

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

AUDIT REPORT

OF

**CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM
MANAGEMENT AND OPERATING CONTRACTOR**

AT

KIEWIT/PARSONS BRINCKERHOFF

LAS VEGAS, NEVADA

**AUDIT NUMBER YM-ARC-96-03
DECEMBER 11 THROUGH DECEMBER 18, 1995**

Prepared by:



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Date: 1-18-96

Approved by:



**Donald G. Horton
Director
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Date: 1/23/96

1.0 EXECUTIVE SUMMARY

As a result of Quality Assurance (QA) Audit YM-ARC-96-03, the audit team determined that, in general, the Civilian Radioactive Waste Management System Management and Operating Contractor's (CRWMS M&O) subcontractor, Kiewit/Parsons Brinckerhoff (Kiewit/PB), is marginally effective in its implementation of the QA Program in accordance with the U.S. Department of Energy (DOE) Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements and Description (QARD), DOE/RW-0333P, Revision 5, and Kiewit/PB's implementing procedures.

Although deficiencies were identified by the audit team in QA Program Elements 1.0, 2.0, 4.0, 6.0, 7.0, 8.0, 10.0, 12.0, 13.0, 14.0, 16.0, 17.0, and Supplement IV, the evaluation of severity determined these deficiencies to be minimal or minor in nature; therefore, a satisfactory determination of implementation is deemed appropriate. Implementation of QA Program Elements 9.0, 11.0, and 15.0 was determined to be marginal based upon the deficiencies that were identified. Implementation of QA Program Element 5.0 was determined to be unsatisfactory. The unsatisfactory determination is based upon several identified deficiencies that are related to inadequate procedures. Supplement I could not be adequately assessed because the implementing procedures were either in development or revision with limited or no implementation.

The audit team identified 16 deficiencies during the audit that resulted in the issuance of nine Deficiency Reports (DR) and four Performance Reports (PR) by the Yucca Mountain Quality Assurance Division (YMQAD). Four deficiencies were combined into one deficiency document (DR YMQAD-96-D020). Brief descriptions of the issued deficiency documents are as follows:

DR YMQAD-96-D020	Inadequate special processes procedures.
DR YMQAD-96-D021	Acceptance criteria was not incorporated or referenced in an implementing document. Indoctrination and training of personnel is not ensured when acceptance criteria is referenced rather than incorporated into the procedures.
DR YMQAD-96-D022	Lack of procedural control for acceptance of items.
DR YMQAD-96-D023	Nonconformance Reports (NCR) have dispositions and form entries that are not recognized by the Project NCR procedure.
DR YMQAD-96-D024	Measuring and Test Equipment (M&TE) not calibrated to the required tolerance.

DR YMQAD-96-D025	Inadequate test control procedures.
DR YMQAD-96-D026	Illegible inspection records.
DR YMQAD-96-D027	Inadequate procurement procedures.
DR YMQAD-96-D028	Inadequate qualification program for inspectors.
PR YMQAD-96-P017	Lack of acceptance criteria in a specification (PR was issued to the CRWMS M&O).
PR YMQAD-96-P018	M&TE was not controlled or calibrated as a system (PR was issued to the CRWMS M&O and Kiewit/PB).
PR YMQAD-96-P019	Lack of documented reviews of a purchase requisition.
PR YMQAD-96-P020	Inadequate construction planning and control procedure.

Seventeen deficiencies were corrected prior to the postaudit meeting as described in Section 5.5.4 of this report. In addition, there were nine recommendations resulting from the audit, which are detailed in Section 6.0 of this report.

Noted was the cooperation extended to the audit team during the preparation as well as performance of the audit. This was the first OCRWM audit of Kiewit/PB; and the audited organization, especially the Kiewit/PB QA organization, put forth considerable effort to address and resolve the many issues presented and discussed by the audit team during the audit.

2.0 SCOPE

The audit was conducted to evaluate the adequacy of, compliance to, and the effectiveness of the Kiewit/PB QA Program as described in the QARD and Kiewit/PB's implementing procedures.

The QA Program elements/requirements evaluated during the audit, in accordance with the approved audit plan, are as follows:

QA PROGRAM ELEMENTS/REQUIREMENTS

- 1.0 Organization
- 2.0 Quality Assurance Program
- 4.0 Procurement Document Control

5.0 Implementing Documents
6.0 Document Control
7.0 Control of Purchased Items and Services
8.0 Identification and Control of Items
9.0 Control of Special Processes
10.0 Inspection
11.0 Test Control
12.0 Control of Measuring and Test Equipment
13.0 Handling, Storage, and Shipping
14.0 Inspection, Test, and Operating Status
15.0 Nonconformances
16.0 Corrective Action
17.0 Quality Assurance Records
Supplement I, Software
Supplement IV, Field Surveying

The following QA Program elements/requirements were not reviewed during the audit because Kiewit/PB currently has no activities to which these elements apply:

3.0 Design Control
18.0 Audits
Supplement II, Sample Control
Supplement III, Scientific Investigation

The audit covered all quality-affecting (Q) activities performed by Kiewit/PB with the exception of three activities (Tracers, Fluids, and Materials; Water Accountability; and Shotcrete) and one procedure (Issuance and Control of QC Stamps), which were omitted from the audit scope based upon the performance of recent YMQAD surveillances and ongoing deficiency document resolutions in those areas. In addition, the audit team added to the scope of the audit an evaluation of Kiewit/PB's capability for performing testing of concrete in accordance with the pertinent American Concrete Institute (ACI) technical documents and design specifications. Although concrete is considered to be non-Q, the evaluation during the audit was intended to determine the readiness of Kiewit/PB to produce Q concrete in the event that it is required.

