minimum: documentation and correction, criticality and impact assessment, reviewed and approved corrections, and notification of affected users.]			
	YMP-USGS-SQAP-01 Rev. 0, para. 4.2.7 YMP-USGS-QMP-3.03, Rev. 2, para. 5.11	1. Verify that a formal discrepancy procedure exists. 2. Verify that the maintenance phase has been implemented (status log).			

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19-20 19-A-13	QARD, Rev. 4, para. 19.2 b	The responsible affected organization shall develop verification and validation plans that shall employ methods such as inspection, analysis, demonstration, and test to assure that the software adequately and correctly performs all intended functions, and that the software does not perform any function that either by itself or in combination with other functions can degrade the entire system.			
	para. 19.2 c	Verification and validation activities shall be planned and performed relative to specific hardware configurations. The amount of verification and validation activity shall be determined by the type and complexity of the software prior to use for a licensing activity, verification and validation of the final version of the software product shall be accomplished by an independent individual or organization, one who did not work on the original software. The results of all verification and validation activities shall be documented.			
	YMP-USGS-SQAP-01 Rev. 0, paras. 5.5, 5.6, 5.7, and 8.				
	YMP-USGS-QMP-3.03, Rev. 2, para. 5.3.3.5	1. Verify that SVR, MVR, and user's documentation conform with the above. 2. Verify that a Software Review Report conforms to the above and that it was performed independentl			

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19-21 19-A-14	QARD, Rev. 4, para. 19-7 e	19-7 e User Documentation User Documentation shall be prepared in accordance with NUREG-0856 and shall include a description of: - program considerations, options, and initialization procedures. - anticipated error situations and how the user can correct them. - internal and external data files, their input sequence, structures, units,and ranges. - input and output options, defaults, and formats. - system interface features and limitations. - information for obtaining user and maintenance support. - sample problems.			
	YMP-USGS-SQAP-01 Rev. 0, para. 5.7 YMP-USGS-QMP-3.03, Rev. 2, para. 5.5	1. Verify that the documentation conforms to NUREG-0856 checklist. 2. Verify inclusion of mathematical theory and manipulations. 3. Verify that summaries, reports, and reviews are included. 4. Verify that user instructions are sufficient for independent replication.			

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19-22	QARD, Rev. 4, para. 19.2 c	Independent Verification and Validation .....Prior to use for a licensing activity, verification and validation of the final version of the software product shall be accomplished by an independent individual or organization, one who did no work on the original software.			
	para. 19.8 d	Software Verification and Validation Review The ..... review is an evaluation of the adequacy of .....plans or procedures and completed verification and validation activities. The review results in an approval of verification and validation documentation.			
	YMP-USGS-SQAP-01 Rev. 0, para. 8 YMP-USGS-QMP-3.0., Rev. 2, para. 5.7	1. Verify that a peer review has been conducted for the validation of all critical software. 2. Verify the independence of peer reviewers. (how guaranteed?)			

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19-23	QARD, Rev. 4, para. 19.5	Software Configuration Management A computer software configuration management system shall be established to assure positive identification of computer software and control of computer software baselines and changes.			
	para. 19.5 a	Configuration Identification Computer software shall be placed under configuration management as each baseline element is approved. A configuration baseline shall be identified at the completion of each major phase of the computer software life cycle. ..... Both baselines and updates shall be defined by their composition of computer software configuration items.			
	YMP-USGS-SQAP-01 Rev. 0, paras. 9.1 and 9.2 YMP-USGS-QMP-3.03 Rev. 2, para. 4.7	1. Verify that the software configuration management system (SCM) is established. 2. Verify that the SCM is implemented and IDs are complete.			

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19-24 19-A-18	QARD, Rev. 4, para. 19.5 b	Configuration Change Control Changes to baseline software configuration items shall be formally documented..... sources, reason, evaluation, approval (authorized)			
	YMP-USGS-SQAP-01 Rev. 0, para. 9.0 YMP-USGS-QMP-3.14, Rev. 3, paras. 1,2,4,5.4	1. Verify membership of the Configuration Control Committee (SQA Specialist plus 2 to 4 more)			
		2. Verify changes listed in the configuration status log.			
		3. Verify procedures for implementing CF reviews and CF audits.			
		4. Verify the occurrence of monthly meetings of the CCC.			

