

REPORTS

**Reynolds Electrical & Engineering Co., Inc.**

Post Office Box 98521 • Las Vegas, NV 89193-8521

IN REPLY REFER TO

580-01-493

April 7, 1995

WBS 1.2.11

QA: N

Donald G. Horton, Director
Office of Quality Assurance
Yucca Mountain Project Office
Civilian Radioactive Waste Management
U.S. Department of Energy
101 Convention Center Dr., Suite 660
Las Vegas, NV 89109

REVISION 1 TO THE QUALITY ASSURANCE FUNCTION ON THE
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM
TRANSITION PLAN, PHASE I FINAL STATUS REPORT (SCPB: N/A)

Attached for your approval is Revision 1 to the final status report for Phase I of the subject transition plan.

If you have any questions please contact me at 794-7562.

W. J. Glasser, Manager
YMP Quality Assurance Department

WJG:DAH:bh

Enclosure
As stated

cy w/encl.

R. E. Spence, DOE/YMP, M/S 523

D. L. Koss, REECo, M/S 408

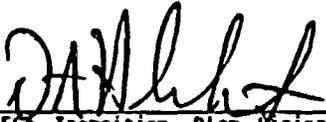
K. A. Hodges, YMQAD/QATSS, M/S 523

REECoAN  EEO COMPANY



REECO STATUS REPORT FOR PHASE I TRANSITION ACTIVITIES Revision 1

PLAN SECTION	ACTIVITY	REECO ACTION TAKEN
6.5	REVISE IMPLEMENTING DOCUMENTS	<p>The transition plan (¶ 6.5.1) identified 11 REECO Management Control (MC) procedures possibly requiring revision or deletion. Although OQA will assume REECO's internal audit function, a determination was made and agreed upon by the REECO PQAM and the YMQADD that REECO would retain its audit program for the purpose of conducting oversight activities of its subcontractor Kiewit/PB. Based upon this agreement, the REECO audit process procedures will be maintained. Since REECO is retaining its audit function over K/PB, its oversight will include maintenance of the K/PB RTN matrix. Of the remaining 8 procedures, only MC-03.2.1, "Supplier Quality Approval" was determined to require updating. Revision 1 to MC-03.2.1 was effective 02/10/95. REVISION 1, APRIL 7, 1995: Based on the MEMORANDUM OF UNDERSTANDING Between TRW Environmental Safety Systems Inc., Reynolds Electrical & Engineering Company, Inc., and Kiewit Construction Company, Inc., REECO's scope of work will transition to Kiewit/PB and the M&O. REECO will cease to exist as a project participant effective 10/1/95. To assure that REECO FY95 activities are conducted in accordance with program requirements, the REECO QA Office will conducted an internal closeout audit of criteria 1, 2, 5, 6, 9, 10, 12, 14 and 17. Criteria 4, 7, 8 and 13 were previously audited by REECO in November 1994 (see Audit Report REECO-001-95).</p>

Prepared By:  Date: April 7, 1995
REECO Transition Plan Liaison

Approved By:  Date: April 7, 1995
REECO Project Quality Assurance Manager

**Reynolds Electrical & Engineering Co., Inc.**

Post Office Box 98521 • Las Vegas, NV 89193-8521

IN REPLY REFER TO

580-01-494

April 7, 1995

WBS 1.2.11.1

QA: N

Richard E. Spence, Director
Quality Assurance Division
Yucca Mountain Site Characterization
Office

U.S. Department of Energy
Post Office Box 98608
Las Vegas, NV 89193-8608

REYNOLDS ELECTRICAL & ENGINEERING CO., INC. (REECO) YUCCA MOUNTAIN PROJECT
(YMP) AUDIT SCHEDULE FOR FISCAL YEAR 1995, REVISION 2 (SCP8: N/A)

Attached for your information is a copy of the REECO/YMP Fiscal Year 1995
Audit Schedule, Revision 2. Any subsequent revision to the Fiscal Year 1995
Audit Schedule will be forwarded to you.

If you have any questions or require further information, please contact me at
(702) 794-7562.


W. J. Glasser, Manager
YMP Quality Assurance Department

WJG:DAH:bh

Enclosure
FY1995 Audit Schedule, Rev. 2 (1 page)

cy w/encl.

Information Services Center, M/S 408
J. D. Christensen, Kiewit/PB, M/S 457
A. C. Hollins, RSN, M/S 515
D. L. Koss, REECO, M/S 408

TOTAL QUALITY IS OUR BUSINESS

REECO
AN EDEL COMPANY



Reynolds Electrical & Engineering Co., Inc.

**YUCCA MOUNTAIN PROJECT
FISCAL YEAR 1995 AUDIT SCHEDULE
REVISION 2**

Prepared By: <i>DA [Signature]</i>	Date: 04/07/95	Approved By: <i>W. J. [Signature]</i>	Date: 04/07/95										
AUDIT ACTIVITY/SUBJECT	MODULE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TRAINING & QUALIFICATION	A										S(3)		
PROCESS & SPECIAL PROCESS CONTROL	B										S(3)		
DOCUMENT CONTROL	C										S(3)		
PROCUREMENT/MATERIAL CONTROL	D		C										
WORK CONTROL	E										S(3)		
MEASURING & TEST EQUIPMENT	F										S(3)		
DIVISION OFFICE	G										S(3)		
QUALITY ASSURANCE OFFICE	H		(1)										
INSPECTION	I										S(3)		
KIEWIT/PB	J				U	(2) C							
RSN MATERIAL TEST LABORATORY	K										S(3)		

LEGEND: S - Scheduled Audit C - Scheduled audit completed U - Unscheduled audit completed

NOTES: (1) Audit requirement deleted per the guidance received from CRWM, Office of Quality Assurance, Lessons Learned/Program Clarification No. 92-002.

(2) QARD Implementation Audit (All criteria).

(3) Remaining activities will be audited in one audit scheduled for July 1995..

**Reynolds Electrical & Engineering Co., Inc.****MEMORANDUM**

To D. L. Koss *WJG* WBS 1.2.11.3.1
From W. J. Glasser QA: N/A
Date December 12, 1994
Subject YUCCA MOUNTAIN PROJECT (YMP) QUALITY ASSURANCE (QA) AUDIT OF
PROCUREMENT/MATERIAL CONTROL, AUDIT NO. REECO-001-95 (SCPB: N/A)

The REECO/YMP QA Office conducted an audit of the YMP Procurement/Material Control during the period of November 14-18, 1994. The purpose of the audit was to evaluate the YMP Division compliance with procedures approved for performance of YMP procurement and material control activities, as well as program effectiveness in the performance of these activities.

As a result of the audit, three Deficiency Notices (DN-95-019, DN-95-020, DN-95-021), two Corrected On The Spot, and one Recommendation were issued.

Should you have any questions regarding the audit report, please contact Dave Hackbert at 4-7315.

↓
WJG:DAH:bh

Enclosure
YMP QA Audit/Survey Report (7 pages)

cy w/encl.

Information Services Center, M/S 408
M. V. Adkins, M/S 562
V. J. Barish, M/S 408
D. M. Burnett, M/S 404
W. J. Gratza, M/S 408
T. M. Leonard, M/S 750
J. P. McGoldrick, M/S 404
F. J. Ruth, M/S 408
R. D. Sunday, M/S 404
S. M. Williams, M/S 408
P. J. Wilson, M/S 408
S. A. Ziehm, M/S 408



Reynolds Electrical & Engineering Co., Inc.
YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT

Page 1 of 7

AUDITED ORGANIZATION: Procurement/Material Control AUDIT/SURVEY REPORT NO. REECO-001-95

AUDIT/SURVEY DATE(S): 11/14 - 18/94 LOCATION: Losee Rd., Area 23, B of A Center

AUDIT/SURVEY SCOPE: The scope of this audit included the following Management Control (MC) procedures: MC-01.3, Delegation of Authority; MC-02.3, Preparation & Control of Suppliers Requirements Matrix; MC-03.0, Procurement; MC-03.1, Purchasing Requisition and Purchase Order Processing; MC-03.2, Source Selection & Evaluation; MC-03.2.1, Supplier Quality Approval; MC-3.3 Source Verification; MC-3.4, Subcontracts;

Continued on Page 2

AUDIT/SURVEY PURPOSE: The purpose of this audit was to evaluate YMP Division compliance with procedures approved for performance of YMP procurement and material control activities, as well as program effectiveness in the performance of these activities.

SUMMARY (includes an evaluation of QA Program effectiveness):

The Audit Team evaluated the implementation and effectiveness of REECO/YMP procurement and material control processes. Three (3) Deficiency Notices (DNs), two (2) Corrected On The Spot (COTS) and one (1) recommendation were issued as a result of the audit. Results of the audit indicate that departments involved with the procurement and material control programs are effectively implementing the program requirements.

In addition to evaluating the procurement/ material control programs, the audit team evaluated the effectiveness/implementation of corrective actions to alleviate deficiencies identified during audit REECO-001-94. The audit team concluded that corrective action(s) have been effectively implemented as the deficiencies have not recurred.

The following DNs were issued as a result of the audit:

DN-95-019 - documented that Department Managers were frequently forgetting to include the limits of the delegation of authority in the Delegation of Authority Memorandums (DOAs) and Department Managers were not assigning the correct QA designations to the DOA Memorandums.

Continued on page 2

AUDIT TEAM LEADER: W. J. Gratza / Fred Roth DATE: 12-12-94

QA MANAGER: W. J. Glasco DATE: _____

DISTRIBUTION: D. L. Koss, M/S 408; S. M. Williams, M/S 408; W. J. Gratza, M/S 408; J. P. McGoldrick, M/S 404; R. D. Sunday, M/S 404; D. M. Burnett, M/S 404; P. J. Wilson, M/S 408; V. J. Barish, M/S 408; M. V. Adkins, M/S 562; S. A. Ziehm, M/S 408; T. M. Leonard, M/S 750; F. J. Ruth, M/S 408



YUCCA MOUNTAIN PROJECT Page 2 of 7
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Procurement/Material Control AUDIT/SURVEY REPORT NO. REECO-001-95

AUDIT/SURVEY DATE(S): 11/14 - 18/95 LOCATION: Losee Rd, Area 23, B of A Center

Audit/Survey Scope: Continued from Page 1

MC-04.0, Material Control; MC-04.1, Material Receiving; MC-04.2, Receipt Inspection; MC-04.3, Handling, Storage, and Shipping; MC-04.4, Request for Stock Issue and JIT Releases; MC-04.5, Material Identification; MC-11.1, Deficiency Notices; MC-11.2, Nonconformance Control; and MC-12.1, YMP Records Management.

Summary: Continued from Page 1

DN-95-020 - documented that Material Releases for safety equipment were not approved by a REECO/YMP Safety Professional.

DN-95-021 - documented that materials rated as hazardous were not approved by the YMPO.

The following Corrected-On-The-Spot (COTS) items were identified during the audit:

COTS #1 - documented the Manager had not initiated a Delegation of Authority (DOA) Memorandum establishing a designee for planned/unplanned absences. An acceptable DOA was developed for YMP activities and placed on file.

COTS #2 - documented that the M&TE log for the Procurement Quality Section did not contain all the information required by procedure MC-10.0. The log has been revised and now contains all the required information.

Recommendation #1

Form # MRHP-103, Request For Use of Regulated Materials does not identify the Material Request, Purchase Order or Technical Inspection Report number, as applicable. It is recommended that these documents, when applicable, be identified on the form.

Criterion 1-Organization

Delegation of Authority (DOA) memorandums were reviewed for the YMP Control Department (CLD) and the REECO Procurement and Property Management Department (P&PMD). All memorandums for the CLD were current and were submitted as QA records, however, it was noted that most samples contained discrepancies in the assignment of QA designators and delineation of limits of authority. Review of DOA's on file for CLD revealed sufficient deficiencies to warrant an expanded sample, therefore, DOA's issued by other departments were included in the sample and were found to contain similar discrepancies. MC-12-1, Para. 6.3.4.1 requires that all QA records have one of two QA designations, QA: L, or QA: N, representing lifetime or nonpermanent records respectively. MC-01.3, Para. 7.1 specifies that the DOA is a QA: N (nonpermanent) document.

Continued on Page 3



Reynolds Electrical & Engineering Co., Inc.

YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

Page 3 of 7

AUDITED ORGANIZATION: Procurement/Material Control AUDIT/SURVEY REPORT NO. REEC0-001-95

AUDIT/SURVEY DATE(S): 11/14 - 18/95 LOCATION: Losee Rd, Area 23, B of A Center

Summary: Continued from Page 2

Criterion I - Organization - Continued

MC-01.3, Para. 6.1 and samples provided as Exhibits I-III, require that the limits of authority of the designee be specified. DN-95-019 was issued to document discrepancies in the assignment of QA designators and in the delineation of limits of authority. DOA memorandums for the P&PMD for YMP activities were not in place. However, a DOA memorandum was generated prior to the Post-Audit meeting. Consequently, the item was identified as a COTS item. Refer to COTS #1, Page 2 for specific details.

Criterion II - QA Program

To date, Kiewit/PB is the only supplier that is required to prepare a QARD Matrix. The Kiewit/PB implementing procedures were all approved by REEC0 in August 1994 as meeting the QARD requirements, prior to Kiewit/PB performing Q work. The Kiewit/PB QARD Matrix is still being finalized and the data is being uploaded into the computer as of the date of this audit. This area was satisfactory.

Criterion IV - Procurement Document Control &
Criterion VII - Control of Purchased Items and Services

There has been no quality effecting procurements since the last audit. Consequently, it was difficult to verify the implementation of many project/procedure requirements. Many of the requirements could not be verified because there was no objective evidence. However, to evaluate/determine if the procurement process was effective, a random sample of procurements were selected. They are as follows:

1. PO# 00007-YP-01-5
2. PO# 00373-YN-01-4
3. PO# 00474-YN-01-4
4. PO# 00487-YN-01-4
5. PO# 01000-YUB-01-5

The procurement packages were reviewed to determine if the package reflected the current status of the procurement and if all the required documentation was included in the package. In all cases the packages were complete and up to date.

A review of the material receiving function was performed during the audit with one deficiency identified. The Procurement Quality Section's M&TE Tracking Log did not contain all of the required information per MC-10.0. The Tracking Log was revised during the audit. See COTS #2.

Continued on Page 4



Reynolds Electrical & Engineering Co., Inc.

YUCCA MOUNTAIN PROJECT Page 4 of 7
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Procurement/Material Control AUDIT/SURVEY REPORT NO. REFCO-001-95

AUDIT/SURVEY DATE(S): 11/14 - 18/95 LOCATION: Losee Rd, Area 23, B of A.Center

Summary: Continued from Page 3

Criterion IV and VII- continued

All shipments are routed through the receiving warehouse except for certain bulk shipments which are transported directly to the user site subsequent to special agreements previously established with competent authority. Each shipment is checked by the Supply Just-in-Time Superintendent (S/JITS) for freight damage and to assure that the material received matches the purchasing and packing documents. When damage or other discrepancies are noted, the S/JITS documents the discrepancies on a Discrepancy Report (DR) as evidenced by DR-552-95-0055 and DR-552-95-0056.

Each procurement within the selected sample, requiring a technical inspection, had a corresponding Technical Inspection Report (TIR) document generated using the forms specified by procedure MC-04.2. The TIRs contained the inspection attributes required by procedure and approved engineering specifications and drawings, as applicable.

The audit team witnessed eight in-process inspections. All inspections were properly performed. The inspectors accepted five shipments and rejected three shipments. Accepted items were appropriately tagged with correctly completed green tags. Rejected items were identified on Deficiency Notices (DN) DN-95-015, -016, and -017, tagged with red hold tags and were placed in the Quality Control hold area.

The audit team verified that the inspectors who performed receipt inspections per MC-04.2 were qualified per MC-02.4.2.

The preparation and approval of TIRs was reviewed and evaluated. Four of the five procurements that were reviewed contained TIRs. All the TIRs were prepared by CLD and approved by the Quality Assurance Office.

Procedure requirements state that Priority Code 1 or 2 procurements require the signature of the appropriate Department or Division Manager. Only one of the selected sample was identified as a Priority Code 1 or 2 (PO#00007-YP-1-5). The procurement package was reviewed and had been signed by the Department Manager. In addition, Purchase Requisitions (PR) for material intended for installation as part of Title II Design are indicated as such. Again, only one (PO#00007-YP-5) procurement package has been identified as part of Title II Design. The procurement package was reviewed and the PO provides a statement stating it is intended for Title II Design.

Continued on page 5



Reynolds Electrical & Engineering Co., Inc.

YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

Page 5 of 7

AUDITED ORGANIZATION: Procurement/Material Control AUDIT/SURVEY REPORT NO. REEC0-001-95

AUDIT/SURVEY DATE(S): 11/14 - 18/95 LOCATION: Losee Rd, Area 23, B of A Center

Summary: Continued from Page 4

Criterion IV and VII- continued

Items procured through the Just-In-Time (JIT) system were reviewed. MC-04.4, requires materials rated as hazardous require approval of the YMPO and safety equipment requires the approval of a REEC0/YMP Safety Professional. DN-95-020 and DN-95-021, respectively, document the lack of these proper approvals.