TECHNICAL AREAS

None

3.0 AUDIT TEAM AND OBSERVERS

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

<u>Name/Title/Organization</u>	<u>QA Program Elements/Requirements</u>
John S. Martin, Audit Team Leader YMQAD	9.0
Kristi A. Hodges, Audit Team Leader-in- Training, YMQAD	1.0, 2.0, and 17.0
Pat H. Cotter, Auditor, YMQAD	10.0
Stephen R. Dana, Auditor, YMQAD	10.0
Donald J. Harris, Auditor, YMQAD	4.0, 7.0, 8.0, and 13.0
Sam H. Horton, Auditor, YMQAD	10.0, 15.0, and 16.0
Mary G. McDaniel, Auditor, YMQAD	2.0, 5.0, 6.0, and 10.0
Alan W. Rabe, Auditor, YMQAD	11.0, 12.0, 14.0, Supplements I & IV
David A. Hackbert, Observer, CRWMS M&O	
Michael Malone, Observer, CRWMS M&O	
Albert C. Williams, Observer, YMQAD	

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

The preaudit meeting was held in the Bank of America Building in Las Vegas, Nevada, on December 11, 1995. A daily debriefing and coordination meeting was held with Kiewit/PB management and staff, and daily audit team meetings were held to discuss issues and potential deficiencies. The audit was concluded with a postaudit meeting held also in the Bank of America Building in Las Vegas, Nevada, on December 18, 1995. Personnel contacted during the audit are listed in Attachment 1. The list also includes those who attended the preaudit and postaudit meetings.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Effectiveness

The audit team concluded that Kiewit/PB is marginally effective in its overall implementation of the QA Program for the scope of this audit. The determination

is based upon the identification of numerous minor conditions of noncompliance that in the opinion of the audit team, if allowed to continue, could lead to an unsatisfactory condition.

Individually, QA Program Elements 1.0, 2.0, 4.0, 6.0, 7.0, 8.0, 10.0, 12.0, 13.0, 14.0, 16.0, 17.0, and Supplement IV were determined to be satisfactorily implemented. Although deficiencies were identified in these Program Elements, the evaluation of severity was considered to be minimal or minor in nature; therefore, a satisfactory determination was deemed appropriate. Implementation of QA Program Elements 9.0, 11.0, and 15.0 was determined to be marginally effective based upon the deficiencies that were identified. In addition, QA Program Element 5.0 was determined to be unsatisfactorily implemented. The unsatisfactory determination is based upon several identified deficiencies that were related to inadequate procedures, and a determination that the deficiencies may affect the end product. Supplement I could not be adequately evaluated due to limited implementation.

5.2 Stop Work or Immediate Corrective Actions Taken

There were no Stop Work Orders, immediate corrective actions, or related additional items resulting from this audit.

5.3 QA Program Audit Activities

A summary table of audit results is provided in Attachment 2. The details of the audit evaluation, along with the objective evidence reviewed, are contained within the audit checklist. The checklist is kept and maintained as a QA record.

5.4 Technical Audit Activities

None

5.5 Summary of Deficiencies

The audit team identified 16 deficiencies during the audit for which nine DRs and four PRs were issued. Four deficiencies were combined into one deficiency document (DR YMQAD-96-D020) and 17 deficiencies were corrected prior to the postaudit meeting.

A synopsis of deficiencies documented as DRs and PRs and those corrected during the audit are presented below. The DRs and PRs have been transmitted under separate letter (YMQAD:RBC-853, dated December 26, 1995) to the CRWMS M&O in accordance with Administrative Procedure (AP) 16.1Q, Revision 0.

5.5.1 Corrective Action Requests (CAR)

None

5.5.2 Deficiency Reports (DR)

1. YMQAD-96-D020

Kiewit/PB's implementing procedures for special processes; i.e., Management Control Procedures (MCP)-9.0, Revision 5, "Special Process;" MCP-9.1, Revision 5, "Qualification and Certification of Nondestructive Testing (NDT) Level III Personnel;" MCP- 9.2, Revision 5, "Qualification and Certification of Nondestructive Testing (NDT) Level II Personnel;" Special Process Procedures (SPP)-005, Revision 2, "General Weld Standard AWS D1.1-92 Structural Welding Code--Steel with Appendix I and II;" SPP-006, Revision 4, "Welding Procedure Specification Manual Welding of Carbon Steel Structural Shapes--AWS D1.1-92;" and Quality Control Procedure (QCP)-003, Revision 2, "Visual Inspection (Weldments)," do not comply with the QARD.