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19-25	QARD, Rev. 4, para. 19.5 c	6.3 Configuration Status Accounting The information that is needed to manage figuration items shall be recorded and reported. ..... approved ID, proposed changes, implementation status, and all other needed information.			
	YMP-USGS-SQAP-01 Rev. 0, para. 9.5 YMP-USGS-QMP-3.14, Rev. 3, para. 5.5	1. Verify the existence of a Configuration Status Log and examine items for completeness. (selected few)			
		2. Verify the existence of a directory of users.			
		3. Verify method of notifying users of planned or implemented changes.			

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19-26 19-A-20	QARD, Rev. 4, para. 19.9	A formal procedure of software discrepancy reporting and corrective action shall be established. This discrepancy reporting system shall be integrated with the Configuration Management System to assure formal processing of discrepancy resolutions. Software discrepancy reporting and corrective action procedures shall assure that, as a minimum: - defects are documented and corrected. - defects are assessed for criticality and impact on previous applications. - corrections are reviewed and approved before changes to the software configuration are made. - preventive and corrective actions provide for appropriate notification of affected organizations.			
	YMP-USGS-SQAP-01 Rev. 0, para. 10 YMP-USGS-QMP-3.03, Rev. 2, para. 5.3.1.7.2 YMP-USGS-QMP-3.14, Rev. 3, para. 5.5.2	1. Verify that a formal software discrepancy reporting and corrective action procedure exists. (examine forms: software defect report and software change request.) 2. Verify the implementation of the above procedure. (examine submitted defect reports and/or change requests.)			

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19-27 19-A-2	QARD, Rev. 4, para. 19.10	10. Media Control and Security Physical media containing the image of software shall be physically protected to prevent their inadvertent damage or degradation.			
	YMP-USGS-SQAP-01 Rev. 0, para. 14 YMP-USGS-QMP-?	1. Verify two separate magnetic tape storage locations, free of stray fields. 2. Verify that one of these locations contains user documentation also. (NOTE: QMP-3.03 AND QMP-3.14 DO NOT ADDRESS THIS.)			

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19-28 19-A-22	QARD, Rev. 4, para. 19.12 b	12. Computer Software Applications Affected organizations shall establish procedures for controlling the application of verified computer software and/or validated models to technical calculations generating primary data.			
	para. 19.12 C	documenting and reviewing .....and assuring that all results are accurate and reproducible. Technical calculations .....defined ..... to allow independent repetition. [controls for generating and documenting software, including auxiliary software if used.]			
	para. 19.12 d para. 19.12 e	All applications shall be independently reviewed ..... for applicability and valid data and/or assumptions.			
	YMP-USGS-SQAP-01 Rev. 0, para. 11 YMP-USGS-QMP-3.03, Rev. 2, para. 5.12	1. Verify procedure exists. (examine software application summary, SAS, and software application completion report, SACR, forms)			
		2. Verify implementation of the above procedure.			

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19-A-1	QARD, Rev. 4, para. 19.11 a	Procedures shall be established for controlling the transfer of computer software from an outside source t a user organization and from a user organization to an outside requesting organization. Computer software transfer requests of the organization (or purchase) from an outside source shall include appropriate criteria to enable the computer software received to comply, as much as possible, with the requirements of this section and the needs of the affected organization's computer system. Those requirements not met by the computer software received shall be completed by the organization in the relative phase of the computer software life cycle that is incomplete or, if that is not possible, the reason shall be documented and maintained with the computer software and distributed to the users.			
	YMP-USGS-SQAP-01 Rev. 0, para. 6.3 YMP-USGS-QMP-3.03, Rev. 2, para. 5.6	1. Verify that a procedure is in place to request all available documentation. 2. Verify that all available documentation was obtaine for all such codes. (100 % sample) 3. Verify that all such codes have a unique version identification and user-related documentation.			