No deficiencies were identified in the areas of source selection or in QA supplier qualification.

Audit results indicate that the implementation of the requirements covered by Criterion IV and VII is satisfactory and effective with the exception of the deficiencies identified.

Criterion XIII - Handling, Storage, and Shipping

Walkdowns of the warehouse and observation of activities being conducted by warehouse personnel revealed that access to the warehouse and immediate outside areas was controlled. Areas were adequately clean and free from debris. Items stored outside such as cast iron pipe, cast iron elbows, ground rods, galvanized conduit and large cable were stored in an orderly manner and placed on wooden dunnage. These items met the requirements for material that is not subject to pilferage or deterioration. Smaller items subject to pilferage or deterioration were stored inside, neatly arranged on shelves, normally in their original containers.

Numerous items inside and outside the warehouse were checked to assure that items were tagged with the correct tags and that information on the tags was complete and correct. No discrepancies were identified. No tags were identified that should be replaced due to damage or deterioration due to weather. None of the items in the selected sample had shelf life requirements.

Specific areas were set aside for nonconforming items and for items to be inspected. All items on hold were marked with red hold tags. Nonconforming items that were easily moved by hand were placed in the appropriate segregation area and were identified with red colored tape. Nonconforming items that were too large to move by hand, e.g., medium voltage switchgear and chemical injection pump skid, were clearly identified as nonconforming with tags. Items that had been accepted and tagged were placed either in outside storage or on shelves, as appropriate.

Audit results indicate that the implementation of the requirements covered by this Criterion is satisfactory and effective.

Continued on page 6



Reynolds Electrical & Engineering Co., Inc.

YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

Page 6 of 7

AUDITED ORGANIZATION: Procurement/Material Control AUDIT/SURVEY REPORT NO. REEC0-001-95

AUDIT/SURVEY DATE(S): 11/14 - 18/95 LOCATION: Losee Rd, Area 23, B of A Center

Summary: Continued from Page 5

Criterion XV- Nonconformances Control

Two receiving inspection nonconformances were reviewed as part of this audit. Both nonconforming items were appropriately tagged or segregated and properly controlled. In addition, several Deficiency Notices (DNs) have been written for material that: (1) is not marked/labelled correctly; (2) is of the wrong dimension/size, and (3) does not have all of the required documentation. Items containing these deficiencies are also tagged to prevent their use or installation. This area was satisfactory.

Criterion XVI- Corrective Action Effectiveness

The DNs that were written in last years audit and several CARs that were written identifying procurement/material control problems were used to determine if corrective actions were effective. The corrective actions established at that time are effective as the problems have not recurred.

Criterion XVII- QA Records

Management of records (Project and QA Records) was evaluated as part of this audit. Record Authorization Forms were generated, contained qualified authenticators, were submitted as QA Records, and were maintained by appropriate departments/individuals. Record corrections were reviewed with no deficiencies noted. DOA memorandums selected for review were submitted to the Local Records Center by the YMP Information Services Center in a timely manner and contained WBS numbers, quality designators, and an SCPB reference. It was noted however that inaccurate quality designators were assigned to most DOAs and the deficiency was documented on DN-95-019. Overall, this area was satisfactory.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Procurement/Material Control AUDIT/SURVEY REPORT NO. REEC0-001-95AUDIT/SURVEY DATE(S): 11/14 - 18/95 LOCATION: Losee Rd, Area 23, B of A Center**PERSONNEL CONTACTED DURING AUDIT REEC0-001-95**

<u>Name</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Organization</u>
J. M. Arnold		X		CLD (Senior Engineer)
N. R. Bennett		X		QAO (QA Specialist II)
J. C. Constable		X		QAO (Senior QA Specialist)
V. J. Barish	X		X	QAO (Auditor-in-Training)
E. J. Faiss			X	Div. (Prin. Staff Assistant)
W. J. Gratza	X			QAO (Procure. Qual. Section Chief)
D. S. Haas	X			QAO (Senior QA Specialist)
D. A. Hackbert	X		X	QAO (Leader Auditor)
T. M. Marrs	X	X		CLD (Sr. Mat'l Control Agent)
A. R. Matura			X	QAO (Senior QA Specialist)
J. P. McGoldrick			X	P&PMD (Chief Purch. Agent)
A. L. McMullen		X		IMD (Group Leader)
F. J. Ruth	X		X	QAO (Lead Auditor In-Training)
R. Souther	X			REEC0 ISD (Branch Chief)
B. G. Wasson	X	X		P&PMD (Senior Buyer)
S. E. Weintraub		X		CLD (Senior Staff Assistant)
P. J. Wilson	X	X	X	QAO (Senior QA Specialist)

Legend:

- A = Attended Pre-Audit Meeting, (11/14/94)
- B = Contacted During the Audit
- C = Attended Post-Audit Meeting, (11/18/94)



AD 4/4/95
INFORMATION COPY

Reynolds Electrical & Engineering Co., Inc.

Post Office Box 98521 • Las Vegas, NV 89193-8521

IN REPLY REFER TO

580-01-464

March 31, 1995

WBS 1.2.11.3.1

QA: L

W. D. Wightman
Kiewit Construction Company
4460 South Arville, Suite 6
Las Vegas, NV 89103

REYNOLDS ELECTRICAL & ENGINEERING CO., INC. (REECO) YUCCA MOUNTAIN
PROJECT (YMP) QUALITY ASSURANCE (QA) AUDIT REPORT REECO-004-95
OF KIEWIT/PARSONS BRINCKERHOFF (KIEWIT/PB) (SCPB: N/A)

The REECO/YMP QA Office conducted an audit of Kiewit/PB activities in Las Vegas and at the Nevada Test Site on February 27 through March 3, 1995. The purpose of the audit was to evaluate Kiewit/PB's compliance with the requirements contained in the Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements and Description (QARD) document and implementation of your Management Control Procedures.

As a result of the audit, no Deficiency Notices were issued. However, 20 Corrected On The Spot (COTS) items and 15 Recommendations for improvement were identified. Based on the number of COTS items, overall QA Program effectiveness may be in jeopardy if more attention to detail is not paid to program implementation.

If you have any questions or require further information, please contact Fred Ruth at (702) 794-7319.


W. J. Glasser, Manager
YMP Quality Assurance Department

WJG:DAH:bh

Enclosure
YMP QA Audit/Survey Plan (32 pages)

cy: See page 2

REECO

AN EG&G COMPANY

W. D. Wightman
580-01-464
Page 2
March 31, 1995

cy w/encl.

Information Services Center, M/S 408
R. E. Spence, DOE, M/S 523
J. D. Christensen, Kiewit/PB, M/S 457
M. V. Adkins, REECo, M/S 408
D. M. Burnett, REECo, M/S 562
W. J. Gratza, REECo, M/S 408
D. L. Kirby, REECo, M/S 408
D. L. Koss, REECo, M/S 408
T. M. Leonard, REECo, M/S 750
A. R. Matura, REECo, M/S 408
W. C. Pugmire, REECo, M/S 408
F. J. Ruth, REECo, M/S 408
R. D. Sunday, REECo, M/S 404
P. J. Wilson, REECo, M/S 408
S. A. Ziehm, REECo, M/S 408



Reynolds Electrical & Engineering Co., Inc.
YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT

Page 1 of 32

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

AUDIT/SURVEY SCOPE: See Attachment I (page 29) for a list of the procedures that were audited.

AUDIT/SURVEY PURPOSE: The purpose of this audit was to evaluate the adequacy, effectiveness, and implementation of the Kiewit/PB Management Control Procedures (MCPs) and to evaluate compliance of the Kiewit/PB MCPs to the Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements Description (QARD) document requirements.

SUMMARY (includes an evaluation of QA Program effectiveness):

As a result of the audit no Deficiency Notices (DNs) were identified. Fifteen (15) recommendations, and twenty (20) Corrected On the Spot (COTS) items were identified and are described within the report. COTS are potential findings that were corrected prior to the conclusion of the audit. The recommendations are provided to identify and provide suggestions on how the QA Program can be improved. A majority of the recommendations identify areas where procedures do not truly reflect how business is being conducted.

The overall results of the audit indicate that the Kiewit/PB (K/PB) Quality Assurance Program is adequately established in the K/PB MCPs and meets the minimum requirements of the OCRWM QARD. The implementation of Program Criteria I, II (MCP-2.1, MCP-2.3) IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI (MCP-16.0), XVII, and XVIII (MCP-18.1), were determined to be satisfactory. The implementation of Program Criteria II (MCP-2.0, MCP-2.2 and MCP-2.3), XVI (MCP-1.1) and XVIII (MCP-18.0) was determined to be indeterminate, based on minimal implementation activities. However, based on the number of COTS items overall QA Program effectiveness may be in jeopardy if more attention to detail is not paid to program implementation. In addition, there were several areas that were not thoroughly/completely audited. Surveillances may be performed in the near future in these areas.

(Continued on next page)

AUDIT TEAM LEADER: Fred J. Ruth *Fred J. Ruth* DATE: 3/31/95

QA MANAGER: W. J. Glasser *W. J. Glasser* DATE: 3/31/95

DISTRIBUTION: D. L. Koss, M/S 408; W. J. Gratza, M/S 408; W. C. Pugmire, M/S 730; P. J. Wilson, M/S 408; J. D. Christensen, M/S 457; W. D. Wightman, M/S 457; J. M. Burnett, M/S 562; R. D. Sunday, M/S 404; T. M. Leonard, M/S 750; S. A. Ziehm, M/S 408



YUCCA MOUNTAIN PROJECT Page 2 of 32
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCO-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/0395 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Examples of some of these areas include:

1. QARD 2.2.9- Document Review
2. MCP-5.0-Editorial changes
3. Receipt Inspection Planning
4. Training Attendance Sheets

The following COTS items were identified and corrected prior to the conclusion of the audit:

COTS #1 - NCR K/PB-95-0006 did not have a signature for the "disposition by" block. A new revision was initiated to add a signature and date.

COTS #2 - NCR K/PB-95-0003 Block 7 signature was dated 01/11/94 when the correct date was 01/11/95. This was corrected 02/28/95.

COTS #3 - NCR K/PB-95-0004 Revision 1 initials (two places) were dated 01/11/94 when the correct date was 01/11/95. This was corrected during the course of the audit.

COTS #4 - NCR K/PB 95-0009 did not have a "QA Concurrence with Disposition" signature. Disposition was provided 01/30/95 and the block signed 02/28/95.

COTS #5 - MCP-12.0 did not allow for the recording of M&TE on the Work Package. Procedure has been revised to allow the recording of M&TE use in the work package.

COTS #6 - Qualification records for an NDT Level II were not on the proper forms. Prior to the postaudit meeting the information was recorded on the appropriate forms.

COTS #7 - Responses to CARS 95-001 and 95-002 did not address the "Extent of Deficiency" as required by Block 11, "REQUIRED ACTIONS" of the CAR form. Memos from the QA Manager were added to each CAR file justifying the lack of extent. The CAR 95-005 response provided by the responsible individual did not address actions to "Preclude Recurrence" as required by Block 11, "REQUIRED ACTIONS" of the CAR form. A memo from the QA Manager was added to the CAR file identifying the actions to prevent recurrence.

COTS #8 - Corrections to the Class Attendance Sheet for JSA0002-2, Rev.0 were not made by drawing a single line through the incorrect information and placing the correct information in close proximity, initialing/stamping and dating the information. Correction to the Class Attendance Sheet was completed during the course of the audit.



YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

COTS #9 - Records Authorization List was not submitted. This was corrected by the issuance of TOC 95-000712.

COTS #10 - The letter required to be submitted by Kiewit/PB to REEC0 identifying personnel with authority to access training & qualification records was not done. This was corrected during the course of the audit by the issuance of Kiewit/PB letter #1227, submitted 02/28/95.

COTS #11 - In the "Professional Accomplishment" block of the Lead Auditor Qualification form, the ASQC Certificate numbers were missing. Prior to the postaudit meeting the certificate numbers were added.

COTS #12 - In the "Experience" block of the Lead Auditor Qualification Form, company/dates were missing. This was corrected by adding a second page to the qualification form and listing the companies/dates.

COTS #13 - Requirements state that the Lead Auditor participate in a minimum of five QA audits within a period not to exceed three years before the date of initial qualification. Identification of the participation in five audits within three years was missing from the "Audit Participation" block. This was corrected prior to the Post Audit meeting by adding a second page to the qualification form and listing the audit/surveillance participation.

COTS #14 - MCP-2.0, para. 3.3.4, requires that the Work Process Description (WPD) contain Site Characterization Plan Baseline (SCPB) and QA designations. In Work Package 2.21.1, the WPD did not contain QA and SCPB designations. These designations were identified and added to the WPD.

COTS #15 - MCP-2.0, para. 3.5.1, requires ES&H to review work packages for the identification and inclusion of Job Safety Analysis (JSA) and/or Job Hazard Analysis (JHA). In Work Package 2.21.1, QC signed off on the ES&H portion of the Work Package Review Checklist, which indicated that ES&H had not reviewed the work package for inclusion of JSA/JHA. ES&H reviewed the work package and signed the appropriate block of the Work Package Review Checklist.

COTS #16 - MCP-2.0, para. 3.8.2, requires that, prior to signing/closing a traveler line item, it is verified that there are no open deficiencies related to that line item. In Work Package 2.21.1, two of the line items were signed/closed without checking for open deficiencies. The appropriate person verified that there were no open deficiencies related to those items, and completed the appropriate block on the traveler.

**YUCCA MOUNTAIN PROJECT** Page 4 of 32
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25**SUMMARY: - Continued**

COTS #17 - MCP-2.0, para. 3.3.3, requires that the traveler/supplemental traveler identify applicable documents. In Work Package 1.10, applicable documents were not identified on the traveler. The applicable documents were identified and added to the appropriate block on the traveler.

COTS #18 - MCP-2.4, para. 3.1.8, requires that Personnel Qualification forms be completed to show that proficiency has been achieved. Personnel Qualification forms had not been completed for any of the training files reviewed. The forms were completed and inserted into the appropriate training file.

COTS #19 - Several items, such as bolting material and grout, were in the QC Hold area without status indicators. Items have since been properly tagged and segregated.

COTS #20- In reviewing the NDT Level II files, it was determined that two of the files did not contain a Practical Examination. This was corrected prior to the completion of the audit.

Recommendations

1. MCP-2.0, paragraphs 3.1 through 3.3-outlines the initial phase of the work planning process, which includes the development of work plans. There is no evidence that Kiewit/PB has developed any so called "work plans." However, they do have a "cost proposal" manual which identifies costs and schedules. In discussions with Kiewit/PB personnel, it was determined that a work planning system is in place, but it does not reflect the process outlined in the procedure. Therefore, it is recommended that the work planning process be reviewed and the procedure revised to reflect the actual process.
2. MCP-2.0 requires that hold/witness points be identified on the traveler/supplemental traveler. The travelers in WP 1.10 uses the terms "monitor," "verify," and "inspect." These terms are not defined in the procedure. In addition, they are identified as hold points in the "Hold" column of the traveler; however, according to Kiewit/PB personnel, these are not considered hold points. It is recommended that the terms "monitor," "verify," and "inspect" be defined in the procedure, and that they not be identified as hold points on the traveler.



AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

3. Shotcrete has been identified by K/PB as a Special Process on the Special Process List. The only procedure in place at this time to govern this activity is SPP-004. The procedure addresses the "Certification of Shotcrete Nozzle Operators." There is no procedure in place at this time to address the Shotcrete process. It is recommended that a procedure to govern the Shotcrete process be in place prior to the start of that activity.
4. In reviewing the qualification records for NDT personnel, it was determined that the Specific, General, and Practical examinations do not identify what level the exam applies to, i.e., Level I, II, or III. It is recommended that this identification be placed on all the exams.
5. Currently the scopes of the Kiewit/PB Management Control Procedures identify that the MCPs are written to ensure that the requirements of the QARD are implemented. Non-Q work is still required to meet the Quality Assurance controls in order to meet project requirements. Kiewit/PB needs to establish a process/procedure for identifying what programmatic controls will be applied to work NOT governed by the QARD.
6. SNT-TC-1A, 1980 edition, Paragraph 8.1.1 (4) states that the physical examination (eye exams) should be administered on an annual basis. MCP-9.1 does not identify a frequency of the physical exam. Recommend that this frequency be added to the procedure.
7. MCP 4.0, para. 3.1 states that a Business Manager and Purchase Agents will be identified. A recommendation is being made that this is done by letter to internal and external management.
8. MCP 4.0, para. 3.2E requires vendor/supplier submittals be tracked in the "Submittal Status Log." Revise MCP 4.0/7.1 as appropriate to properly reflect methods and when documents are to be submitted.
9. Procurement Document Log required to be established for tracking purposes does not exist. A system is in place but it does not satisfy this requirement. Revise procedure as appropriate to provide detail on how this will be accomplished and what standard will be used.
10. MCP 5.0, para 3.6.2B states that procedure reviewers are to be designated but doesn't say how. This is performed verbally. There is no evidence that formal designation has been accomplished. It is recommended that procedure reviewers be designated formally by memo.