Examples include: training of personnel in accordance with American Society for Nondestructive Testing (ASNT), Recommended Practice No. SNT-TC-1A is not established; traceability between the item or product and the individual who performed the special process is omitted; review criteria and QA review are not established; and the generation, review, issuance, and control of implementing documents called "Acceptance Criteria Supplements" are not controlled in accordance with implementing procedures. In addition, the Prequalified Joint Welding Specifications contained within SPP-006, Revision 4, "Welding Procedure Specification Manual Welding of Carbon Steel Structural Shapes - AWS D1.1-92," are not appropriate to perform work and not comprehensible to the personnel responsible for its implementation.

2. YMQAD-96-D021

Acceptance criteria were not included in QCP-008, Revision 5, "Steel Set Installation Inspection," nor was the specification paragraph referenced that contained the acceptance criteria. In addition, the DR documents that indoctrination and training, in accordance with MCP-2.4, Revision 7, "Indoctrination, Training,

and Qualification,” are not ensured when implementing procedures reference to other sources; e.g., specifications, for acceptance criteria.

3. YMQAD-96-D022

A “Kiewit/PB Yucca Mountain Project Material Acceptance Tag” is applied to material deemed acceptable by Kiewit/PB for use; however, this tag is not specified in MCP-8.0, Revision 5, “Identification and Control of Items,” nor is the process adequately described for its use.

4. YMQAD-96-D023

Kiewit/PB has entered the disposition “other” on NCRs, which is not recognized by Yucca Mountain Administrative Procedure (YAP) 15.1Q, Revision 2, “Control of Nonconformances,” or MCP-15.0, Revision 9, “Control of Nonconforming Items.” In addition, Kiewit/PB is using an NCR form with additional attributes that are not included in YAP 15.1Q.

5. YMQAD-96-D024

A gauge used for installation of Super Swellex rock bolts did not have the required tolerance that is to be specified, in accordance with MCP-11.0, Revision 3, “Test Control,” and MCP-12.0, Revision 9, “Control of Measuring and Test Equipment,” included in the data package supplied to the calibrating facility; therefore, the calibration facility made an assumption of the required tolerance for calibrating the gauge. The tolerance assumed was not consistent with the pressure tolerance given in the technical procedure governing rock bolt installation.

6. YMQAD-96-D025

Technical and inspection procedures that were identified by Kiewit/PB to implement QARD, Section 11.0, “Test Control,” were found to not implement Section 11.0 requirements, nor did they reference MCP-11.0. Specific concerns were identified for Diesel Emission Testing.

7. YMQAD-96-D026

Completed Work Package (WP) 1.12, Section B, “Steel Set

Fabrication," contained stamped quality control numbers and dates that were illegible. Several Steel Set Inspection Forms were affected, some being originals and others copies of originals. These records did not meet the legibility requirements established in MCP-17.0, Revision 9, "Records Management."

8. YMQAD-96-D027

Kiewit/PB procurement procedures; i.e., MCP-4.0, Revision 12, "Procurement;" MCP-7.1, Revision 7, "Acceptance of Procured Items and Services;" and Verification Test Procedure (VTP)-001, Revision 1, "Verification Testing of Rockbolts," do not translate the QARD requirements into work methodology or contain acceptance criteria. In addition, the procedures have out-of-sequence operations and contain omissions and/or errors.

9. YMQAD-96-D028

MCP-10.1, Revision 7, "Qualification and Certification of Inspection and Test Personnel," fails to provide the methodology or basis for determining if candidates for certification have the required capabilities. It is also not apparent whether the individual that is responsible for preparation, administration, testing, and certification of Kiewit/PB inspection and test personnel, is qualified in all disciplines of which he is certifying. This uncertainty is because the Certifying Agent is a designated position that does not require testing or certification. In addition, the qualification program is based upon nationally recognized certifications and does not ensure that personnel are knowledgeable of Project specifications, drawings, and Kiewit/PB implementing documents prior to certification.

5.5.3

Performance Reports (PR)

1. YMQAD-96-P017

Specification BABEAB000-01717-6300-2341, Revision 3, "Steel Sets and Accessories Subsurface," did not identify the acceptance criteria for the constructor relative to magnetic particle inspection. This PR was issued to the CRWMS M&O.

2. YMQAD-96-P018

Steel set jacking rams, which are part of the hydraulic jacking

system, are not controlled under the Kiewit/PB M&TE program in accordance with MCP-12.0, Revision 9, "Control of Measuring and Test Equipment." The associated gauges are included in the M&TE program. An NCR was dispositioned by the Architect/Engineer (A/E) that addressed the jacking system, but the A/E did not consider it an M&TE system. Therefore, the A/E did not require the constructor to control the entire system. This PR was issued to the CRWMS M&O and Kiewit/PB.

3. YMQAD-96-P019

A purchase requisition initiated in accordance with MCP 4.0, Revision 12, "Procurement," for a continuous procurement order was not appropriately reviewed and initialed. The purchase requisition was originally designated as non-Q, but the specification changed to commercial grade Q. The procurement organization was not notified of the change or failed to change the procurement document.

4. YMQAD-96-P020

MCP-2.0, Revision 13, "Construction Planning and Control," does not adequately define responsibilities and the sequential description of the work to be performed as it relates to the initiation, preparation, and revision of the Kiewit/PB WP. Interfaces between work planning and inspection planning procedures are not adequately defined relative to the WP. In addition, WPs contain a document called a "Work Process Description," and the preparation, revision, review, and approval is not adequately described in Kiewit/PB implementing procedures.