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19-A-10	QARD, Rev. 4, para. 19.11 a	Software transfer requests of the organization (or packages) from an outside source shall include appropriate criteria to enable the software received to comply , as much as possible with the requirements of this QA Plan and the needs of the organization's computer system.			
	Para. 19.7 a	Software Requirements Specification [A specific capability of software can be called a requirement only if its achievement can be verified by a prescribed method. Software requirements documentation shall outline the requirements that the proposed software must fulfill. The requirements shall address the following: - functionality-the functions to be performed by the software. - performance- the time-related issues of software operation such as speed, recovery time, response time etc. - design constraints imposed on implementation - any elements that will restrict design options - attributes- non-time related issues of software operation such as portability, correctness, security, maintainability, etc. - external interfaces- interaction with other participants, hardware, and other software.			

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	YMP-USGS-SQAP-01 Rev. 0, paras. 4.2.2, 4.2.5, a5.1, and 6.3	1. Verify that orders for acquired software specify requirements.			
	YMP-USGS-QMP-3.03, Rev. 2, para. 5.6	2. Verify that a review of the specifications of the received software was used to see that that the software conforms to the requirements or that the acquired code was marked as deficient.			

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19-A-1	QARD, Rev. 4, para. 19.11 a	Those requirements not met by the software received shall be completed by the organization in the relative phase of the software lifecycle that is incomplete or, if that is not possible, the reason shall be documented and maintained with the software and distributed to the users.			
	YMP-USGS-SQAP-01 Rev. 0, para. 6.3 YMP-USGS-QMP-3.03, Rev. 2, para. 5.6	1. Request information on how this paragraph is used if the requirements should not be sufficiently met.			

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19-A-12	QARD, Rev. 4, para. 19.1.2 e	Installation and Checkout Phase During this phase the software becomes part of a system incorporating other software components, the hardware, and production data. The process of integrating the software with other components may consist of installing hardware, installing the program, and reformatting or creating databases, and verifying that all components have been included. Testing activities during this phase shall consist of the execution of test cases for installation and integration. Test cases from earlier phases shall be enhanced and used for installation testing.			
	YMP-USGS-SQAP-01 Rev. 0, paras. 4.2.6 and 5.4 YMP-USGS-QMP-3.03, Rev. 2, para. 5.6.7	1. Verify the completion and submittal of Software Summary Forms (SSF) to the QA Office. 2. Verify that the SSF includes description of the extent of verification and validation testing. 3. Verify the review and approval of SSFs and by whom:			

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19-A-15	QARD, Rev. 4, para. 19.8	Reviews Reviews of software development activity shall be performed as each lifecycle phase is completed to assure the completeness and integrity of each phase of development. The procedures used for reviews shall identify the participants and their specific responsibilities during the review and in the preparation and distribution of the review report. The documentation for all reviews shall contain a record of review comments, a plan, and timetable for the resolution of the review comments, and the personnel responsible for this resolution. After review comments are resolved, the approved documents shall be updated and placed under configuration management. [as applicable to Acquired Software: Requirements Review Software Verification and Validation Review]			
	YMP-USGS-SQAP-01 Rev. 0, paras. 9.3, 9.6, 9.7, and 8 YMP-USGS-QMP-3.03 Rev. 2, paras. 5.6 and 5.7	1. Verify that the CCC has reviewed and approved the acquired software. Examine the CSA. 2. Verify that any CF reviews and/or CF audits conform to the above. 3. Verify that software Technical/Peer reviews, if used, conform.			

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19-A-16	QARD, Rev. 4, para. 19.5 c	The information that is needed to manage software configuration items shall be recorded and reported. This information shall include a listing of the approved configuration identification, the status of proposed changes to the configuration, the implementation status of approved changes, and all information to support the functions of configuration identification, and configuration control.			
	YMP-USGS-SQAP-01 Rev. 0, para. 9 YMP-USGS-QMP-3.14, Rev. 3, para. 3.5	1. Verify that the Configuration Status Log provides ready access to all SQA activities. 2. Verify that the baselined SCI's contain listings if available. 3. Verify that the baselined SCI's contain the applicable information above.			

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19-A-17	QARD, Rev. 4, para. 19.11 b	Configuration Management change controls shall be established for documenting the conversion of software to be used on a computer system, and/or peripheral hardware, other than that for which it was designed.			
	YMP-USGS-SQAP-01 Rev. 0, para. 9.1 YMP-USGS-QMP-3.03, Rev. 2, para. 5.6.7	1. Verify that any [acquired] software conversions necessary are under the software configuration management system.			