YUCCA MOUNTAIN PROJECT Page 6 of 32
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

11. MCP 6.0, para 3.2.6 states that controlled documents require a Document Transmittal Acknowledgment. The procedure does not refer to exhibit 5.4 and does not indicate if the exhibit is a QA, or Project record. Recommend the procedure be revised to address exhibit 5.4.
12. MCP 6.0, para. 3.2.10, and 3.3.3 indicate spot verifications are to be conducted in two places. This is performed centrally. It is recommended that the procedure be revised to correctly reflect those methods used to perform the annual verification.
13. MCP 7.0, para 3.4.1 states that the PO will indicate the vendors understanding of the requirements and specifications. It is recommended that the procedure be revised to clearly indicate the method(s) for establishing compliance to this requirement.
14. During review of the Receipt Inspection Plan (RIP) for PO# 1785-550, it was revealed that 24 items were indicated as acceptable, when in fact four of the twenty-four were unacceptable. It is recommended that corrections be made to the accept and reject columns to clearly identify the correct numbers.
15. MCP-16.0, para. 3.7 provides vague criteria for determining if a significant condition adverse to quality exists. In the criteria the words "serious" and "repetitive" are used but are not clearly defined to establish specific criteria to evaluate the condition. Recommendation is that these terms be clearly defined.

CRITERION 1- ORGANIZATION

MCP-1.0, Kiewit/PB Organization

MCP-1.0 identifies the organizational elements of Kiewit/PB that provide technical support and excavation services under Reynolds Electrical & Engineering Co. Inc. (REEC0) subcontract No. 1-YUC-01-2. This procedure defines the process for resolving disputes and documents the standard delegations of authority for Kiewit/PB organizational elements.

A review was conducted of: (1) REEC0's acceptance of the Kiewit/PB QA implementing documents, (2) the conduct of oversight committee meetings, (3) disputes/resolution of disputes concerning quality matters, and (4) the existence of a standard delegation matrix.

The results in this review were satisfactory. Indications are Kiewit/PB adequately implements the requirements set forth in MCP-1.0. There were no deficiencies, COTS, or recommendations identified.



YUCCA MOUNTAIN PROJECT Page 7 of 32
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION II-QUALITY ASSURANCE PROGRAM

MCP-2.0. Construction Planning and Control

MCP-2.0 describes the methods Kiewit/PB will use to assure construction activities are performed under suitably controlled conditions. This procedure describes work planning methods and formalizes the use of a "Traveler" to control the construction process. The following items were reviewed/verified:

1. The work planning process was reviewed including the development of work plans, and the development and use of work packages. A work planning system is in place but it is not implemented as identified in the procedure. See Recommendation #1.
2. Three of the seventeen current work packages were reviewed to ensure: (1) they contained the required documentation, (2) they were reviewed and approved by the appropriate personnel, (3) additions, revisions, and deletions were completed as required, (4) they were appropriately controlled, and (5) line items were completed/closed as required. See Recommendation #2 and COTS #15, #16, #17, and #18.

Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-2.0. However, based on the number of COTS this area is considered indeterminate. There were no deficiencies identified in this area.

MCP-2.1. Surveillance

MCP-2.1 provides the methods to be used to identify, perform, document, and track Quality Assurance surveillance activities. The following items were reviewed/verified:

The two most recent surveillance reports were reviewed to ensure surveillances were conducted independently. "Corrected during surveillance" items were identified and included in the trend analysis program, and affected work packages were identified. The areas reviewed were acceptable. There were no deficiencies, COTS, or recommendations identified.

MCP-2.2. QA Program Information Mgt., Trending and Management Assessments

MCP-2.2 provides guidelines for the collection, preparation, distribution, trend analysis, and management's use of information obtained during the implementation of the Kiewit/PB QA Program.



Reynolds Electrical & Engineering Co., Inc.

YUCCA MOUNTAIN PROJECT Page 8 of 32
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION II-QUALITY ASSURANCE PROGRAM - Continued

MCP-2.2. QA Program Information Mgt., Trending and Management Assessments - Con't

Since trend analysis meetings and management assessment meetings had not been conducted at the time of the audit, there was no objective evidence to verify implementation of procedure requirements. This area is considered indeterminate based on the lack of implementation. A surveillances may be scheduled to evaluate this area.

MCP-2.3. Readiness Review

MCP-2.3 provides guidelines for the identification, preparation for, and conduct of Readiness Review (RR).

Since there were no readiness reviews conducted at the time of the audit, there was no objective evidence to verify implementation of procedure requirements. Based on these facts this area is considered indeterminate. A surveillance may be scheduled in this area.

MCP-2.4. Indoctrination, Training, and Qualification

MCP-2.4 provides a formal program for the systematic approach to the initial evaluation, selection, indoctrination, training, and qualification of personnel to be employed by Kiewit/PB at the YMP. The following items were reviewed/verified:

Twenty-four of the 217 personnel training files were chosen for review according to position/title. The files were reviewed to ensure: (1) position descriptions were prepared, (2) personnel performing quality affecting work were identified as such, (3) required reading and training, as identified on the Core List, were completed, (4) education and experience were verified, (5) Personnel Qualification forms were completed, (6) training requirements were periodically reviewed and revised as necessary, and (7) personnel were indoctrinated to their responsibilities and authorities. There was one COTS item identified (SEE COTS #18). Overall, the training files and the system in place for maintaining them is exceptional. Due to time constraints, classroom training attendance records were not reviewed in detail. A surveillance may be scheduled to evaluate this area.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION IV PROCUREMENT DOCUMENT CONTROL**MCP-4.0 PROCUREMENT DOCUMENT CONTROL**

Kiewit/PB MCP-4.0, provides guidance for the control of procurement of items, materials, and services, and to ensure the quality of such procurements. The applicability statement of MCP-4.0 was reviewed and it was determined that only purchase orders designated as "Q" were affected. Therefore, only purchase orders designated as "Q" were selected for review (1785-311, 1785-550, 1848-452, and 1848-530). The following items were reviewed/verified:

1. Verified that the above identified purchase orders contained the required information (i.e., technical, quality) for the item or service to be provided.
2. Verified that the Kiewit/PB Project Manager had designated a Business Manager and two Purchasing Agents. This verification was performed by reviewing a Kiewit/PB organizational chart dated 2/20/95. No formal letter of designation to internal and external management was produced. It is recommended (See Recommendation #7) that Kiewit/PB distribute to internal and appropriate external management personnel, a letter which clearly identifies key personnel and their respective job responsibilities.
3. Preparation of purchase orders was verified as having the required information clearly identified in the purchase order. A Master Submittal Log has been established which records documentation submittals. In addition, documentation required by specification is identified in the applicable Receipt Inspection Plan (RIP). During the audit it was revealed that Engineering, Records, and Quality Engineering departments track document submittals separately with no one method being employed. It is recommended (See Recommendation #8) that Vendor/Supplier submittals be tracked centrally in the "Submittal Status Log." This would centralize submittals and assure that all required documentation has been received and transmitted. The record status (Project, QA, etc.) of the log should also be identified.
4. Review and approval of purchase orders was verified by reviewing the above identified purchase orders. Required approvals are documented on those purchase orders and there were no deficiencies indicated in this area.
5. Verified that a system was in place which allowed verification that procurement documents are tracked by the Purchasing Agent and updated as required. However, the method used to satisfy the requirement (i.e., database printouts) contrasts with the procedure requirement for a log.



YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCo-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION IV PROCUREMENT DOCUMENT CONTROL - Continued

MCP-4.0 PROCUREMENT DOCUMENT CONTROL - Continued

5. - Continued

Therefore, it is recommended (See Recommendation #9) that the procedure be revised, as appropriate, to provide further detail on how this requirement will be satisfied.

6. During review of the procedure a minor editorial discrepancy was noted in the fourth sentence of paragraph 3.2 E (i.e., when documents to be . . .). This should be corrected so as to provide clear direction.

Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-4.0, however, due to time restraints and the complexity of those purchase orders reviewed, revision to purchase orders was not assessed during this activity. A surveillance may be scheduled in this area.

CRITERION V- IMPLEMENTING DOCUMENTS

MCP-5.0 PROCEDURE PREPARATION AND CONTROL

MCP-5.0, provides guidance for identifying the types of procedures Kiewit/PB will develop and implement for the YMP. In addition, it provides for the uniform formatting and control of procedures to ensure clarity, completeness, and continuity. The methods, requirements, and responsibilities for preparation, review, approval, revision, and records submittal is defined. the following items were reviewed/verified:

1. Verified that procedure review forms are prepared and distributed to selected reviewers along with a draft of the procedure. Technical and quality reviews were verified as completed within the required time frame. Procedures selected for verification were TCP-2.2.3 R/1, TCP- 2.4 R/1, QCP-008 R/2, QCP-004 R/1, VTP-002 DRAFT A, and MCP-2.1 R/5 and MCP-2.4 R/5.
2. It was indicated by records department management that reviewers are designated verbally by their respective management. It is recommended (See Recommendation #10) that procedure reviewers be designated formally by memo.



YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCo-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION V- IMPLEMENTING DOCUMENTS - Continued

MCP-5.0 PROCEDURE PREPARATION AND CONTROL - Continued

3. Areas governing procedure format, contents, numbering, revision, procedure development/review, and approvals were verified to be in compliance with the implementing procedure. Kiewit/PB has not established a process/procedure on how work not governed by the QARD will be controlled. (Refer to Recommendation #5)

The results of this activity indicate that Kiewit/PB adequately/effectively implemented the requirements set forth in MCP-5.0. There were no COTS/deficiencies identified during this review.

CRITERION VI- DOCUMENT CONTROL

MCP-6.0 DOCUMENT CONTROL

MCP-6.0, provides instruction for the identification, release, distribution, receipt, use and maintenance of Kiewit/PB Yucca Mountain Project documents requiring control including any expedited changes. The processes for creation, changes, review and approval for all documents are described in appropriate Management Control Procedure (MCPs) covering Work Packages and Procedures. A random sample of forty-five (45) procedures and three (3) Work Packages were selected for review during the assessment of this area. The following items were reviewed and verified:

1. Document generation and identification was verified and determined to be adequately implemented. Documents that specify technical requirements, quality requirements, or prescribe work are identified and controlled per the Master Document Index.
2. Document acceptance, receipt, registration and distribution were verified by performing a review of a random sample of forty-five (45) controlled documents.
3. Verified that documents include the document title, document identification number, effective date, revision number, QA designation, and the SCPB Number as required.
4. Controlled Document Distribution Request forms are completed properly.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION VI- DOCUMENT CONTROL - Continued**MCP-6.0 DOCUMENT CONTROL** - Continued

5. A document Register has been established for controlled documents and includes a receipt date, document identification number, document title, revision number, and effective date (if applicable).
6. The cover page/first page of controlled documents has a Controlled Document stamp and an assigned controlled document copy number.
7. Controlled documents are distributed with a Document Transmittal/Acknowledgment and contained instructions to copyholders as to action required. However, review of the procedure failed to refer to exhibit 5.4 and the procedure also failed to indicate if the exhibit was a QA, Project record. It is recommended (See Recommendation #11) that the procedure be revised to correctly reflect reference to exhibit 5.4 and the status of exhibit.
8. Verified that Records Management notifies the Training Supervisor of all original issuance and revisions to controlled documents.
9. Procedure MCP-6.0, paragraph 3.2.10 requires that spot verification of controlled documents be performed annually. There is no objective evidence that verifications have been performed in 1995. However, documentation was provided that indicated the spot verifications were performed in 1994. Further investigation revealed that spot verification is not formally documented. Therefore, it is recommended that spot verifications be documented which would record the results of these verifications and provide objective evidence that compliance to the requirement is adequately demonstrated. (See Recommendation #12) Recipients of controlled documents perform an annual verification. It was confirmed that controlled document verifications are conducted annually. This is accomplished by providing a list of controlled documents to the recipient and the recipient verifies that those documents listed are those in possession.
10. Verified Records management prepares record transmittals submitted to REEC0 for inclusion in the Records Management System for controlled documents as required by the procedure.

The results of this activity indicate that Kiewit/PB adequately implements the requirements set forth in MCP-6.0. There were no COTS/deficiencies identified during this review.



YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REECO-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION VI- DOCUMENT CONTROL - Continued

MCP-6.1 EXPEDITED CHANGES

MCP-6.1, describes the processes to be used by Kiewit/PB to make expedited changes to controlled documents. The following four ECRs (95-0002, 0003, 0006, and 0007) were selected for review. The following items were reviewed/verified:

1. Verified that the QAM/QCM approved the ECRs.
2. Verified the ECRs were valid within determined time frames and processed as a revision through the regular review and approval process.
3. Verified processing had not occurred beyond the established time frames.
4. Verified all ECRs have been approved and that none have been canceled.
5. Verified no ECRs had been rejected.
6. Verified ECRs are assigned a unique identifying number and logged into the ECR Request Log and then distributed to cognizant individuals.
7. Verified no ECR's had become invalid.

The results of this review were satisfactory. Indications are Kiewit/PB adequately implements the requirements set forth in MCP-6.1. There were no deficiencies, COTS, or recommendations identified during this review.

CRITERION VII- CONTROL of PURCHASED ITEMS and SERVICES

MCP 7.0 PROCUREMENT PLANNING

MCP 7.0, establishes the responsibilities and requirements by which Kiewit/PB performs procurement planning, source evaluation and selection, proposal/bid evaluation, and supplier performance activities. The following items were reviewed/verified:

1. Reviewed letters dated 4/20/94 and 7/6/94 for purchase orders 1785-311 and 1785-550 (steel sets) that design packages for rock bolts and steel sets have been transmitted to Kiewit/PB through REECO with a letter authorizing the procurement. Purchase order 1848-348 (rock bolts) was not available for review due to the fact that it was at DOE for review/approval.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: X AUDIT/SURVEY REPORT NO. REFCO-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: X

SUMMARY: - Continued

CRITERION VII- CONTROL of PURCHASED ITEMS and SERVICES - Continued**MCP 7.0 PROCUREMENT PLANNING - Continued**

2. Purchase orders 1785-311 and 1785-550 were selected for review. During this review it was indicated by Kiewit/PB procurement personnel that purchase requests were not used during this time frame (12/28/94) and that the authorization letter was used. Further investigation and review indicated those purchase requests (1848-256, 316, 348, 470) are currently being used and it was indicated that the CM and QAM have reviewed and signed the PR and that it has been returned to the requisitioner.
3. Verified that there is a system in place which allows verification that procurement documents are tracked (logged) by the Purchasing Agent and updated as required. The system used is a database containing purchase order information and is updated as new information is received and forwarded to the Project Manager and Business Manager for review and signature.
4. Verified that qualification and/or evaluation criteria were verified as part of the procurement document in the solicitation process.
5. Verified that Requests for Proposals list all specifications, QA requirements, and documentation requirements.
6. Verified that an evaluation of the supplier's history, current quality records, and the supplier's technical and quality capability is performed as required.
7. A review of the selected purchase orders (See #2) indicate that proposal and bid offers are evaluated by Kiewit/PB technical and quality personnel which determine conformance to the procurement documents. These evaluations considered technical, quality personnel qualifications, production capability, and supplier past performance.
8. Review of the two "Q" purchase orders (See #2) did not indicate that the vendor documented their understanding of the requirements and specifications contained within the purchase order. It was indicated by procurement personnel that this understanding was implied by vendor responding to the Request for Proposal (RFP). For smaller purchases (less than \$100,000) it was unclear how this understanding would be documented. It is recommended (Recommendation #13) that the procedure be revised to clearly indicate the method(s) for establishing compliance to the requirement.



AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION VII- CONTROL of PURCHASED ITEMS and SERVICES - Continued

MCP 7.0 PROCUREMENT PLANNING - Continued

9. Review of selected documentation verified that modifications/revisions have been reviewed by K/PB technical and QA personnel prior to issuance to the supplier.
10. Verified that the design specification approved the use of commercial grade items and that these items are identified on the procurement document by utilizing the manufacturer's published product description.
11. Verified that receipt of commercial grade items is performed and that the following is accomplished:
 - a. no damage was sustained during shipment.
 - b. items received were items ordered
 - c. applicable testing and inspection are accomplished to ensure conformance with manufacturers' published requirements.
 - d. documentation applicable to the item was received and is acceptable.

The results of this review were satisfactory. Indications that Kiewit/PB adequately implements the requirements set forth in MCP-7.0. There were no deficiencies or COTS identified during this review.