5.5.4 Deficiencies Corrected During the Audit

Deficiencies which are considered isolated in nature and only requiring remedial action can be corrected during the audit. The following deficiencies were identified and corrected during the audit:

1. MCP-1.0, Revision 7, "Organization," did not require the delegation of authority to be documented. The procedure was revised prior to the audit which eliminated the use of a delegation matrix; however, the procedure no longer described

how authority would be delegated. During the audit the procedure was revised to require that the delegation be documented, leaving the option to use a matrix or memorandum.

2. MCP-1.0, Revision 7, "Organization," did not describe the reporting relationship of the Oversight Committee accurately. The procedure stated that it was comprised of Kiewit/PB senior principals who directly support the Project; whereas, it is actually comprised of senior principals who support the Project and "key staff" who directly support the Project. The procedure was revised during the audit to clarify that the committee was comprised of individuals who support the Project, therefore eliminating indoctrination and training concerns for the corporate staff that are not reflected in the Kiewit/PB training and qualification files.
3. The Kiewit/PB Quality Services Director (QSD) did not have a position description or qualification as required by MCP-2.4, Revision 7, "Indoctrination, Training, and Qualification," or QARD, Section 2.2.12. The QSD is a corporate staff position but is recognized in the Kiewit/PB organization for ensuring independent reporting between the QA and Project Manager. The QSD also has a role in dispute resolution and performs QA related reviews. A position description, qualification, and training baseline were generated for the QSD during the audit.
4. SPP-003, Revision 5, "Magnetic Particle Testing," required the magnetic particles utilized to meet Magnaflux Corporation Grade 8-a or an equivalent. Kiewit/PB was using an apparent equivalent which was tested to determine equivalency; however, the procedure did not identify the method of testing used to determine equivalency. During the audit the procedure was revised to describe the test method. In addition, SPP-003 was revised to meet American Society for Testing Materials (ASTM) E709 for Visible Light Intensity.
5. Magnetic Particle Yokes were calibrated using a 40 pound weight; however, per ASTM E709, the calibrations require a 50 pound weight. During the audit, a calibration/check was performed using a 50 pound weight, in accordance with SPP-003, Revision 5, "Magnetic Particle Testing," and found to be acceptable. A letter was generated by Kiewit/PB and added to the file to document the results.

6. SPP-003, Revision 5, "Magnetic Particle Testing," Magnetic Particle NDT Reports did not delineate specific acceptance criteria for magnetic particle inspections. Subject reports did reference Kiewit/PB Procedure MT-S-003, Revision 2, "Magnetic Particle Testing Criteria," however, MT-S-003 is for examination and acceptance of both members in tensile stress and members in compressive stress. The acceptance criteria for members in tensile stress and members in compressive stress differ from each other. Kiewit/PB revised MT-S-003 during the audit to clearly delineate applicable acceptance criteria.
7. QCP-008, Revision 5, "Steel Set Installation Inspection," did not identify the connection between the steel set and invert as an inspection attribute, as required by Specification, BABEAB000-01717-6300-2341, Revision 3, "Steel Sets and Accessories Subsurface," Engineering Change Request (ECR) E96-0019. The procedure was revised during the audit to address this missing inspection point and this item was added to the Construction Completion List to inspect the presently installed steel sets. An open Kiewit/PB DR (K/PB 96-D018, Revision 1) addresses the issue of incorporating ECRs into inspection criteria.
8. Procedures QCP-010, Revision 3, "Super Swellex Rockbolt Installation Inspection and Testing," and QCP-006, Revision 3, "Williams B7X Hollow Core Rockbolt Installation Inspection and Testing," stated that test results for rock bolt pull tests are documented on the Rock Anchor Pull Test Report Data Sheet; however, neither procedure identified inspection attributes for testing of rock bolts. Also, it was not evident on the data sheet whether the required characteristics were inspected and documented. Based upon discussions with the Kiewit/PB Quality Control Manager and Quality Coordinator, it was determined that inspection of those attributes was occurring. QCP-010 and QCP-006 were revised during the audit to clearly state the inspection attributes and the required documentation of results.
9. MCP-15.0, Revision 9, "Control of Nonconforming Items," did not comply with YAP 15.1Q, Revision 2, "Control of Nonconformances." Direction in MCP-15.0 appeared to indicate that YAP-15.1Q was only implemented when the disposition was "repair" or "use-as-is." MCP-15.0 was revised

during the audit to clarify the applicability of YAP 15.1Q when identifying Q nonconforming items.