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19-A-18 19-29	QARD, Rev. 4, para. 19.5 b paras. 19.11 b,c YMP-USGS-SQAP-01 Rev. 0, paras. 9 and 10 YMP-USGS-QMP-3.03, Rev. 2, para. 5.6.7	Changes to baseline [existing or acquired] software configuration items shall be formally documented. This documentation shall contain a description of the change, the identification of the originating organization, the rationale for the change, and the identification of affected baselines and software configuration items. The change should be formally evaluated by a qualified individual or organization with the ability to approve or disapprove the proposed change. Assurance shall be provided that only authorized changes are made to software baselines and software configuration items [such as conversion of acquired software]. 1. Verify that change control procedures are in place for acquired and existing software, including use of software defect reports and software change requests. 2. Verify that the change control procedures have been implemented.			

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19-A-19	QARD, Rev. 4, para. 19.1.2 f para. 19.11 b YMP-USGS-SQAP-01 Rev. 0, paras. 4.2.7, 9, and 10 YMP-USGS-QMP-3.03, Rev. 2, para. 5.8	During the operations and maintenance phase the [acquired] software has been approved for operational use. Further activity shall consist of maintenance of the software to remove latent errors (corrective maintenance), to respond to new or revised requirements (perfective maintenance), or to adapt the software to changes in the software environment (adaptive maintenance). Software modifications shall be approved, documented, tested, (including regression testing as appropriate), and controlled in accordance with Section 19.2(V&V) (as applicable to acquired software). 1. Verify that the controls are in place, including Software Defect Report and Software Change Request forms. 2. Verify that the controls have been implemented.			

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19-A-23	QARD, Rev. 4, para. 19.12 c YMP-USGS-SQAP-01 Rev. 0, para. 11 YMP-USGS-QMP-3.03, Rev. 2, para. 5.12	Organizations shall establish procedures for documenting and reviewing software applications and analyses and assuring that all results are accurate an reproducible. Requirements shall be established for identifying or otherwise marking record copies of all analyses and supporting documentation. Supporting documentation includes computer output (results), code input data including data bases and original sources/ references of and assumptions used to obtain such data code design, user's and/or operation manuals, verification/validation test results and/or hand calculations. 1. Verify that the QA Office has procedures in place for reviewing and approving [acquired] software applications. 2. Verify that the QA Office is implementing the procedures. 3. Verify that the [acquired] software application documents are included in the software baseline. 4. Verify the qualifications of the review and approval personnel in the QA Office or others in SCM System review and approval.			

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19-A-2	QARD, Rev. 4, para. 19.12 a	Technical calculations using [acquired] software shall be performed with applicable computer codes and with software operating procedures defined sufficiently to allow independent repetition of the entire computation.			
	YMP-USGS-SQAP-01 Rev. 0, para. 11 YMP-USGS-QMP-3.03, Rev. 2, para. 5.13	1. Verify that technical calculations described by software application reports appear to be reproducible independently of the original user.			

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19-A-25	QARD, Rev. 4, para. 19.12 e	All applications of [acquired] computer software shall be independently reviewed and approved to assure that the software selected is applicable to the problem being solved and that all input data and assumptions are valid and traceable.			
	YMP-USGS-SQAP-01 Rev. 0, para. 11	1. Verify that applications are reviewed and and approved by or for the QA Office independently. (SAS and SACR Reports) (NOTE: THIS IS NOT ADDRESSED IN QMP-3.03 NOR QMP-3.14)			

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19-A-26	QARD, Rev. 4, para. 19.12 d	Controls shall be established for generating and documenting [acquired] software used to perform technical calculations. All auxiliary software used should be included in documentation of technical calculations performed and should be included in independent review as part of the calculation.			
	YMP-USGS-SQAP-01 Rev. 0, paras. 6.4 and 11 YMP-USGS-QMP-3.03, Rev. 2, paras. 5.9 and 5.12	1. Verify that SAD's and SACR's are added to the SCM baseline after review and approval. 2. Verify how review and approval are accomplished for these instances. 3. Verify use of auxiliary software and its qualification for a critical application.			

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