MCP 7.1 RECEIPT INSPECTION

MCP-7.1, establishes the requirements for the acceptance of items and services by Kiewit/PB. The following items were reviewed/verified:

1. Verified that the RIPs require inspection attributes as applicable; proper configuration, identification, dimensional, physical, freedom from shipping damage, and cleanliness.
2. Verified revisions to the RIP are performed by quality personnel with written documentation pertinent to the change attached and that the line item affected reflects the change and that the changes are initialed/stamped and dated by the individual making the revision. Due to the complexity of the RIP's and time restraints, an in-depth review of this area was not possible. A surveillance may be scheduled to further evaluate this area.
3. Verified the RIP lists required document submittal requirements and prior to acceptance, the status of these submittals are reviewed by the Receipt Inspector from the Submittal Status Log. See Recommendations #7 and #8.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION VII- CONTROL of PURCHASED ITEMS and SERVICES - Continued**MCP 7.1 RECEIPT INSPECTION** - Continued

4. Verified RIPs identify what supplier documentation is to be submitted to satisfy purchase order requirements (i.e., CMTR, C of C). Inspector signoffs indicate that the documentation has been reviewed and found to be acceptable. Items with unacceptable documentation are placed in a holding area until resolution.
5. Verified RIPs indicated the required receipt inspections are performed and appropriate line items signed off to indicate acceptance. On one occasion, however, it was revealed that 24 items were indicated as acceptable, when four (4) of the twenty (24)four were unacceptable. A notation was made for that line item which referenced a Nonconformance Report that clearly indicated four unacceptable items. A subsequent line item entry indicated acceptance of four items (rejected items were found to be acceptable). This discrepancy was brought to the attention of cognizant personnel during the audit. A further review of the RIP for PO 1785-530 listed A001780 as the PO number, but in fact this number was a purchase request number. It is recommended that these items be corrected (See Recommendation #14) and that more diligence be paid to the input of data, i.e., accept, reject, and P.O. number. Due to complexity and time restraints, further investigation into this area was not performed. A follow-up surveillance in this area may be performed at a later date.
6. Verified the QC Hold Area is kept locked at all times with QC being in possession of the key. This situation adequately controls access to the area and prevents unauthorized personnel from entering.
7. Bolting materials (PO#1848-0452) were observed as being stored without status indicators (i.e., accept, hold, reject, release for construction). Discussion with quality control personnel ensued regarding this condition which led to the materials being moved to another location and hold tags placed upon the materials. In addition, several bags of grout without status indicators were also observed. In discussion with quality control personnel it was indicated that an NCR regarding disposition of the grouting materials was in process, however, no hold tags were placed upon the materials. These conditions were corrected on the spot (See COTS # 20) and no further action is necessary; however, a follow-up surveillance is deemed necessary to further investigate this area.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-7.1. There were no deficiencies identified during this review.

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCo-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Criterion VIII-IDENTIFICATION AND CONTROL OF ITEMS**MCP-8.0- Identification and Control of Items**

MCP-8.0 establishes procedural requirements to ensure that only correct and accepted items are used or installed by Kiewit/PB on the Yucca Mountain Project (YMP) and that required traceability is documented. The following items were reviewed/verified:

1. Verified received items are marked with the purchase order number where size of the item is sufficient.
2. Verified where received items are small, the use of tags is employed. Each item was traceable to the Work Package and Receipt Inspection Plan. Markings used were clear and legible and placed in a position that would be visible after installation.

The results of the review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-8.0. There were no deficiencies, COTS, or recommendations.

CRITERION IX- CONTROL of SPECIAL PROCESSES**MCP-9.0- Control of Special Processes**

MCP-9.0 applies to those work activities such as welding, weld overlay, heat treating, chemical cleaning, and nondestructive testing identified by the Kiewit/PB Quality Control Manager (QCM) as Special Processes. The following items were reviewed/verified:

1. Verified the Quality Control Manager (QCM) maintains a Special Process List identifying all work activities classified as Special Processes. The Special Process List has been developed and signed by the QCM on January 10, 1995. The list identifies Special Process Procedures (SPPs) which govern those processes. The SPPs were reviewed and include or reference the information required by the procedure.
2. Verified all the procedures were reviewed and contain the QCMs signature along with the identity of the person responsible for the preparation of the procedure.
3. There is objective evidence that the Magnetic Particle (MT) procedure (SPP-003) has been demonstrated. Reference Kiewit/PB Interoffice Memo, dated 02/01/95, Howard Cox to file. MT is the only Nondestructive Testing process currently being used by K/PB.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25**SUMMARY: - Continued****CRITERION IX- CONTROL of SPECIAL PROCESSES - Continued****MCP-9.0- Control of Special Processes - Continued**

4. At the present time there is no SPP to govern the Shotcrete process. The only Shotcrete procedure in place is the "Certification of Shotcrete Nozzle Operators." There is a recommendation (See Recommendation #3) that a procedure to govern the Shotcrete process is prepared prior to the commencement of that activity.

The results of this activity indicate that Kiewit/PB adequately implements the requirements set forth MCP-9.0. There were no COTS or deficiencies identified during this review.

MCP-9.1. Qualification and Certification of Nondestructive Testing Level III Personnel

MCP-9.1 establishes the minimum requirements for the qualification and certification of Nondestructive Testing (NDT) Level III personnel who perform work for Kiewit/PB on the Yucca Mountain Project (YMP). There is only one qualified/certified Level III at this time. The following items were reviewed/verified:

1. Verified his qualification/certification files contained all the records required by the procedure. He is currently certified by American Society for Nondestructive Testing (ASNT) which certifies/recertifies Level III personnel every five years. This appears to be in conflict with current project requirements (SNT-TC-1A, 1980) which states recertification will be performed every three years. However, discussions with the PQAM/OQA resulted in a concurrence with the 5-year period. The QARD is being revised to clarify this intent.
2. Paragraph 3.3.6 does not state that the physical examination (eye exams) will be conducted on an annual basis. See Recommendation #6.
3. Verified the percentile weights that were used were in accordance with the procedure and SNT-TC-1A.

The results of this activity indicate that Kiewit/PB adequately implements the requirements set forth in MCP-9.1. There were no deficiencies, COTS, or recommendations identified during this review.



QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

CRITERION IX- CONTROL of SPECIAL PROCESSES - ContinuedMCP-9.2. Qualification and Certification of Nondestructive Testing (NDT) Level II Personnel

MCP-9.2 establishes the minimum requirements for the Qualification and Certification of Nondestructive Testing (NDT) Level II personnel who perform work for Kiewit/PB on the Yucca Mountain Project (YMP). The following items were reviewed/verified:

A total of four (4) employees are currently qualified as NDT Level II personnel. The only special process they are qualified to conduct is the Magnetic Particle (MT) Yoke-Dry Powder.

1. All qualification files were reviewed and contain the information/documentation required by the procedure.
2. All files contained documentation of the verification of education, experience, and training.
3. All files contained current eye/color vision examinations.
4. A review of the General, Specific, and Practical Examinations was performed. The purpose of the review was to determine if the tests contained the appropriate number of questions required by the procedure and SNT-TC-1A. All tests contained the required number of questions. However, the identification as to what level (I, II, or III) is not identified. See Recommendation #4.
5. Verified that all test results fell under the guidelines of the procedure and SNT-TC-1A.
6. During the review of qualification records, it was discovered that one Level II qualification was not documented on the proper forms. This was corrected before the audit was completed. See COTS #4.
7. During the review of qualification records it was discovered that there was no Practical Examination for two individuals. This was corrected during the audit. See COTS #20.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-9.2 and SNT-TC-1A, 1980. There were no deficiencies identified during this review.



YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCO-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Criterion X- Inspection

MCP-10.0. Inspection Planning and Control

MCP-10.0 describes the inspection planning and control system used by Kiewit/PB at the Yucca Mountain Project (YMP).

Three of the seventeen work packages were reviewed. The following items were reviewed and verified:

1. Verified inspections were being planned and controlled as required.
2. Verified hold/witness points were identified and no hold/witness points were waived or passed.
3. Verified inspections were conducted by personnel independent of the work being performed.
4. Verified statistical sampling was performed in accordance with recognized standard practices.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-10. There were no deficiencies, COTS, or recommendations identified.

MCP-10.1- Qualification and Certification of Inspection and Test Personnel

MCP-10.1 establishes the method to be used by Kiewit/PB for the qualification and certification of inspection and test personnel. There is no qualified Inspector Level I personnel in the Kiewit/PB system at the present time. All inspection personnel are either Level II or Level III. A random sample of four Level II-Inspector qualification files was selected. The following list identifies items that were reviewed and found to be satisfactory:

1. Verified that all inspectors met the minimum education and experience requirements.
2. Verification of education and experience was contained in each file.

A random sample of Level III inspector qualification files was selected. The following list identifies what items were reviewed/satisfactorily verified:

1. Verified all inspectors met the minimum education and experience requirements.
2. Verification of education and experience was contained in each file.



YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCo-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Criterion X- Inspection

MCP-10.1- Qualification and Certification of Inspection and Test Personnel

3. A review of a random sample of ten inspector qualification files was performed. The purpose of the review was to determine if a General and Specific Examination, with the correct number of questions, was contained in each file. All files were found to be satisfactory.
4. Verified that a minimum overall score of 80% was obtained to pass the examination and that a minimum score of 70% was obtained for each individual test. All certifications were issued for a period of three years as required.

A random sample of seven qualification files was selected to determine if inspectors had current eye/color vision examinations. In all cases the eye examination was current and up to date.

A random sample of qualification files was reviewed to determine if they contained the lifetime records identified in the procedure. All lifetime records identified by the procedure are contained in each file.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-10.1. There were no deficiencies, COTS, or recommendations identified during this review.

Criterion XI-TEST CONTROL

MCP-11.0 TEST CONTROL

MCP-11.0 provides instruction for the development of implementing procedures necessary for the control of conformance/performance verification testing. The following items were reviewed/verified:

1. Verified Kiewit/PB has implemented adequate testing procedures for Rockbolts and Accessories, including grout.
2. Verified testing criteria, acceptance criteria and associated ASTM Standards for Testing was incorporated into the procedure.
3. Verified the testing procedures incorporated Specification BABEAB000-01717-6300, Section 02165 requirements.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-11.0. There were no deficiencies, COTS, or recommendations identified.



AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCO-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Criterion XII-CONTROL OF MEASURING AND TEST EQUIPMENT

MCP-12.0 CONTROL OF MEASURING AND TEST EQUIPMENT

MCP-12.0 provides requirements for the receipt, initial calibration status, use, recalibration, and general control of equipment used for quality verification activities. The following items were reviewed/verified:

1. Verified Kiewit/PB has implemented adequate procedural controls for Measuring and Test Equipment.
2. Verified calibration data packages contain the Calibration Certificate, acceptance indicator by QC of the calibration and the basis for calibration acceptance by the QC Manager.
3. Procedure-MCP 12.0 was corrected on the spot by issuing a revision which requires the documentation of M&TE usage to be entered in the individual work packages verses the travelers. See COTS #5.

The results of this review were satisfactory at this time. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-12.0. There were no deficiencies or recommendations identified during this review.

Criterion XIII-HANDLING, STORAGE AND SHIPMENT

MCP-13.0 Handling, Storage, and Shipping

MCP-13.0 establishes requirements for the handling, storage, cleaning, packaging, shipping, and preservation of items to prevent damage or loss and to minimize deterioration. The following items were reviewed/ verified:

1. Verified Kiewit/PB procured items that did not require any special controls.
2. Review of procedure MCP-13.0 was conducted. The results of the review determined that adequate controls are in place to ensure that Kiewit/PB Engineering provides the necessary instructions and directions when special controls are required.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-13.0. There were no deficiencies, COTS, or recommendations identified during this review.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Criterion XIV-INSPECTION, TEST AND OPERATING STATUS**MCP-14.0 Inspection, Test, and Operating Status**

MCP-14.0 identifies the methods used to record and track the inspection, test, and operating status of items. The following items were reviewed/verified:

1. Verified Kiewit/PB has implemented adequate controls for Inspection, Test and Operating Status.
2. Verified acceptable items are adequately marked and are traceable to the Work Packages and Receipt Inspection Plans.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-14.0. There were no deficiencies, COTS, or recommendations identified in this area.

CRITERION XV-NONCONFORMANCES

MCP-15.0 provides the methodology for identifying nonconformances and the processing of nonconformance reports to prevent the use or installation of an item that does not conform to applicable requirements. The following items were reviewed/verified:

1. Reviewed a sample of seven Kiewit/PB Nonconformance Reports (NCRs) issued under YAP-15.1Q. All NCRs reviewed were appropriately identified, validated, documented, dispositioned, revised, implemented and closed. However, NCR K/PB-95-0006 was missing the approval signature and date for Revision 1 Disposition. This omission was corrected by issuing Revision 2 with the appropriate signature and date and identified as COTS # 1.
2. Two NCRs(K/PB-95-0003 and 95-0004) were signed or initialed with a 1994 date when in fact the actions were completed in 1995. Both NCRs were corrected during the audit and identified as COTS #2 and COTS #3.
3. NCR K/PB-95-0009 did not have a QA Concurrence with Disposition signature. This was corrected during the audit and identified as COTS #4.
4. MCP-15.0 was reviewed against Section 15 of the QARD. The Kiewit/PB QARD Requirements Traceability Network (RTN) matrix should identify that YAP-15.1Q is the Kiewit/PB implementing document for NCRs. With the exception of the noted minor deficiencies, Kiewit/PB is adequately implementing the nonconformance control program.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-15.0. There were no deficiencies or recommendations identified during this review.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Criterion XVI- CORRECTIVE ACTION

MCP-16.0 establishes requirements for identifying and correcting conditions adverse to quality. The following items were reviewed/verified:

1. A sample of six open 1995 Corrective Action Request (CAR) was reviewed. All CARs were evaluated to determine if a Significant Condition Adverse to Quality and whether a Stop Work condition existed. None were identified. See Recommendation #14.
2. Verified the CARs were responded to in a timely manner. None of the CARs were at the stage that verification could be conducted and/or the CAR was ready to be closed and submitted to the records system.
3. Responses to CARs 95-001 and 95-002 did not contain a determination of the Extent of Deficiency. This was corrected during the audit by adding additional documentation to the CAR files documenting the extent and identified as COTS #7.
4. CAR 95-005 response did not document the planned Actions to Prevent Recurrence. This was corrected during the audit by adding additional documentation to the CAR file documenting the Actions to Prevent Recurrence and identified as COTS #7.
5. MCP-16.0, para. 3.7 provides vague criteria for determining if a significant condition adverse to quality exists. The words "serious" and "repetitive" are used but are not clearly defined. See Recommendation #15.
6. MCP-16.0 was reviewed against Section 16 of the QARD. The Kiewit/PB QARD Requirements Traceability Network (RTN) matrix or MCP-16.0 has some errors that are identified in the Kiewit/PB QARD RTN Matrix/Procedure Discrepancies section at the end of this audit report. See Attachment #2. Kiewit/PB QA personnel have reviewed these discrepancies and have agreed to correct the errors. With the exceptions of the COTS items, the Corrective Action area is satisfactory.

The results of this review were satisfactory. Indications are that Kiewit/PB adequately implements the requirements set forth in MCP-16.0. There were no deficiencies identified during this review.

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Criterion XVI- CORRECTIVE ACTION - Continued**MCP-1.1. Stop Work Procedure**

MCP-1.1 establishes a systematic approach to the identification, notification, and closure of Stop Work Orders (SWO).

Since there were no SWOs issued at the time of the audit, there was no objective evidence to verify implementation of the procedure requirements. Based on these facts this area is considered indeterminate. A surveillance may be scheduled in this area.

Criteria XVII- QUALITY ASSURANCE-RECORDS**MCP-17.0 Records Management**

MCP-17.0 delineates the requirements, responsibilities, and methods of the Kiewit/PB Records Management Program which applies to all personnel who generate Site Characterization Project record/ record packages. The following items were reviewed/verified:

1. Twenty-four (24) implementing procedures were reviewed to determine if they identify the documents generated that will become QA Records and the organization responsible for records submittal. All implementing procedures reviewed met the stated requirement.
2. Verified Records Authorization Lists (RAL) were prepared by Kiewit/PB organizations to identify who is authorized to: (1) authenticate and correct QA Records, (2) sign Project Records and (3) obtain access to System 28 Training and Qualification Records. Nine RALs from various departments were not submitted by Records Management as required by MCP-17.0. This was corrected during the audit and identified as COTS #9.
3. All records reviewed were documented in dark ink against a light background, had blank lines and spaces accounted for, and contained the proper QA and SCPB Designators in the upper right-hand corner of the page.
4. Verified corrections to records were made by drawing a single line through the incorrect information, placing the correct information in close proximity, and initialing/signing or stamping and dating the correction. One class attendance sheet had a correction which was not initialed and dated. This was corrected during the audit and identified as COTS #8.
5. Reviewed the process for control of System 28, Training and Qualification Records. Training records were appropriately stamped "Privileged" and controlled from the time they were originated.



Reynolds Electrical & Engineering Co., Inc.

YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

Page 27 of 32

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REECa-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

SUMMARY: - Continued

Criteria XVIII- AUDITS - Continued

MCP-18.0 Audits, MCP-18.1. Auditor Qualification Plan - Continued

The one qualified Lead Auditor's qualification and certification was reviewed. The qualification and certification record met MCP-18.1 requirements except for: (1) the Company/Dates information in the "Experience" block was missing, (2) the Certificate Numbers were not listed in the "Professional Accomplishment" block, and (3) only one audit was listed in the "Audit Participation" block when five are required over the last three years. These items were corrected during the course of the audit and are identified as COTS #13, COTS #12, and COTS #14, respectively.

The results of this review were satisfactory. Indications are Kiewit/PB adequately implements the requirements set forth in MCP-18.1. There were no deficiencies or recommendations identified.