10. Kiewit/PB documented non-Q items on NCRs rather than documenting them on Field Deviation Reports in accordance with MCP-15.0, Revision 9, "Control of Nonconformances," was revised during the audit to allow NCRs to be written on a case-by-case basis for non-Q items.
11. Information copies of NCRs had not been forwarded to the A/E and CRWMS M&O QA as required by MCP-15.0, Revision 9, "Control of Nonconformances." This was corrected during the audit when information copies were forwarded, as required.
12. NCRs that were generated in accordance with YAP 15.1Q, Revision 2, "Control of Nonconformances," were invalidated without sufficient rationale by not including the appropriate reference to an ECR. The NCRs were corrected during the audit to reflect the appropriate ECR.
13. Deficiency Document Encoding Forms had not been entered into the trend database for recently issued deficiency documents. During the audit, the forms were completed and entered into the database, as required by AP 16.3Q, Revision 0, "Trend Evaluation and Reporting."
14. MCP-16.0, Revision 5, "Corrective Action," stated that it was applicable to nonconforming items that are considered significant to quality; however, the applicability did not include programmatic deficiencies that are significant in nature as described in the QARD, Section 16.0, and AP 16.2Q, Revision 0, "Corrective Action and Stop Work." During the audit, MCP-16.0 was revised to meet the QARD, Section 16.0, and AP 16.2Q requirements.
15. Kiewit/PB CARs (95-014 and 95-015) were invalidated with justification but did not receive the initiator's concurrence or disagreement in accordance with MCP-16.0, Revision 3, "Corrective Action," which was the revision in effect at the time the CARs were invalidated. The initiator is no longer with the Project, but the deficiency was corrected by generation of a memorandum by the QA Manager, which was sent to each of the voided CAR files.

16. MCP-17.0, Revision 9, "Records Management," required a Site Characterization Plan Baseline (SCPB) reference number to be indicated on submitted records; however, the requirement for an SCPB reference was deleted several months earlier from YAP 17.1Q, "Records Management Requirements and Responsibilities." MCP-17.0 was revised during the audit to omit the SCPB number.
17. MCP-17.0, Revision 9, "Records Management," required an Impact Evaluation Form to be generated when records cannot be corrected to meet records requirements. A memorandum was used to document that a supplier's records could not be corrected to meet records requirements in completed WP 1.12, "Steel Set Fabrication." An Impact Evaluation Form was generated and added to the package during the audit.

5.5.5 Follow-up of Previously Identified Deficiency Documents

There was no follow-up of CARs, DRs, or PRs during the audit since none existed in areas that were included in the audit scope.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for consideration by CRWMS M&O and Kiewit/PB management:

1. Kiewit/PB should reconcile their list of M&TE with that of the calibration laboratory in Mercury at the Nevada Test Site to ensure that all M&TE tracked by Kiewit/PB and the laboratory are consistent. It is recommended that Kiewit/PB also review MCP-12.0, Revision 9, "Control of Measuring and Test Equipment," to determine if procedural controls need to be added to support this recommendation.
2. Kiewit/PB should develop a clearer guideline for establishing when a calibration record should be submitted, in accordance with MCP 17.0, as a record. The calibration record package is currently considered an in-process record until the Project is completed.
3. Construction and inspection records are currently duplicated and controlled in the WP, in accordance with MCP-6.0, Revision 5, "Document Control." These records require QARD, Section 17.0, protection, but they are not implementing documents that require control in accordance with QARD, Section 6.0. It is recommended that these records be removed from the WP.

4. MCP-2.6, Revision 6, "Project Training," adequately addresses the applicable requirements of the QARD relative to training; however, the reference in the procedure to Paragraph 2.2.11 of the QARD is incorrect. The correct reference should be to Paragraph 2.2.12. It is recommended that when the MCP is revised, that the reference be corrected.
5. QCP-012, Revision 0, "Concrete Batch Plant Inspection," requires that concrete mixer trucks be inspected every 90 days for the critical attributes described in Paragraph 3.5.1, A through F. There is no objective evidence that this inspection is being performed. It is recommended that the procedure be revised to include a form that requires this inspection. In addition, Paragraph 3.4.1 requires that concrete trucks be National Ready Mix Concrete Association (NRMCA) certified. There was no objective evidence that truck #81704 has been NRMCA certified. It is recommended that this truck be certified. These are considered recommendations because batch plant operations are currently considered non-Q.
6. QCP-002, Revision 3, "Hold and Reject Tag Placement and Control," denotes that Hold Tags and Reject Tags be used, as appropriate. Kiewit/PB is using a Kiewit/PB Reject Tag and a YMPO Hold Tag. It is recommended that QCP-002 be revised to add these tags as exhibits to the procedure.
7. It is recommended that MCP 7-1, Revision 7, "Acceptance of Procured Items and Services," be revised to require that Receiving Inspection Reports (RIP) reflect the requirements and quality classification of the purchase requisition and the purchase order. The RIP should not be revised or reclassified in anticipation of forthcoming changes and then married with the Field Procurement Package, which may include conflicting requirements or quality classification.
8. It is recommended that MCP-7.1, Revision 7, "Acceptance of Procured Items and Services," be revised to include Critical Characteristic Test Criteria and the acceptance criteria of the test into the RIP for commercial grade items. This would provide three advantages: 1) allow the material test personnel to flag unacceptable test results, 2) allow the receiving inspector to accept or reject the test results without waiting for the Quality Engineer to review and transmit the test results, and 3) the RIP would have documented evidence of the test criteria with qualitative and quantitative acceptance criteria.
9. It is recommended that all A/E specification changes become effective when the Change Control Board issues the Controlled Document Issuance Authorization and the document is distributed. The specification should address the retrofit of existing affected uninstalled items or purging of the items from the system. If retrofit is required, the A/E should specify the necessary requirements to accomplish the retrofit. Currently, proposed changes to Specification BABEAB000-01717-6300-02165, Revision 00C, "Rockbolts and Accessories," requires the installation of

affected items upon issuance of the implementing procedures and required training. In addition, the specification requires the Constructor to submit a backfit plan for the affected hardware to the A/E for approval. The A/E appears to have abdicated their responsibilities to Construction. This recommendation is intended for the CRWMS M&O.

7.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During the Audit**
- Attachment 2: Summary Table of Audit Results**

ATTACHMENT 1

Personnel Contacted During the Audit

<u>Name</u>	<u>Organization/Title</u>	<u>Preaudit Meeting</u>	<u>Contacted During Audit</u>	<u>Postaudit Meeting</u>
Ancipink, J. B.	Kiewit/PB Quality Coordinator		X	
Anderson, D. D.	Kiewit/PB Batch Plant, Testing, Precast		X	
Armstrong, R. E.	Kiewit/PB QE Manager	X	X	X
Barish, V. J.	Kiewit/PB QE Specialist		X	
Bartlet, J.	Kiewit/PB Ironworker/Mechanic/Welder		X	
Bates, G. L.	Kiewit/PB Surveyor		X	
Brown, M. L.	Kiewit/PB Training Supervisor	X	X	X
Burdette, R. M.	Kiewit/PB Material Receiving		X	
Christensen, J. D.	Kiewit/PB QA Manager	X	X	X
Clough, D. P.	Kiewit/PB Maintenance Engineer		X	
Cox, H. R.	Kiewit/PB QC Manager	X	X	X
Cruz, R. G.	Kiewit/PB Batch Plant, Testing, Precast		X	
Devers, J. D.	Kiewit/PB Surface Inspector		X	
Diaz, M. R.	YMQAD General Engineer	X		
Dickson, W. T.	Kiewit/PB QC Supervisor (Surface Support)		X	
Dotson, R. A.	Kiewit/PB Equipment Superintendent		X	
File, L. J.	Kiewit/PB Material Engineering		X	
Franks, D. M.	CRWMS M&O QA	X		X
Geimer, J. D.	Kiewit/PB QC Inspector		X	
Gill, P. A.	Kiewit/PB Procurement		X	
Glasser, W. J.	CRWMS M&O Construction QA Manager	X		X
Greene, H. T.	YMQAD/QATSS Division Manager	X		
Griffith, R. J.	Kiewit/PB Document Analyst		X	
Haas, D. S.	Kiewit/PB QE Specialist		X	
Harper, F. L.	Kiewit/PB QC Inspector (Receipt)		X	
Hays, A.	Kiewit/PB Batch Plant Operator		X	
Johnson, W. H.	Kiewit/PB Supervising Inspector (Batch Plant)		X	
Krank, K. C.	Kiewit/PB Quality Coordinator Programs		X	
Krantz, M. W.	Kiewit/PB Project Business Manager X			
Limon, K. L.	Kiewit/PB Deputy Project Manager		X	
McMuller, A. L.	Kiewit/PB Document Analyst		X	
McNeill, B. C.	Kiewit/PB Industrial Hygiene Supervisor		X	
Miller, H. A.	Kiewit/PB QC Inspector (Receipt)		X	
Muller, M. C.	Kiewit/PB Construction Engineering Manager		X	

ATTACHMENT 1

Personnel Contacted During the Audit
(continued)

<u>Name</u>	<u>Organization/Title</u>	<u>Preaudit Meeting</u>	<u>Contacted During Audit</u>	<u>Postaudit Meeting</u>
Pearia, T. L.	Kiewit/PB Survey Chief			X
Reitan, J. E.	Kiewit/PB Document Analyst			X
Rixford, C. A.	Kiewit/PB Records Manager	X	X	X
Ruth, F. J.	Kiewit/PB Surveillance Specialist		X	
Ruth, R. P.	CRWMS M&O, QA Manager			X
Salter, N. G.	Kiewit/PB NCR Coordinator	X		
Schuermann, S. F.	Kiewit/PB QA Surveillance Supervisor		X	
Smith, C. A.	Kiewit/PB QC Inspector (Receipt)		X	
Spence, R. E.	YMQAD Director	X		X
Stollenmaier, K. H.	Kiewit/PB Office Engineer		X	
Tomek, T.J.	Kiewit/PB QC Supervisor (Subsurface)		X	
Werley, P. R.	Kiewit/PB QC Administrative Support		X	
Wightman, W. D.	Kiewit/PB Project Manager	X		X
Williams, E. K.	Kiewit/PB Quality Coordinator		X	
Willis, J. W.	CRWMS M&O Location QA Manager	X		
Wilson, P. J.	Kiewit/PB QE Specialist		X	
Winberg, N. R.	Kiewit/PB Equipment Superintendent		X	