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REECO-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25**PERSONNEL CONTACTED DURING AUDIT REECO-004-95**

<u>Name</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Organization</u>
M. V. Adkins	X		X	REECO QA Specialist(AIT)
J. R. Brown		X		K/PB Buyer
M. L. Brown	X	X	X	K/PB Training Supervisor
J. D. Christensen	X	X	X	K/PB QA Manager
H. R. Cox		X	X	K/PB QC Manager
W. J. Glasser	X			REECO Project QAO Manager
C. M. Haas		X		K/PB Training Asst.
D. A. Hackbert	X		X	REECO Audit/Surv.Sect.Chief (Aud)
W. H. Hansmire	X	X	X	K/PB Eng. Manager
F. L. Harper		X		K/PB QC Inspector
D. L. Kirby	X		X	REECO QA Specialist (AIT)
K. C. Krank		X		K/PB Quality Eng., Programs
M. W. Krantz	X		X	K/PB Project Business Mgr.
A. R. Matura	X			REECO Sr. QA Specialist (AIT)
C. A. Rixford	X	X	X	K/PB Records Manager
F. J. Ruth	X		X	REECO Sr. QA Specialist (ATL)
S. F. Schuermann	X	X	X	K/PB Lead Auditor
R. K. Shetty		X		K/PB Engineer
K. K. Spence		X		K/PB Document Analyst-Lead
T. J. Tomek		X		K/PB Welding Engineer
R. F. Voss		X		K/PB Engineer/ Estimator
W. D. Wightman		X	X	K/PB Project Manager

Legend:

- A = Attended Pre-Audit Meeting, (02/27/95)
- B = Contacted During the Audit
- C = Attended Post-Audit Meeting, (03/03/95)
- AIT= Auditor-In-Training
- ATL= Audit Team Leader
- Aud= Auditor



Reynolds Electrical & Engineering Co., Inc.

YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

Page 29 of 32

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

ATTACHMENT 1

MCPS AUDITED

MCP-1.0,	Rev. 4,	Kiewit/PB Organization
MCP-1.1,	Rev. 3,	Stop Work Procedure
MCP-2.0,	Rev. 8,	Construction Planning and Control
MCP-2.1,	Rev. 4,	Surveillance
MCP-2.2,	Rev. 2,	QA Program Information Management, Trending, and Management Assessment
MCP-2.3,	Rev. 3,	Readiness Review
MCP-2.4,	Rev. 4,	Indoctrination, Training, and Qualification
MCP-4.0,	Rev. 9,	Procurement Document Control
MCP-5.0,	Rev. 4,	Procedure Preparation and Control
MCP-6.0,	Rev. 3,	Document Control
MCP-6.1,	Rev. 3,	Expedited Changes
MCP-7.0,	Rev. 7,	Procurement Planning
MCP-7.1,	Rev. 3,	Acceptance of Procured Items and Services
MCP-8.0,	Rev. 3,	Identification and Control of Items
MCP-9.0,	Rev. 4,	Control of Special Processes
MCP-9.1,	Rev. 2,	Qualification and Certification of Non-Destructive Testing Level III Personnel
MCP-9.2,	Rev. 3,	Non-Destructive Testing (NDT) Level II Personnel
MCP-10.0,	Rev. 4,	Inspection Planning and Control
MCP-10.1,	Rev. 4,	Qualification and Certification of Inspection and Test Personnel
MCP-11.0,	Rev. 3,	Test Control
MCP-12.0,	Rev. 7,	Control of Measuring and Test Equipment
MCP-13.0,	Rev. 3,	Handling, Storage, and Shipping
MCP-14.0,	Rev. 3,	Inspection, Test, and Operating Status
MCP-15.0,	Rev. 4,	Control of Nonconforming Items
MCP-16.0,	Rev. 3,	Corrective Action
MCP-17.0,	Rev. 6,	Records Management
MCP-18.0,	Rev. 5,	Audits
MCP-18.1,	Rev. 5,	Auditor Qualification Plan



Reynolds Electrical & Engineering Co., Inc.

YUCCA MOUNTAIN PROJECT
QA AUDIT/SURVEY REPORT - CONTINUATION SHEET

Page 30 of 32

AUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCo-004-95

AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV, Area 25

Attachment 2
KIEWIT/PB QARD RTN
MATRIX/PROCEDURE
DISCREPANCIES

QARD SECTION	DISCREPANCY DESCRIPTION	RTN MATRIX ACTION	MCP PROCEDURE ACTION
15	ALL SECTIONS	REFERENCE YAP-15.1Q AS THE IMPLEMENTING DOCUMENT	N/A
16.2.3A	MCP-16.0, ¶ 3.1.1 ONLY PARTIALLY ADDRESSES	ADD ¶'s 3.1.2 & 3.1.6B TO MATRIX	N/A
16.2.3C & 3D	¶ 3.2.1A ONLY PARTIALLY ADDRESSES REQUIREMENT	ADD ¶'s 3.2.1C AND 3.3.1C TO MATRIX	N/A
16.2.4B	MCP-16.0, ¶ 3.1.6B ONLY PARTIALLY ADDRESSES	ADD ¶'s 3.1.2 AND 3.1.1 TO RTN	N/A
16.2.4B	QARD " <u>their upper management</u> " IS NOT ADDRESSED IN MCP-16.0	N/A	ADD REQUIREMENT TO MCP-16.0
16.2.4C.2	SHOULD IDENTIFY <u>MCP-1.1</u> AS THE MORE CORRECT REFERENCE	ADD MCP-1.1 TO RTN AS A REFERENCE	N/A
16.2.4E. :1s	SHOULD IDENTIFY ¶ 3.2.1C AS THE MORE CORRECT REFERENCE	ADD ¶ 3.2.1C TO THE RTN	N/A
16.2.4E. :2s	MCP-16.0, ¶ 3.2.1B DOES NOT ADDRESS QARD " <u>prevent recurrence</u> "	N/A	ADD " <u>prevent recurrence</u> " TO MCP-16.0
16.2.6B, 6C & 6D	<u>MCP-2.2</u> IS THE MORE CORRECT REFERENCE	RTN SHOULD IDENTIFY MCP-2.2 AS THE REFERENCE	N/A

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REEC0-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV,**Attachment 3**
KIEWIT/PB QARD RTN
MATRIX/PROCEDURE
DISCREPANCIES

QARD SECTION	DISCREPANCY DESCRIPTION	RTN MATRIX ACTION	MCP PROCEDURE ACTION
17.2.2D. :1s & :2s	RTN SHOULD REFERENCE ¶ 3.2.4.4A	ADD ¶ 3.2.4.4A TO RTN	N/A
17.2.10A & 10B	NOT ADDRESSED IN RTN AND IS APPLICABLE TO K/PB	RTN SHOULD IDENTIFY MCP-17.0, ¶ 3.5.1	N/A
17.2.10C	NOT ADDRESSED IN RTN AND IS APPLICABLE TO K/PB	ADD MCP-17.0 TO RTN	ADD REQUIREMENT TO MCP-17.0
17.2.11	NOT ADDRESSED IN MCP-17.0, ¶ 3.5.4	N/A	ADD REQUIREMENT IN MCP-17.0, ¶ 3.5.4
17.2.11	QARD " <u>means</u> " NOT ADDRESSED IN MCP-17.0	N/A	ADD REQUIREMENT TO MCP-17.0
18.2.3	RTN SHOULD IDENTIFY ¶ 3.1.1	ADD ¶ 3.1.1 TO RTN	N/A
18.2.5 2s	QARD " <u>meaningful and effective</u> " IS NOT ADDRESSED IN MCP-18.0	N/A	ADD " <u>meaningful and effective</u> " TO MCP-18.0
18.2.6D	QARD " <u>supervise the team</u> " IS NOT ADDRESSED IN MCP-18.0	N/A	ADD " <u>supervise the team</u> " TO MCP-18.0
18.2.6D:1s	REQUIREMENT NOT ADDRESSED IN MCP-18.0, ¶ 3.4.	DELETE REFERENCE TO MCP-18.1	ADD REQUIREMENT TO MCP-18.0, ¶ 3.4

**YUCCA MOUNTAIN PROJECT**
QA AUDIT/SURVEY REPORT - CONTINUATION SHEETAUDITED ORGANIZATION: Kiewit/PB AUDIT/SURVEY REPORT NO. REFCO-004-95AUDIT/SURVEY DATE(S): 02/27 - 03/03/95 LOCATION: Las Vegas, NV,**Attachment 4**
KIEWIT/PB QARD RTN
MATRIX/PROCEDURE
DISCREPANCIES

QARD SECTION	DISCREPANCY DESCRIPTION	RTN MATRIX ACTION	MCP PROCEDURE ACTION
18.2.6E	REQUIREMENT NOT IDENTIFIED IN MCP-18.0	N/A	ADD REQUIREMENT TO MCP-18.0
18.2.7B	INCORRECT REFERENCE ON RTN	CHANGE REFERENCE TO ¶ 3.6 FROM ¶ 3.4	N/A
18.2.7C	UNNECESSARY REFERENCE ON TRN	DELETE REFERENCE TO ¶ 3.3	N/A
18.2.7E :1s	REQUIREMENT NOT ADDRESSED IN MCP-18.0	N/A	ADD RREQUIREMENT TO MCP-18.0
18.2.7E :2s	INCORRECT REFERENCE IN RTN	RTN SHOULD REFERENCE MCP-18.0, ¶ 3.6	N/A
18.2.12	QARD " <u>indoctrinated and trained according to the requirements of section 2.0</u> " IS MISSING FROM MCP-18.1	N/A	ADD " <u>indoctrinated and trained according to the requirements of section 2.0</u> " TO MCP-18.1
18.2.13 :2sA	INCORRECT REFERENCE IN RTN	RTN SHOULD IDENTIFY MCP-18.1, ¶3.1A	N/A
18.2.13 :2sB	INCORRECT REFERENCE IN RTN	RTN SHOULD IDENTIFY MCP-18.1, ¶3.1B	N/A
18.2.14A	REQUIREMENT NOT ADDRESSED IN MCP-18.1	N/A	ADD REQUIREMENT TO MCP-18.1
18.2.15B	REQUIREMENT NOT ADDRESSED IN MCP-18.1, ¶ 3.4.1	N/A	ADD REQUIREMENT TO MCP-18.1, ¶ 3.4.1
18.2.13 :2sB	INCORRECT REFERENCE IN RTN	RTN SHOULD IDENTIFY MCP-18.1, ¶3.4.1	N/A

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

AUDIT REPORT

OF

REYNOLDS ELECTRICAL AND ENGINEERING COMPANY, INC.

LAS VEGAS AND MERCURY, NEVADA

AUDIT NUMBER YM-ARP-95-01
OCTOBER 24 THROUGH 28, 1994

Prepared by: Amelia L. Arceo Date: 11/21/94
Amelia L. Arceo
Audit Team Leader
Yucca Mountain Quality
Assurance Division

Approved by: Donald G. Horton Date: 11/23/94
Donald G. Horton
Director
Office of Quality Assurance

ENCLOSURE

1.0 EXECUTIVE SUMMARY

As a result of Performance Based Quality Assurance (QA) Audit YM-ARP-95-01, the audit team determined that Reynolds Electrical and Engineering Company, Inc. (REECo) is satisfactorily implementing effective QA program and process controls for the collection and analysis of lithium bromide water samples.

The performance based evaluation of process effectiveness and product acceptability was based on 1) proper implementation of the procedures' critical process steps; 2) use of trained and qualified personnel working effectively; 3) documentation that substantiated the quality of the products; and 4) acceptable results and the quality of the end products.

The audit was performed based on direct observation of the activities in process, interviews with auditee personnel and review of pertinent documents for performance based information gained throughout this process, in order to make a determination whether or not the performance was satisfactory.

The audit team identified five deficiencies during the audit that were corrected prior to the postaudit meeting. These conditions are described in Section 5.5.2 of this report. Additionally, there were seven recommendations resulting from the audit which are detailed in Section 6.0 of this report.

2.0 SCOPE

The audit was conducted to evaluate the effectiveness of REECo's controls for performing the collection and analysis of lithium bromide water samples.

The processes/activities/end-products evaluated during the audit, in accordance with the approved audit plan, are as follows:

PROCESS/ACTIVITY/OR END-PRODUCT

1. Collection of lithium bromide water samples.
2. Analysis of lithium bromide water samples.
3. Surveillances, Training and Qualification, Inspections, Corrective Actions, and QA Records related to the collection and analysis of lithium bromide water samples.

TECHNICAL AREAS

Lithium bromide water samples

3.0 AUDIT TEAM AND OBSERVERS

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

<u>Name/Title/Organization</u>	<u>QA Program Elements/Requirements, Processes, Activities or End-products</u>
Amelia I. Arceo, Audit Team Leader (ATL) Yucca Mountain Quality Assurance Division (YMQAD)	Surveillances, Corrective Actions, and QA Records related to the collection and analysis of lithium bromide water samples.
Raul A. Hinojosa, Auditor, YMQAD	Collection of lithium bromide water samples; Training, Qualification and Certification of Inspection Personnel; and Inspection
Stephen R. Maslar, Auditor, YMQAD	Analysis of lithium bromide water samples; and Training, Qualification and Certification of Material Test Laboratory Personnel

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

The preaudit meeting was held at the REECo office, in the Bank of America Center (BAC) in Las Vegas, Nevada, on October 24, 1994. A daily debriefing and coordination meeting was held with REECo 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 at the REECo office, in the BAC in Las Vegas, Nevada, on October 28, 1994. Personnel contacted during the audit are listed in Attachment 1. The list includes those who attended the preaudit and postaudit meetings.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Effectiveness

The audit team concluded that, in general, the REECo process controls are effectively being implemented for areas identified in the scope of this audit. The process controls for performing the collection and analysis of lithium

bromide water samples were found to be effective based on the evaluation of the critical process steps; use of trained and qualified personnel working effectively; documentation that substantiated the quality of the products; and acceptable results and the quality of the end products. There were five deficiencies identified by the audit team and corrected prior to the postaudit meeting. These conditions are described in Section 5.5.2 of this report. Additionally, there were seven recommendations resulting from the audit which are detailed in Section 6.0 of this report.

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 checklists. The checklists are kept and maintained as QA Records.

5.4 Technical Audit Activities

Collection and analysis of lithium bromide water samples.

5.5 Summary of Deficiencies

The audit team identified five deficiencies during the audit that were corrected prior to the postaudit meeting. Additionally, there were seven recommendations resulting from the audit, which are detailed in Section 6.0 of this report.

Synopses of deficiencies corrected during the audit are detailed below.

5.5.1 Corrective Action Requests (CARs)

No CARs were issued during this audit.

5.5.2 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. **Contrary to the requirements of Paragraph 6.5 of QA Procedure PP-02-08, Revision 1, "Training, Qualification and Certification of MTL Test Personnel," one test personnel did not have an up-to-date (yearly) visual examination. This condition was satisfactorily corrected by the test personnel's re-examination and passing the visual examination prior to the postaudit meeting.**
2. **Contrary to the requirements of Paragraph 6.4.3 of QA Procedure MC-13.2, Revision 2, "Surveillances," the items that were Corrected on the Spot (COTS) were documented in the Observations section, not in the Discrepancy or Nonconformance section of the Surveillance Report SR-027-94. Furthermore, the letter transmitting the Surveillance Report to the surveilled organization identified one COTS instead of two COTS. The Surveillance Report and transmittal letter were corrected and the records were resubmitted to the Local Records Center (LRC) prior to the postaudit meeting.**
3. **A deficiency identified in Surveillance Report SR-002-95 was not identified in a Deficiency Notice (DN). The organization that was surveilled (Kiewit/PB) was allowed to document the deficiency in their own corrective action program. This action was not provided for in the Surveillance Procedure. This was corrected by the issuance of Interim Change Notice (ICN) No. 1 to MC-13.2, Revision 2 "Surveillances," prior to the postaudit meeting. Paragraph 6.4.4.4 now states "Other minor deficiencies may be documented in accordance with the organization's REEC approved Corrective Action Program."**
4. **Contrary to the requirements of Paragraph 6.1.1 of QA Procedure MC-11.4, Revision 2, "Trending," one out of the two COTS identified in Surveillance Report SR-027-94 was not reflected in the Third Quarter Trend Evaluation Data and Report. A review of 1993 and 1994 Surveillance Reports identified two more COTS not included in the Trend Evaluation Data. This was corrected by including the COTS in the Fourth Quarter Trend Evaluation Data. When the three COTS were included in the Third Quarter Trend Evaluation Data, the result did not show an adverse trend.**
5. **The "Approved By/Date" block of the Third Quarter Trend Report was not completed. This block was completed and resubmitted to the LRC prior to the postaudit meeting.**

5.5.3 Follow-up of Previously Identified CARS

There were no previously issued CARS that were determined to be applicable to the scope of this audit.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for consideration by the REECo management.