Legend: ☞

QATSS . Quality Assurance Technical Support Services
 QE Quality Engineering

ATTACHMENT 2
Summary Table of Audit Results

AUDIT YM-ARC-96-03 DETAIL SUMMARY

QA ELEMENT/ ACTIVITIES	DOCUMENTS REVIEWED	CHECKLIST DETAILS YM-ARC-96-03	CAR (5.5.1)	DR (5.5.2)	PR (5.5.3)	CDA (5.5.4)	REC (6.0)	ADE- QUACY	COMP- LIANCE	OVER- ALL
1	K/PB MCP-1.0, Rev. 7	Pgs. 1-3	N	N	N	1, 2	N	SAT	SAT	SAT
	K/PB MCP-1.1, Rev. 4	Pgs. 4-5	N	N	N	N	N	SAT	SAT	
2	K/PB MCP-2.0, Rev. 13	Pgs. 6-11	N	N	4	N	N	SAT	SAT	SAT
	K/PB MCP-2.1, Rev. 7	Pgs. 12-14	N	N	N	N	N	SAT	SAT	
	K/PB MCP-2.2, Rev. 5	Pgs. 15-17	N	N	N	N	N	SAT	SAT	
	K/PB MCP-2.4, Rev. 7	Pgs. 18-20	N	2	N	3	N	SAT	SAT	
	K/PB MCP-2.6, Rev. 6	Pgs. 21-23	N	N	N	N	4	SAT	SAT	
	K/PB MCP-2.7, Rev. 1	Pgs. 24-25	N	N	N	N	N	SAT	SAT	
4	K/PB MCP-4.0, Rev. 12	Pgs. 26-33	N	8	3	N	N	SAT	SAT	SAT
5	K/PB MCP-5.0, Rev. 8	Pgs. 34-37	N	N	N	N	N	UNSAT	UNSAT	UNSAT
6	K/PB MCP-6.0, Rev. 5	Pgs. 38-42	N	N	N	N	3	SAT	SAT	SAT
	K/PB MCP-6.1, Rev. 3	Pgs. 43-46	N	N	N	N	N	SAT	SAT	
	K/PB MCP-6.2, Rev. 1	Pg. 47	N	N	N	N	N	SAT	SAT	

ATTACHMENT 2
Summary Table of Audit Results

QA ELEMENT/ACTIVITIES	DOCUMENTS REVIEWED	CHECKLIST DETAILS YM-ARC-96-05	CAR (5.5.1)	DR (5.5.2)	PR (5.5.3)	CDA (5.5.4)	REC (6.0)	ADE-QUACY	COMP-LIANCE	OVER-ALL
7	K/PB MCP-7.1, Rev. 7	Pgs. 48-57	N	8	N	N	7, 8	SAT	SAT	SAT
	K/PB MCP-7.2, Rev. 0	Pgs. 58-60	N	N	N	N	N	SAT	SAT	
	K/PB VTP-001, Rev. 1	Pg. 52	N	8	N	N	N	SAT	SAT	
	K/PB VTP-003, Rev. 0	Pg. 54	N	N	N	N	N	SAT	SAT	
8	K/PB MCP-8.0, Rev. 5	Pgs. 61-64	N	3	N	N	N	SAT	SAT	SAT
	K/PB TPP-2.2, Rev. 7	Pgs. 65-66	N	N	N	N	N	SAT	SAT	
9	K/PB MCP-9.0, Rev. 5	Pgs. 67-69	N	1	N	N	N	MARG.	MARG.	MARG.
	K/PB MCP-9.1, Rev. 5	Pgs. 70-72	N	1	N	N	N	MARG.	MARG.	
	K/PB MCP-9.2, Rev. 5	Pgs. 73-77	N	1	N	N	N	MARG.	MARG.	
	K/PB SPP-001, Rev. 0	Pg. 84	N	N	N	N	N	SAT	SAT	
	K/PB SPP-002, Rev. 0	Pg. 85	N	N	N	N	N	SAT	SAT	
	K/PB SPP-003, Rev. 5	Pgs. 78-83	N	N	N	4,5,6	N	SAT	SAT	
	K/PB SPP-005, Rev. 2	Pgs. 86-93	N	1	N	N	N	MARG.	MARG.	
	K/PB SPP-006, Rev. 4	Pgs. 94-95	N	1	N	N	N	MARG.	MARG.	

ATTACHMENT 2
Summary Table of Audit Results

QA ELEMENT/ ACTIVITIES	DOCUMENTS REVIEWED	CHECKLIST DETAILS YM-ARC-96-03	CAR (5.5.1)	DR (5.5.2)	PR (5.5.3)	CDA (5.5.4)	REC (6.0)	ADE- QUACY	COMP- LIANCE	OVER- ALL
9 (contd.)	K/PB SPP-007, Rev. 2	Pgs. 96-98	N	N	N	N	N	SAT	SAT	
	K/PB SPP-008, Rev. 4	Pgs. 99-101	N	N	N	N	N	SAT	SAT	
	K/PB QCP-003, Rev. 2	Pgs. 102-104	N	1	N	N	N	MARG.	MARG.	
10	K/PB MCP-10.0, Rev. 9	Pgs. 105-110	N	N	N	N	N	SAT	SAT	SAT
	K/PB MCP-10.1, Rev. 7	Pgs. 111-114	N	9	N	N	N	SAT	SAT	
	K/PB QCP-001, Rev. 1	Pgs. 115-116	N	N	N	N	N	SAT	SAT	
	K/PB QCP-006, Rev. 3	Pgs. 132-139	N	N	N	8	N	SAT	SAT	
	K/PB QCP-008, Rev. 5	Pgs. 117-120	N	2	N	7	N	SAT	SAT	
	K/PB QCP-009, Rev. 1	Pg. 121	N	N	N	N	N	SAT	SAT	
	K/PB QCP-010, Rev. 3	Pgs. 142-144	N	N	N	8	N	SAT	SAT	
	K/PB QCP-011, Rev. 0	Pgs. 158-159	N	N	N	N	N	SAT	SAT	
	K/PB QCP-012, Rev. 0	Pgs. 147-152	N	N	N	N	5	SAT	SAT	
	K/PB QCP-013, Rev. 0	Pgs. 122-124	N	N	N	N	N	SAT	SAT	
	K/PB QCP-015, Rev. 1	Pgs. 153-155	N	N	N	N	N	SAT	SAT	
	K/PB QCP-017, Rev. 0	Pgs. 156-157	N	N	N	N	N	SAT	SAT	
K/PB TCP-2.16, Rev. 4	Pgs. 127-131	N	N	N	N	N	SAT	SAT		