1. Specification YMP-025-1-SP09, Section 15485, Paragraph 3.03 A 3 should be revised to agree with REECo Procedure TC-581 SP-0010, Revision 1, Paragraph 6.3.2 with respect to the quantity of lithium bromide to be added to 4000 gallons of water, e.g., 14.5 ounces versus the 13.16 (approximate) ounces called out in the specification. The 14.5 ounces results in the desired concentration as shown by previous test results.
2. REECo Procedure MC-07.6, Revision 0, Paragraph 6.1.2 should be revised to give a specific time or length of time to submit as-built Tracers, Fluids and Materials (TFM) data. As stated in the present procedure, the phrase "in a timely manner" may be misinterpreted by personnel submitting the TFM data.
3. Certification records of the remaining Material Test Laboratory (MTL) personnel, not directly involved in the analysis of lithium bromide water samples, should be reviewed to ensure that minor inconsistencies similar to those corrected during the audit do not exist.
4. Specification YMP-025-1-SP09, Section 15485, should be revised to clarify the requirements between Paragraphs 2.02 B (2); 3.03 A (8); and 2.03 associated with the use of specific test equipment and approval of the test method.
5. The use of standard (buffer) solutions should be considered in conjunction with the present standardization method used to generate the bromide calibration graph. This standard with a known range of output could be used to monitor or trend equipment bias, precision and drift.
6. REECo should provide directions for discarding the samples after testing and include any retention time if retesting would be required.
7. Surveillance Reports should consistently state conclusions resulting from the surveillance (i.e., conformance to, adequacy of, or effectiveness of implementation, process or activity).

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>
Aarnodt, J.	RSN/Engineer II		X	
Alsup, W. M.	RSN/Chemical Hygiene Officer		X	
Arceo, A.	YMQAD/ATL	X		X
Barker, M. C.	REECO/YMP Training, Trng. Admin.	X	X	X
Erickson, G.	REECO/Calibration Lab Supv.		X	
Faiss, J.	REECO/Prin. Staff Asst.	X		X
Fortner, T.	REECO/YMP Const. Mgr.	X		
Gardella, B.	REECO/Principal Engineer		X	X
Glasser, W.	REECO/YMP QA Mgr.		X	X
Gratza, W.	REECO/QAO Sr. QA Specialist	X	X	X
Greene, H.	YMQAD/Dept. Manager			X
Hackbert, D.	REECO/Audit/Surveillance Sect. Chief	X	X	X
Hasson, R. P.	REECO/Sr. QA Specialist			X
Herrington, C. D.	RSN/Sr. Specialist	X	X	X
Hedlund, J.	REECO/Sr. Engineer		X	
Hinojosa, R. A.	YMQAD/Auditor	X		X
Justice, R.	M&O QA/QE Mgr.		X	
Koss, D. L.	REECO/Division Mgr. & TPO			X
Kerhrman, R.	REECO/CND Field Engineer		X	
Leonard, T. M.	REECO/CND Mgr.	X	X	X
Limon, K. L.	REECO/Acting TPO.	X		
Maslar, S. R.	YMQAD/Auditor	X		X
Mouser, E.	REECO/QC Inspector		X	
Patel, K.	REECO/CND Field Engineer		X	
Pugmire, W.	REECO/QCS Section Chief	X	X	X
Rodgers, T. E.	YMQAD/Audit Lead	X		X
Rohach, N.	RSN/Manager, Quality & Inspection	X	X	
Ruth, F. J.	REECO/Sr. QA Specialist			X
Watkins, A.	M&O ESF Design/Title III Const. Engr.		X	
Watson, L.	RSN/Manager, Field Operations		X	
Williams, B.	REECO/YMP IMD, Office Asst.		X	
Williams, S. M.	REECO/CLD Manager	X		
Wilson, P.	REECO/QAO Sr. QA Specialist	X	X	
Ziehm, S.	REECO/YMP IMD, Acting Mgr.	X		X

LEGEND

CLD = Control Department
CND = Construction Department
IMD = Information Management Department
ESF = Exploratory Studies Facility
QAO = Quality Assurance Office
QCS = Quality Control Section
QE = Quality Engineer
RSN = Raytheon Services Nevada
TPO = Technical Project Officer
YMP = Yucca Mountain Site Characterization Project

ATTACHMENT 2
Summary Table of Audit Results

AUDIT YM-ARP-95-01 DETAIL SUMMARY

QA ELEMENT/ ACTIVITIES	PROCESS STEPS	DETAILS (Checklist)	CARs	CDA	RECOM- MENDATION	ADE- QUACY	COM- PLIANCE	OVER- ALL
Collection of lithium bromide water samples	Lithium bromide tracer addition to mix tank	Page 2	N	N	6.1	N/A	SAT	EFF
	Batch recirculation in mix tank	Page 2	N	N	N	N/A	SAT	
	Sample and testing by Quality Control (QC)	Page 3	N	N	N	N/A	SAT	
	QC personnel qualified, trained and certified	Page 3	N	N	N	N/A	SAT	
	Batch release on satisfactory test or TCO acceptance.	Page 4	N	N	N	N/A	SAT	
	Use of approved checklist for sampling and testing	Page 5	N	N	N	N/A	SAT	
	Submittal of TFM to DRC and DBA	Pages 5, 5 A	N	N	6.2	N/A	SAT	

ATTACHMENT 2
Summary Table of Audit Results

QA ELEMENT/ ACTIVITIES	PROCESS STEPS	DETAILS (Checklist)	CARs	CDA	RECOM-MENDATION	ADE-QUACY	COM-PLIANCE	OVER-ALL
Analysis of lithium bromide water samples	Samples received	Page 6	N	N	N	N/A	SAT	EFF
	Work request generated	Page 6	N	N	N	N/A	SAT	
	Samples logged	Page 7	N	N	N	N/A	SAT	
	Sample identified	Page 7	N	N	N	N/A	SAT	
	Test method specified	Page 8	N	N	N	N/A	SAT	
	Personnel certified	Pages 9, 16, 17	N	5.5.2.1	6.3	N/A	SAT	
	Test reports issued	Page 10	N	N	N	N/A	SAT	
	Test results sent to requester	Page 11	N	N	N	N/A	SAT	
	Equipment used per specification	Pages 8, 12, 13	N	N	6.4	N/A	SAT	
	Standardization of samples	Page 14	N	N	N	N/A	SAT	
	Test equipment calibrated	Pages 10, 15, 18	N	N	6.5	N/A	SAT	
Sample disposal	Page 8	N	N	6.6	N/A	SAT		

ATTACHMENT 2
Summary Table of Audit Results

QA ELEMENT/ ACTIVITIES	PROCESS STEPS	DETAILS (Checklist)	CARs	CDA	RECOM-MENDATION	ADE-QUACY	COM-PLIANCE	OVER-ALL
Surveillance related to the collection and analysis of lithium bromide water samples	Independence of surveillance team	Page 25	N	N	N	N/A	SAT	EFF
	Personnel trained and qualified	Pages 21, 25	N	N	N	N/A	SAT	
	Surveillance report completed	Page 26	N	5.5.2.2	6.7	N/A	SAT	
	Deficiencies identified	Page 27	N	5.5.2.3	N	N/A	SAT	
	Surveillance records package submitted to LRC	Page 27	N	N	N	N/A	SAT	
Corrective Actions related to collection and analysis of lithium bromide water samples	Problems identified as deficiencies	Page 19	N	N	N	N/A	SAT	EFF
	Trend Report reflect deficiencies identified	Page 20	N	5.5.2.4	N	N/A	SAT	
	Personnel trained and qualified	Page 21	N	N	N	N/A	SAT	
	DNs and Trend Report Documentation submitted to LRC	Page 22	N	5.5.2.5	N	N/A	SAT	
TOTAL		28	N	5	7			EFF

ATTACHMENT 2
Summary Table of Audit Results

CARs Corrective Action Requests
CDA Corrected During Audit
ADEQUACY . Requirements in Procedures meet QARD
COMPLIANCE Procedures Implemented
N None
N/A Not Applicable
EFF Effective
SAT Satisfactory
TCO Technical Coordination Office
DRC Document and Records Center
DBA Data Base Administrator

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

AUDIT REPORT

OF

REYNOLDS ELECTRICAL AND ENGINEERING COMPANY, INC.
LAS VEGAS, NEVADA
AND
NEVADA TEST SITE

AUDIT YMP-94-04
MAY 2 THROUGH 6, 1994

Prepared by: JE Rodgers for Date: 7/12/94
Frank J. Kratzinger
Audit Team Leader
Yucca Mountain Quality Assurance Division

Approved by: RC Spence For Date: 7/15/94
Donald G. Horton
Director
Office of Quality Assurance

1.0 EXECUTIVE SUMMARY

As a result of Quality Assurance (QA) Audit YMP-94-04, the audit team determined that Reynolds Electrical and Engineering Company, Inc. (REECo) is satisfactorily implementing an effective 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 0, for the Civilian Radioactive Waste Management Program and REECo implementing procedures for QA Program Elements 1.0, 2.0, 5.0, 6.0, 8.0, 10.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, and 18.0. QA Program Elements 4.0 and 7.0 were determined to have insufficient implementation since no quality-affecting items/services had been procured since the last audit of REECo in June of 1993. QA Program Element 9.0 was not evaluated due to no activity at this time.

There were no Corrective Action Requests (CAR) issued as a result of this audit. There were eight deficient conditions identified and subsequently corrected during the audit. These conditions are described in Section 5.5.2 of this report. Additionally, there were six recommendations resulting from the audit which are detailed in Section 6.0 of this report.

2.0 SCOPE

The audit was conducted to evaluate compliance to, and the effectiveness of, the REECo QA Program as described in the QARD and REECo implementing quality procedures.

Follow-up on previously issued CARs relating to the QA program elements audited was performed. Results of this follow-up are described in Section 5.5.3 of this report.

The QA program elements/requirements evaluated during the audit in accordance with the published audit plan are as follows:

QA Program Elements:

- 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
- 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
- 18.0 Audits

The following QA program elements/requirements were not reviewed during the audit because REECO has no activity for which these elements apply:

- 3.0 Design Control
- 11.0 Test Control
- Supplement I, Software
- Supplement II, Sample Control
- Supplement III, Scientific Investigation
- Supplement IV, Field Surveying

Technical Areas

The scope of this audit did not include any technical areas.

3.0 AUDIT TEAM AND OBSERVERS

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

<u>Name/Title</u>	<u>QA Program Elements/Requirements</u>
Frank J. Kratzinger, Audit Team Leader (ATL), Yucca Mountain Quality Assurance Division (YMQAD)/Quality Assurance Technical Support Services (QATSS)	
Amelia I. Arceo, Auditor, YMQAD/QATSS	15 and 17
Donald J. Harris, Auditor, YMQAD/QATSS	4 and 7
Raul A. Hinojosa, Auditor, YMQAD/QATSS	8, 12, and 13
Robert H. Klemens, Auditor, YMQAD/QATSS	1 and 2
Kenneth T. McFall, Auditor, YMQAD/QATSS	9, 10, and 14
Steve P. Nolan, Auditor, YMQAD/QATSS	16 and 18
John F. Pelletier, Auditor, YMQAD/QATSS	15 and 17
Richard L. Weeks, Auditor, YMQAD/QATSS	5 and 6
John Gilray, Observer, U.S. Nuclear Regulatory Commission (NRC)	
Bruce Mabrito, Observer, NRC/Southwest Research Institute	

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

The preaudit meeting was held at the REECo office in the Bank of America Center in Las Vegas, Nevada, on May 2, 1994. A daily debriefing and coordination meeting was held with REECo 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 at the REECo office in the Bank of America Center in Las Vegas, Nevada, on May 6, 1994. Personnel contacted during the audit are listed in Attachment 1 of this report. The list includes an indication of those who attended the preaudit and postaudit meetings.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Effectiveness

The audit team concluded that, in general, the REECo QA Program is adequate and is being satisfactorily implemented for the scope of this audit. Individually, QA Program Elements 1.0, 2.0, 5.0, 6.0, 8.0, 10.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, and 18.0 are satisfactorily implemented. QA Program Elements 4.0 and 7.0 were determined to have insufficient implementation since no quality-affecting items/services had been procured since the last audit of REECo in June of 1993. QA Program Element 9.0 was not evaluated due to no activity at this time.

5.2 Stop Work or Immediate Corrective Actions or Additional Actions

There were no Stop Work Orders or immediate corrective actions resulting from this audit, however, the following additional actions resulted from the audit.

The Requirements Traceability Network (RTN) Matrix for REECo was found to be missing appropriate references which are contained in REECo's implementing procedures but omitted from the RTN Matrix. REECo was given a list of proposed fixes to the RTN Matrix by the audit team and will forward the required changes for the RTN Matrix to YMQAD within 60 days of the postaudit meeting.

As a result of this audit, three surveillances were proposed to ensure satisfactory close-out of work being performed by REECo. These surveillances are as follows:

1. The processing of starter tunnel construction records during the verification process.

2. Verification of the closure to REECo CARs 94-005 and 94-006 for failure to take timely action to resolve the original deficiencies cited in Deficiency Notice (DN) 94-003 and DN 94-004.
3. Follow-up on REECo CAR 94-004 where a Stop Work was issued on material control.

5.3 QA Program Audit Activities

Details of the QA program audit activities are provided in Attachment 2. A list of objective evidence reviewed during the audit is provided in Attachment 3.

5.4 Technical Activities

No technical activities were included in the scope of this audit.

5.5 Summary of Deficiencies

The audit team identified eight deficiencies during the audit which were corrected prior to the postaudit meeting. A synopsis of the deficiencies corrected during the audit are detailed in Section 5.5.2.

5.5.1 Corrective Action Requests

There were no CARs issued as a result of this audit.

5.5.2 Deficiencies Corrected During the Audit

Deficiencies which are considered isolated in nature and only require remedial action, can be corrected during the audit. The following eight deficient conditions were identified and corrected during the audit:

1. Management Control Procedure (MC)-12.0, Revision 2, Paragraph 6.7.1.4 states, "Records generated by REECo which will become part of a Job Package (JP) record package shall be submitted to the Yucca Mountain Site Characterization Office (YMSCO) Document Records Center (DRC) according to reference 3.15 (Administrative Procedure [AP]-6.22Q). A duplicate of the completed form used to submit records to the DRC shall be sent to the Information Service Center (ISC)...." AP-6.22Q, Revision 0, Interim Change Notice (ICN) 1, Section 5.0, Step 9, 2nd Sentence, states, "JP Participants - Submit completed records to the DRC using the records package tracking number in accordance with AP-1.18Q...."

Contrary to the requirements, the records generated for the Rock Storage Pad Geomembrane Liner associated with JP 92-20 were submitted without using the records package tracking number. Furthermore, the records were identified on the Transmittal/Receipt Acknowledgement (TRA), (form YMP-091-R1, AP-1.18Q), as "Record" instead of "Segment." The records package was retrieved and retransmitted to the DRC identifying it as a Segment with the Tracking Number/Identifier DRC-026A on the TRA (form YMP-091-R1, AP-1.18Q) on 5/6/94. "Segment of JP 92-20" was annotated on the form.

2. MC-12.1, Revision 2, ICN 2, Paragraph 6.1.3.5 requires that record packages must include a Table of Contents that contains an inventory of the contents of the package by listing the individual records that constitute the package and indicating the page count for each individual record or group of records.

Contrary to the requirement, the Table of Contents record package for REECo-YMP Surveillance Report SR-014-94 of REECo Engineering did not identify the Surveillance Plan on the Table of Contents. The record package was resubmitted to the ISC with the corrected Table of Contents which listed the Surveillance Plan and increased the number of pages from 8 to 9 on May 5, 1994 (Document Identification No. SR-014-94/94-003705).

3. MC-12.0, Revision 2, Paragraph 6.6.4.3 requires that the REECo Technical Project Officer (TPO) provide, by letter to the TPO of the participant organization responsible for operating the Las Vegas (LV), Local Records Center (LRC) and the Central Records Facility (CRF), a list of names of REECo personnel authorized access to DOE System 80 Records. The latest letter was generated by R. F. Pritchett on March 9, 1992 which included personnel not currently employed by REECo.

Letter Number 580-01-453, dated May 6, 1994, with the Access List attached was issued by D. L. Koss, REECo TPO, to L. Dale Foust, TPO of the participant organization responsible for operating the LV LRC and the CRF.

4. MC-12.0, Revision 2, Paragraphs 6.2.1 and 6.6.4.2 require that the managers complete a Records Authorization Form (RAF), identifying the personnel within their organization and the records tasks they are authorized to perform; and those with authorized access to DOE System 80 Records.

Contrary to the requirements, the RAF for REECo personnel who are authorized to submit procurement records and who are authorized to access DOE System 80 Records was not completed. The RAF was completed by D. L. Koss, TPO for the Procurement and Property Management Department, on May 6, 1994. The new department manager is not yet qualified to complete the form.

5. MC-09.1, Revision 4, Paragraph 6.2.1, sixth bullet, requires that the functional qualification level (by discipline) of personnel performing inspections be identified on inspection planning documentation.

Contrary to the above requirement, inspection planning documents examined did not contain this information. The applicable form was revised to include the required information by ICN 1 prior to the postaudit meeting.

6. MC-09.1, Revision 4, Paragraph 6.8.3, requires that the inspector's level of qualification (I, II, or III) be included on the inspection documentation.

The inspection checklists that were used in place of inspection reports for the lithium bromide storage tank tests did not include the inspector's level of qualification. REECo Quality Control (QC) personnel added the inspector's level of qualification to the applicable documentation prior to the postaudit meeting.