ATTACHMENT 2
Summary Table of Audit Results

QA ELEMENT/ACTIVITIES	DOCUMENTS REVIEWED	CHECKLIST DETAILS YM-ARC-96-03	CAR (5.5.1)	DR (5.5.2)	PR (5.5.3)	CDA (5.5.4)	REC (6.0)	ADE-QUACY	COMP-LIANCE	OVER-ALL
10 (contd.)	K/PB TCP-2.17, Rev. 5	Pgs. 160-161	N	N	N	N	N	SAT	SAT	
	K/PB TCP-2.23, Rev. 3	Pg. 125	N	N	N	N	N	SAT	SAT	
	K/PB TCP-2.28, Rev. 3	Pgs. 145-146	N	N	N	N	N	SAT	SAT	
	K/PB TCP-2.39, Rev. 0	Pg. 126	N	N	N	N	N	SAT	SAT	
	K/PB VTP-002, Rev. 1	Pgs. 140-141	N	N	N	N	N	SAT	SAT	
11	K/PB MCP-11.0, Rev. 3	Pgs. 162-165	N	5, 6	N	N	N	MARG	MARG	MARG
12	K/PB MCP-12.0, Rev. 9	Pgs. 166-170	N	5	2	N	1	SAT	SAT	SAT
	K/PB TCP-2.31, Rev. 0	Pgs. 171-173	N	N	N	N	N	SAT	SAT	
13	K/PB MCP-13.0, Rev. 4	Pg. 174	N	N	N	N	N	SAT	SAT	SAT
	K/PB TCP-2.6, Rev. 4	Pgs. 175-177	N	N	N	N	N	SAT	SAT	
14	K/PB MCP-14.0, Rev. 3	Pg. 178	N	N	N	N	N	SAT	SAT	SAT
15	YAP-15.1Q, Rev. 2, ICN 0	Pgs. 184-187	N	4	N	9, 12	N	MARG	MARG	MARG
	K/PB MCP-15.0, Rev. 9	Pgs. 179-183	N	4	N	9,10, 11	N	MARG	MARG	
	K/PB MCP-15.1, Revs.0-4	Pg. 194	N	N	N	N	N	N/A	N/A	
	K/PB QCP-002, Rev. 3	Pgs. 188-193	N	N	N	N	6	SAT	SAT	

ATTACHMENT 2
Summary Table of Audit Results

QA ELEMENT/ACTIVITIES	DOCUMENTS REVIEWED	CHECKLIST DETAILS YM-ARC-96-03	CAR (5.5.1)	DR (5.5.2)	PR (5.5.3)	CDA (5.5.4)	REC (6.0)	ADE-QUACY	COMP-LIANCE	OVER-ALL
16	K/PB MCP-16.0, Rev. 5	Pgs. 195-196	N	N	N	14,15	N	SAT	SAT	SAT
	AP-16.1Q, Rev. 0	Pgs. 197-201	N	N	N	N	N	SAT	SAT	
	AP-16.2Q, Rev. 0	Pgs. 202-207	N	N	N	14	N	SAT	SAT	
	AP-16.3Q, Rev. 0	Pg. 208	N	N	N	13	N	SAT	SAT	
17	K/PB MCP-17.0, Rev. 9	Pgs. 209-213	N	7	N	16,17	2	SAT	SAT	SAT
SI	K/PB TCP-2.33, Rev. 0	Pg. 214	N	N	N	N	N	N/A	N/A	N/A
SIV	K/PB TCP-2.19, Rev. 0	Pgs. 215-218	N	N	N	N	N	SAT	SAT	SAT
	K/PB TCP-2.7, Rev. 0	Pgs. 219-220	N	N	N	N	N	SAT	SAT	
TOTAL			0	9	3	17	8			MARG

- PR #1 (YMQAD-96-P017) was issued to the CRWMS M&O and is not included in this table.
- PR #2 (YMQAD-96-P018) was issued to CRWMS M&O, as well as to Kiewit/PB.
- Recommendation #9 is intended for CRWMS M&O and is not included in this table.

Legend:

CDA Corrected During the Audit
 MARG Marginal
 N/A Not Applicable
 N None

REC Recommendation
 SAT Satisfactory
 UNSAT Unsatisfactory