7. MC-06.3, Revision 1, Paragraph 6.4.5, requires that the recipient of controlled documents comply with the instructions provided on the transmittal for disposition of the document.

Contrary to the above requirement, Field Change Request (FCR) 94/104 had not been posted against drawing YMP-025-1-MING-MG143, Revision 2, copy No. 101404.5. The FCR was posted against the drawing prior to the postaudit meeting.

8. MC-13.0, Revision 3, Paragraph 6.5.2.6, states that, "The auditor(s) using the QA Audit/Survey Checklist to perform his portion of the audit shall initial in the initials column next to the attribute to indicate his completion of the checklist." Exhibit III, Page 3 of 3, also states that for dispositions of N/A, the auditor is to provide an explanation in the Status Column.

Contrary to the above requirement, REECO Audit 001-93 checklist had some missing initials and several N/As were not sufficiently explained. The Lead Auditor was contacted and the checklist was corrected to the requirements prior to the postaudit meeting.

5.5.3 Follow-up of Previously Identified CARs

The below listed CARs previously issued to REECO during YMQAD Audits/Surveillances were reviewed to determine effectiveness of corrective actions.

1. CAR YM-93-055, issued on July 7, 1993, identified that supplier evaluations and testing were not performed for commercial grade items when required. Verified FCR 93/512 contained material dedication requirements for YMP-025-1-SP09, Section 02165 and 03361, dated September 15, 1993, and FCR 93/010, dated October 20, 1993, for bearing plates. Procedure MC-04.2, Receipt Inspection, Revision 1, was rewritten to incorporate the changes proposed in CAR YM-93-005. Supplemental Technical Inspection Reports (TIRs) addressing critical characteristics were generated to determine the adequacy of the inspection/test performed on quality-affecting Purchase Orders (POs) 1-QYP-01-3 and 37-YP-01-3. Verified the test requirements of the supplemental TIRs were in accordance with American Society for Testing Materials (ASTM) F432-91 Standard Specification for Rock Bolts and Accessories. The corrective action taken to disposition CAR YM-93-055 is considered to be effective.
2. CAR YM-93-057, issued on July 7, 1993, identified that documentation of samples tested does not provide for traceability to materials. Shotcrete Placement Logs were examined and found to indicate the Measuring and Test Equipment (M&TE) Calibration Number which provides traceability to the specific thermometer utilized. Logs for the following days were examined: 8/6/93, 8/17/93, 8/18/93, 8/20/93, 9/10/93, 9/13/93, 9/15/93, and 9/16/93. Corrective action is considered to be effective.
3. CAR YM-93-059, issued on July 7, 1993, identified that test result documentation of Fibercrete samples tested at seven days does not provide traceability that the mix design was for Fibercrete. Reviewed REECO transmittal No. 1A-03-191CMD to the Management and Operating (M&O) Contractor. The new package included Shotcrete Placement Logs that were traceable to acceptable Fibercrete test results and to POs that are traceable to verify that the

product placed and tested was Fibercrete. The corrective action taken to disposition CAR YM-93-059 is considered to be effective.

4. CAR YM-93-060, issued on July 7, 1993, identified that inaccurate and missing information was recorded on Shotcrete Placement Logs. The same Shotcrete Placement Logs identified in CAR YM-93-057 were examined to determine effectiveness of corrective action. For the examined logs, identification numbers were accurate, batch numbers were correct, drawing numbers were listed and all corrections were made in accordance with procedural requirements. Corrective action is considered to be effective.
5. CAR YM-93-084, issued on July 28, 1993, identified that AP-5.39Q was not being used when requesting work from the Raytheon Services Nevada Materials Test Laboratory. Reviewed Yucca Mountain Project Technical Field Work Request No. 93423, dated September 29, 1992, and REECo's QC Material Test Request Log. The corrective action taken to disposition CAR YM-93-084 is considered to be effective.
6. CAR YM-94-011, issued on December 14, 1993, identified that documentation of rock bolt installation was incorrectly completed. Verified that REECo procedure TC-501-SP-0011 was revised by ICN 1, dated February 3, 1994, to clarify the construction department sign-off on the Rock Bolt Installation and Testing Log. The corrective action taken to disposition CAR YM-94-011 is considered to be effective.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for consideration by REECo management.

1. There should be a surveillance of the processing of construction records, either during the verification process of the open DNs, DN-94-017 and DN-94-021, or after these DNs are closed specifically to ensure that the problem about duplicate records is resolved.
2. The processing of JP records needs to be surveilled.
3. The records section of examined REECo procedures refers to "QA Records" and "Project Records." However, the QARD identifies lifetime and nonpermanent as the terminology to classify quality assurance records. Although REECo procedure MC-12.1, Revision 3, clearly distinguishes

between lifetime and non-permanent records, it is recommended that REECo adopt the same terminology as identified in the QARD for consistency.

4. REECo has a Controlled Document Center (CDC) database for tracking FCRs that are posted against drawings, specifications, Work Programs, Test Planning Packages (TPPs), and JPs. It is recommended that this system be adopted by the YMSCO to serve all Affected Organizations whose work is impacted by FCRs. The reports generated by this database provide the user with a summary of controlled documents and corresponding FCRs or a summary of FCRs and corresponding controlled documents. This is an effective method of communicating changes to controlled documents.
5. While reviewing Document Review Record (DRR) forms, it was not always clear as to what type of review was being conducted (i.e., technical, QA, or management). It is recommended that REECo add a block to the DRR form which would allow the type of review to be indicated.
6. REECo CAR CA-94-004 identified that the storage laydown areas on the Exploratory Studies Facility (ESF) Pad were not meeting requirements. It is recommended that for future storage laydown areas, REECo submit to the YMSCO a plan designating those areas for the appropriate type of storage planned.

7.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: Audit Details
- Attachment 3: List of Objective Evidence Reviewed During the Audit

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>
Arnold, J.	REECO, Sr. Engineer		X	
Azhikakath, M.	REECO, Engineering	X		
Barker, M. C.	REECO, Trng. Admin.	X	X	X
Boyd, D.	REECO, Matl. Control Supv.		X	
Burnet, D.	REECO, Dept. Mgr.	X	X	X
Bryant, E. P.	REECO, Sr. QAE	X		
Costello, P.	REECO, Operational Supt.		X	
Davenport, C.	REECO, Sr. Staff Assistant			X
Doyle, J.	YMQAD, QA Specialist		X	
Erickson, G.	REECO, Supv. Cal. Lab		X	
Faiss, E. J.	REECO, Staff Assistant	X		X
Gardella, B.	REECO, Dept. Mgr.	X	X	
Gelman, A.	REECO, Survey Party Chief		X	
Glasser, W. J.	REECO, PQAM	X	X	X
Gratza, W.	REECO, Sr. QA Specialist	X	X	X
Greene, H.	YMQAD, Div. Mgr.	X		X
Hackbert, D. A.	REECO, Sr. QA Specialist	X	X	X
Hasson, B.	REECO, Sr. QA Specialist		X	
Hedlund, J.	REECO, Sr. Eng., CND		X	
Hodges, K. A.	REECO, Sr. QA Specialist		X	
Jerome, K.	M&O, Records Clerk		X	
Keating, J.	REECO, Senior Eng.		X	
Kehrmann, B.	REECO, Field Engineer		X	
Knight, D.	REECO, Pr. Eng.			X
Koss, D.	REECO, TPO	X	X	X
Leonard, T. M.	REECO, Dept. Mgr.	X	X	X
Limon, K. L.	REECO, IMD Mgr.	X	X	X
Mausser, E.	REECO, QA Spec. III		X	
McGoldrick, J.	REECO, Purchasing Agent			X
McMullen, A.	REECO, Grp. Leader ISC		X	
Moulder, M. D.	REECO, CDC Supv.	X	X	X
Norris, L.	REECO, Secretary II		X	
Patel, K.	REECO, Sr. Engineer		X	
Pugmire, W. C.	REECO, QC Sect. Chief	X	X	X
Reiter, E.	REECO, Sr. QA Specialist		X	
Ricks, S.	REECO, QA Specialist		X	
Robbins, L.	REECO, Admin. Records Coord.		X	

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>
Rodgers, T. E.	YMQAD, Sr. QA Specialist			X
Rommel, R. R.	REECO, Project Eng.		X	
Singer, S.	REECO, Project Mgr. Construction		X	
Sorensen, V.	REECO, Sr. Matl. Control Agent		X	
Sunday, R.	REECO, Procurement		X	
Waggoner, W.	M&O, QA		X	
Wasson, B. G.	REECO, Procurement	X		
Weintraub, S.	REECO, Staff			X
Westby, A.	REECO, Sr. QA Specialist		X	
Williams, A. C.	DOE, Gen. Eng.			X
Williams, B. C.	REECO, Office Assist. III		X	
Williams, E. K.	REECO, QA Spec. II		X	
Wilson, P. J.	REECO, Sr. QA Specialist	X	X	X
Wonderly, D.	REECO, Dept. Mgr.	X	X	X
Ziehm, S. A.	REECO, IMD S/C	X	X	X

Legend:

IMD S/C - Information Management Department
 QAE - Quality Assurance Engineer

ATTACHMENT 2

Audit Details

The following is a summary of the REEC_o QA Program activities evaluated during the audit. The list of objective evidence reviewed and specific procedures audited is provided in Attachment 3.

1.0 ORGANIZATION

The evaluation of this QA program element was based on interviews with REEC_o management and QA personnel and examination of objective evidence to determine the degree of compliance with selected requirements from MC-01.0, MC-01.1, MC-01.2 and MC-01.3. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REEC_o's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below.

Organization (QARD, Section 1.0)

Requirements:

- The QA Manager's position shall be the same or higher organization level as the highest line manager directly responsible for performing work subject to QARD requirements.
- The QA Manager's position shall be sufficiently independent of cost and schedule considerations.

Results:

Organizational charts were reviewed and the QA Manager was interviewed. QARD requirements have been adequately incorporated into REEC_o's implementing procedures.

Organization (MC-01.0)

Requirements:

- The responsibilities of the Program Quality Assurance Manager (PQAM) are to:
 - Assist line organizations, develop the QA program and overview work subject to QARD requirements.

- Represent REECo/YMP in all quality matters requiring internal and external interface between participating organizations and/or support contractors.
- Maintain a QA/QC reporting system, conducting special training, and certifying inspection and testing personnel.
- The Field QC Section reports directly to the PQAM and has the functional responsibility for inspections. Other responsibilities include:
 - Review, approval and control of all inspections checklists generated in accordance with the project/program requirements, in order to document results of inspections and tests performed.
 - Review and approve construction and inspection plans.
- The Quality Assurance Office (QAO) staff members have understanding and are knowledgeable of their responsibilities including stop work authority.
- The IMD Manager has knowledge and understanding of the responsibilities concerning records management.
- The CND Manager has knowledge and understanding of the responsibilities concerning surface and underground construction, operations and maintenance, and construction engineering sections.
- The Drilling Department Manager has knowledge and understanding of the responsibilities concerning drilling engineering, rig operations, and electrical/mechanical support.
- The Control Department (CLD) Manager has knowledge and understanding of the responsibilities concerning scheduling, estimating, cost and material control.
- The REECo Matrix Support Organization responsibilities were verified for the following:
 - Environment, Safety and Health
 - Operation and Maintenance
 - Support Services
 - Administration

Results:

Interviewed the PQAM, Field QC, and all of the line managers as indicated. Results were satisfactory.

Stop Work Authority (MC-01.1)

A CAR (CA-94-004) was written by REECO on Material Control and a Stop Work notice is in process.

Resolution of Disputes (MC-01.2)

This procedure has not been implemented since its effectivity date of January 28, 1992.

Delegation of Authority (MC-01.3)

Requirements:

- Department Managers are responsible for following the procedure in the preparation and distribution of delegation of authority memos.
- Letters delegating responsibility or authority are lifetime QA records.

Results:

The audit team interviewed department managers and reviewed letters delegating responsibility or authority. It was determined that the requirements of MC-01.3, Delegation of Authority, are being implemented for the preparation and distribution of Delegation of Authority Memos.

Summary for the QA Program Element:

The REECO implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation.

During the course of the evaluation, objective evidence in the form of organizational charts, and line of succession/delegation of authority letters were reviewed for compliance. In addition, interviews were held with all line managers to evaluate their knowledge and understanding of the implementing procedures associated with this QA element. The results of the evaluation indicated satisfactory compliance with the procedural requirements.

Based on the examination of the above requirements, implementation of QA Program Element 1.0, Organization, is satisfactory.

2.0 QUALITY ASSURANCE PROGRAM

The evaluation of this QA program element was based on interviews with REECO QA Organization Management and the examination of objective evidence to determine compliance with selected requirements taken from the following implementing procedures: MC-02.0, MC-02.1, MC-02.4, MC-02.4.1, MC-02.4.2, MC-02.4.3, MC-02.4.4, MC-02.4.5, MC-02.5, MC-02.8 and MC-13.2. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECO's implementing procedures. The specific requirements selected for evaluation and effectiveness are listed below:

Quality Assurance Program (QARD, Section 2.0)

Requirements:

- Affected Organizations shall issue a policy statement signed by senior line management directing mandatory compliance with the QA Program.
- Affected Organizations shall establish quality assurance implementing documents applicable to their scope of work that translate QARD requirements into work processes.

Results:

QARD requirements have been adequately incorporated into REECO's implementing procedures.

Quality Assurance Program (MC-02.0)

Requirements:

- REECO will prepare, control and maintain a QARD matrix for the REECO/YMP scope of work. This matrix will identify where in the REECO/YMP procedure system each QARD requirement is addressed.
- Revisions to the QARD shall be reviewed by the REECO/YMP QA office in order to ensure incorporation of changes which may affect the implementing procedures.

Results

The audit team reviewed the QARD Matrix to identify where in the REECO/YMP procedure system each QARD requirement is addressed. Results were satisfactory.

Determination of Importance (MC-02.1)

Requirements:

- A Quality Implementing Plan (QIP) shall be written for activities associated with each item identified on the Q List.
- An Activity Grading Worksheet (AGW) shall be generated and used to select the YMP QA controls that are to be implemented.

Results:

Two documents were reviewed. Results were satisfactory.

Training and Qualification (MC-02.4)

Requirements:

- Qualification and training of REECO personnel performing quality affecting work on the YMP will be done in accordance with MC-02.4.
- Resultant records and record packages shall be handled in accordance with requirements of DOE System 80.

Results:

Fifteen training files were reviewed. Results were satisfactory.

Management Assessment (MC-02.5)

Requirements:

- A management assessment is performed annually, as a minimum.
- TPO selects management assessment team and appoints the team leader.

Results:

No action has occurred this year to date.

YMP Indoctrination and Training (MC-02.4.1)

Requirements:

- The Training Administrator (TA) provides a system for maintaining documentation of indoctrination and training of personnel at REECo/YMP.

Results:

The TA prepares the Training Requirements Form (TRF) for REECo/YMP personnel and submits it to the requesting manager. Results were satisfactory.

Personnel Qualification and Certification (MC-02.4.2)

Requirements:

- Individual education and experience are verified by Human Resources. Verification Records are maintained.

Results:

The TA maintains verification of education and experience records. Results were satisfactory.

Required Reading (MC-02.4.3)

Requirements:

- Managers provide reading lists for their personnel on TRFs which are checked for completeness by the TA.

Results:

The TA maintains training records. Results were satisfactory.

Classroom Training (MC-02.4.4)

Requirements:

- The manager is responsible for identifying classroom training for personnel in his organization, and advising the TA by forwarding a completed TRF.
- The TA schedules classroom training and enrolls employees in classroom training courses.

- The TA maintains documentation of classroom training and submits records for filing.

Results:

Fifteen personnel files were reviewed and completed TRF files were checked for classroom training. Results were satisfactory.

Developing a Training Course (MC-02.4.5)

Requirements:

- The manager identifies classroom training requirements for the personnel in his/her department and forwards course development requests to the TA.
- The TA develops or coordinates the development of training courses.

Results:

Six Lesson Plan review forms and approval forms were evaluated. Results were satisfactory.

Preparation, Review and Approval of Quality Assurance Program Plan (QAPP) Change Notice (MC-02.8)

MC-02.8 is to be cancelled and replaced by the QARD requirement.

Surveillances (MC-13.2)

Requirements:

- The PQAM is responsible for assuring that surveillances of YMP activities are accomplished in accordance with MC-13.2, by trained and qualified personnel.
- The QAO is responsible for performing the surveillances, reviewing and evaluating the results, follow-up and tracking and resolution of deficiencies and closure.

Results:

Four surveillances were reviewed. Results were satisfactory.

Summary for the QA Element:

The REECo implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on the interview(s) conducted and review of objective evidence, the implementation of QA Program Element 2.0 is satisfactory.

4.0 PROCUREMENT DOCUMENT CONTROL
7.0 CONTROL OF PURCHASED ITEMS AND SERVICES

The evaluation of these QA program elements was based on interviews with REECo procurement and quality assurance management and staff. A sample of requirements from the QARD was selected for these QA program elements to verify adequate requirements methodology incorporation into REECo's implementing procedures. This was accomplished by a comparison of the written procedure text against what was provided by REECo in the QARD RTN Matrix. Examination of objective evidence to determine compliance with selected requirements was taken from MC-03.0, MC-03.1, MC-03.2, MC-03.2.1, MC-03.3, MC-04.2 and MC-06.2. The specific requirements selected for evaluation of adequacy, compliance and effectiveness are listed below.

Procurement Document Control (QARD, Section 4)

Requirements:

Procurement documents issued by each affected organization shall include the following provisions, as applicable to the item or service being procured.

Technical Requirements

- Identification or reference of the design bases.
- Identification of drawings, codes, standards, regulations, procedures, instructions, and their revision levels.
- Identification of test, inspections, or acceptance requirements that the purchaser will use to monitor and evaluate the performance of the supplier.

Quality Assurance Program Requirements

- Requirements for the supplier to have a documented QA program that implements applicable QARD requirements prior to the initiation of work.
- Requirements for the supplier to incorporate the appropriate QARD requirements into any sub-tier supplier issued procurement document.

- Purchaser may permit some or all work to be performed under the purchaser's QA program.
- Procurement documents shall specify the purchaser's implementing documents applicable to the supplier and provide those documents.
- Rights of access to supplier's facilities and records for inspection or audit by purchaser, OCRWM or designee.
- Provisions for establishing hold points in which work cannot proceed without authorization.
- Documentation required to be submitted for information, review, or acceptance, including submittal schedule or documents the supplier is to maintain with retention times and disposition requirements.
- Requirements for the supplier to report nonconformances with recommended use-as-is, or repair dispositions for the purchaser's approval.
- Identification of spare and replacement parts or assemblies with the appropriate technical and quality assurance data required for ordering.

Procurement Document Review and Approval

- Procurement document reviews shall be performed and documented prior to issuance.
- Procurement documents shall include appropriate provision to ensure that items and services meet governing requirements.
- Reviews shall ensure that all technical and quality assurance program requirements are included.
- Reviews shall be performed by personnel having pertinent information and adequate understanding of the requirements and scope of the procurement.
- Reviews shall include representatives from both the technical and QA organizations.

- Procurement documents shall be approved.

Procurement Document Change

- Changes shall be subject to the same degree of control as used in the preparation of the original procurement documents.
- Changes as a result of the proposal/bid evaluations or pre-contract negotiation shall be incorporated into the procurement documents. An evaluation of the changes for impact shall be completed before the contract is awarded.

Results:

QARD requirements are satisfactorily contained in the REECO implementing procedures.

Control of Purchased Items and Services (QARD, Section 7)

Requirements

- Supplier evaluation shall be performed before the contract is awarded to determine suppliers capability to provide items or services in accordance with procurement document requirements.
- Measures for evaluation shall include one or more of the following:
 - Supplier history
 - QA records
 - Facility survey/audit
- The proposal/bid evaluation shall determine the extent of conformance to the procurement document.
- The evaluation shall be performed by designated technically qualified organizations, including QA.
- The evaluation shall consider:
 - Technical considerations
 - Supplier personnel
 - Production capability
 - Past performance
 - Alternatives
 - Exceptions

- Supplier's QA program shall be accepted by the purchaser before work to the QARD is initiated.
- Supplier documents that are prepared or processed during work performed to fulfill procurement requirements are reviewed.
- Supplier generated document requirements include control, processing and acceptance of the documents.
- The method of accepting supplier furnished items shall include as appropriate:
 - Certificate of Conformance
 - Source verification, receiving inspection or post-installation test
 - Technical verification of the product
 - Surveillance or audit of the work
 - Review of objective evidence for conformance to requirements
- Documented evidence of acceptance of source verified items or services shall be furnished to the receiving destination.
- Inspection shall verify, as applicable, proper configuration; identification; dimensional, physical, and other characteristics; freedom of damage and cleanliness.
- Receiving inspection shall be coordinated with a review for adequacy and completeness of any supplier documentation submittals.
- Post-installation testing requirements shall be mutually established by the purchaser and the supplier.
- Supplier shall submit NCR to purchaser with recommended disposition for "use as is" or repair when:
 - Technical requirements are violated
 - Requirements documents approved by the purchaser are violated
 - Nonconformance cannot be reworked
 - Item does not conform to requirements but the function of the item is unimpaired

- After receipt of commercial grade items, the purchaser shall insure that:
 - Damage was not sustained during shipment.
 - The item received was the item ordered.
 - Inspection or testing is accomplished to the extent determined by the purchaser to ensure conformance with the manufacturer's published requirements.
 - Documentation was received and is acceptable.

Results:

The QARD requirements have been adequately incorporated into the REECo implementing procedures.

Supplier Quality Approval (MC-03.2.1)

Requirements:

- The applicable portions of the supplier's QA program shall be evaluated and approved prior to the supplier being issued a contractual document whenever one of the following conditions exist:
 - Item acceptance is based solely upon a supplier Certificate of Compliance.
 - Item acceptance is based partly on Source Verification (SV) Technical Inspection Report (TIR) or Post- Installation with some reliance upon the supplier's QA program implementation.
 - Item being procured is an engineered item.
 - As directed by REECo/YMP management on YMPO specifications.
- The measures for the evaluation and approval of procurement sources shall include one or more of the following:
 - Evaluation of the supplier's history that reflects current capability of providing identical or similar items.
 - Evaluation of the supplier's current QA program documents, supported by qualitative and quantitative objective evidence.

- Evaluation of the supplier's technical and quality capabilities through direct assessment of the facility, personnel, and QA program implementation.
- The QAO shall evaluate those portions of the supplier's QA program which are applicable to the scope of the procurement requirements to determine that the REECo/YMP procurement QA requirements will be met.
- The results of the QAO review shall be documented on a checklist or other form that specifies the applicable quality criteria and the supplier's conformance or nonconformance.
- The REECo/YMP Approved Supplier List (ASL) shall include the following minimum data for each approved supplier:
 - Supplier's full company name,
 - The full name and address of the supplier's facility that was evaluated,
 - The specific items or services that the supplier is qualified to provide,
 - Any limitations, restrictions, or source verification requirements that are placed upon the supplier,
 - The date of the supplier survey that was used to approve the supplier and the name of the company, if other than REECo/YMP, that performed the survey,
 - The title and revision of the supplier's QA program document that was evaluated and approved by the QAO,
 - The 10CFR50, Appendix B, criteria applicable to the supplier's QA program for the items or services being provided,
 - The date of the next scheduled audit or survey of the supplier's facility, and
 - The date of the next scheduled annual supplier performance evaluation.

Summary for the QA Program Elements

REECo has not procured any quality affecting items or services since the last YMQAD program audit performed of REECo in June of 1993. Therefore, except for

supplier quality approval, program implementation could not be evaluated at this time due to insufficient activity in this area.

5.0 IMPLEMENTING DOCUMENTS

The evaluation of this QA program element was based on interviews with REECO personnel responsible for implementation of program requirements; and examination of objective evidence to determine compliance with the requirements from MC-05.0, MC-05.1, MC-05.2 and MC-05.3. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECO's implementing procedures. The specific requirements selected for evaluation and of adequacy, compliance and effectiveness are listed below.

Implementing Documents (QARD, Section 5.0)

Requirements:

- Implementing documents include quantitative or qualitative acceptance criteria sufficient for determining that activities were satisfactorily accomplished.
- Documents that specify technical requirements, quality requirements or prescribe work shall be reviewed for adequacy, correctness and completeness, according to the requirements of Section 2.0, prior to approval and issuance.
- Effective dates are established for approved implementing documents.
- Implementing documents include quality verification points, as appropriate.
- Implementing documents shall include, as appropriate, methods for demonstrating that the work was performed as required.

Results:

The REECO implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation.

Instructions, Procedures and Drawings (MC-5.0)

Requirements:

- Procedures shall include a section in which quality assurance records generated as a result of implementation of the procedure were identified.
- Procedures included a history of changes, including the reason for the change.

- Changes to procedures shall be reviewed by the same organizations or technical disciplines affected by the procedure.
- The QA Office shall review changes to quality implementing documents that it previously reviewed.
- Mandatory review comments are documented and resolved before the document is approved.
- Examples of forms used as part of implementation of the procedure are identified in the procedure as either "Sample Format" or "Mandatory Use Form".

Results:

The evaluation of these requirements was accomplished by examination of objective evidence listed in Attachment 3. All examined procedures identified the required QA records and included a history of changes and reason for change. Review records for selected MC and TC implementing procedures indicated appropriate organizations completed reviews and all comments were dispositioned in accordance with procedural requirements. Forms identified in procedures were properly labeled. There were no deficiencies identified.

Preparation, Review & Approval of MC Procedures (MC-05.1)

Requirements:

- Approved MC's shall be signed by the PQAM.
- Each issued and approved MC shall include the following information: purpose and scope, applicability, references, definitions, responsibilities, procedure, records and exhibits.
- QA shall review quality implementing documents that translate QARD requirements into work processes.
- A log of ICNs is maintained by CDC.
- There are no more than five ICNs outstanding against a given procedure.
- Procedures are reviewed by responsible organizations for possible revision every three years.

Results:

Selected MC Procedures were examined and found to comply with the above requirements. The PQAM signed all procedures, the required information was included, and procedures were reviewed by QA. The log, which is maintained by CDC, of all internally controlled documents indicated that there were no more than five ICNs outstanding against any procedure. All sampled procedures had been reviewed within the past three years. There were no deficiencies identified.

Preparation, Review and Approval of Technical Control (TC) Procedures (MC-05.2)

Requirements:

- Procedures identify, as applicable, items, materials, activities, or processes which require inspection, control or verification.
- TC Procedures or documentation generated as a result of the procedure included or referenced appropriate qualitative and quantitative acceptance criteria.

Results:

Selected TC Procedures were examined and found to meet the requirements stated above. There were no deficiencies identified.

Preparation, Review and Approval of Work Procedures (MC-05.3)

Requirements:

- A log of Work Procedure (WP) numbers is maintained by the CDC.
- WPs include the following information: purpose and scope, applicability, definitions, responsibilities, general statements, Work Site Instructions, References, exhibits, records and appendixes.

Results:

At the time of this audit, one quality affecting WP was in affect. Both requirements listed above were being met. There were no deficiencies identified.

Summary for the OA Program Element

The REECO implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Based on interviews

conducted and examination of objective evidence, the implementation of QA Program Element 5.0 is satisfactory.

6.0 DOCUMENT CONTROL

The evaluation of this QA program element was based on interviews with REECo personnel responsible for implementation of program requirements, and examination of objective evidence to determine compliance with the requirements from MC-06.0, MC-06.1, MC-06.2, MC-06.3, and MC-06.5. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECo's implementing procedures. The specific requirements selected for evaluation of adequacy, compliance and effectiveness are listed below.

Document Control (QARD, Section 6.0)

Requirements:

- Documents that specify technical requirements, quality requirements, or prescribe work shall be controlled in accordance with this section.
- Documents that specify technical requirements, quality requirements or prescribe work shall be reviewed for adequacy, correctness, and completeness, according to the requirements of Section 2.0 prior to approval and issuance.
- The organizational position responsible for approving the document for release shall be identified.
- Implementing documents shall describe the process to control expedited changes according to the following requirements:
 1. The level of management with the authority to make expedited changes shall be identified.
 2. The time limits for processing expedited changes through normal change process shall be specified.
 3. An evaluation of the work shall be performed if the normal review process results in a change that is different from the expedited change.

Results:

The REECo implementing procedures were found to adequately incorporate QARD requirements base upon the sample selected for evaluation.

Document Control (MC-6.0)

- Controlled documents are identified on a Master Index which is generated by the CDC.
- Superseded documents are removed or marked "Superseded".

Results:

The Master Index, dated April 28, 1994, was examined. Controlled copies for selected individuals were examined to determine procedural compliance. All examined documents were up-to-date and if the previous revision of a controlled document was present, it was marked "Superseded". There were no deficiencies identified.

Control and Distribution of Controlled Documents (MC-06.1)

Requirements

- The CDC logs and tracks the following information in the Controlled Document Tracking System (CDTS): date document received in the CDC, Document Identification (ID) number, Interim Change Notice number, document title, temporary control status, expiration date for temporary control status, revision number, approval date, effective date (if applicable), originator, date transmittal returned and periodic review date.
- Documents to be controlled are identified on a Master Index.
- Each controlled document is stamped "controlled" on the cover page or first page.
- Recipients of controlled documents destroy or mark document as directed by the transmittal.
- The CDC keeps hardcopy files, as a minimum, of current revision of the controlled document. Document Distribution List (DDL), DRR and draft of document.

Results:

The CDC has very good control of the distribution of controlled documents. A comparison of the Master Index of controlled documents with the information in the CDTS indicated perfect correlation. Examined MC Procedures, TC Procedure and Work Procedure (WP) were listed on the Master Index, stamped "controlled", and examined controlled documents were kept up-to-date. Document Issuance

Authorization, DDL, DRR and a draft of the document were maintained by CDC. There were no deficiencies identified.

Control of Supplier Submittals (MC-06.2)

Requirements

- The MCS completes and retains a Supplier Submittal Review form.
- Submittals that are acceptable to REECo are stamped by the MCS with appropriate stamp.
- The action code on the Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificate of Compliance (SDT) form indicates the approval or rejection status of the submittal.

Results:

Files containing the records for three specifications were examined and found to be in compliance with requirements. Supplier Submittal Review forms were present and complete, an appropriate stamp to indicate acceptance was present, and action codes were present. There were no deficiencies identified.

Externally Controlled Documents (MC-06.3)

Requirements

- The CDC stores and keeps a copy of externally controlled-generated documents.

Results:

The CDC Supervisor provided a copy of the log of externally controlled documents. Drawings, specifications and JPs listed in Attachment 3 were sampled from the log and verified to be maintained by the CDC. Sampled documents were controlled in accordance with the procedure and were up-to-date.

Expedited Changes (MC-06.5)

As of the date of this audit, this procedure was not implemented; however, it was verified that individuals authorized to approve expedited changes have been identified in a memorandum to file.

Summary for the QA Program Element

The REECO implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. One deficiency was identified and corrected during the audit as described in Item 7, Section 5.5.2 of this report. In addition, one recommendation was identified as described in Item 5, Section 6.0 of this report. Based on interviews conducted and examination of objective evidence, the implementation of QA Program Element 6.0 is satisfactory.

8.0 IDENTIFICATION AND CONTROL OF ITEMS

The evaluation of this QA program element was based on interviews with REECO QA, Material Control, and Construction personnel and by examination of objective evidence to determine compliance with selected requirements from REECO implementing procedure MC-04.5. In addition, a sample of selected requirements from the QARD was selected to verify incorporation into REECO's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below.

Identification and Control of Items (QARD, Section 8)

Requirements:

- Identification is maintained on the items or in a manner which ensures that item identification is established and maintained.
- Items are identified from the time of initial fabrication, or receipt, up to and including installation and end use.
- Item identification methods include use of physical markings. If physical markings are either impractical or insufficient, other appropriate means are employed such as physical separation, labels, or tags attached to containers, or procedural control.
- Item identification methods ensure that traceability is established and maintained in a manner that allows an item to be traced to applicable design or other specifying documents.
- Item traceability documentation ensures that the item can be traced at all times from its source through installation or end use.
- If items have limited operating or shelf life specified, methods have been established that preclude using the item beyond the shelf or operating life.

Results:

The QARD requirements for QA Program Element 8.0 are adequately incorporated into the REECo implementing procedures selected for review.

Material Identification (MC-04.5)

Requirements:

- The manufacturer/supplier item identification markings are verified at the point of receiving.
- Any tracking or traceability markings to be applied by REECo are applied at the time of receipt inspection.
- Item identification markings, when used, are clear, visible, legible, not detrimental to the function or life of the item, transferred to each part of the item when the item is subdivided, and are not obliterated or hidden when the item is subdivided, and are not obliterated or hidden by surface treatments or coatings, or after installation unless other means of identification are substituted.
- Items found during receipt inspection that do not meet the procurement requirements for identification are tagged, segregated and an NCR is issued to document the deficiency.

Summary of the QA Program Element

The evaluation of this QA Program Element was limited to the examination of quality related materials and items located at the ESF pad area. The identification and storage of the items examined had previously been identified by REECo as being deficient and the REECo QA department has issued a CAR (REECo CAR No. CA-94-004). As a result, the implementation of this QA program element is considered to be in compliance with the project QA program and applicable procedures and is being satisfactorily implemented.

9.0 CONTROL OF SPECIAL PROCESSES

There is presently no implementation of this QA Program Element at REECo. Therefore, this program element was not audited during this audit.

10.0 INSPECTION

The evaluation of this QA program element was based on interviews with REECo QA and QC personnel and examination of objective evidence to determine the degree of compliance with selected requirements from MC-09.0, MC-09.1, and MC-09.2. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECo's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below.

Inspection (QARD, Section 10.0)

Requirements:

- The inspection status of an item shall be identified according to Section 14.0.
- The capabilities of a candidate for certification shall be initially determined by an evaluation of the candidate's education, experience, and training; and either examination results or capability demonstration. The evaluation shall be performed to the requirements of the applicable functional level, and education and experience required of this section.
- On-the-job training, with emphasis on hands-on experience gained through actual performance of inspections and test, shall be included in the training program.
 - a. On-the-job training for personnel qualification shall be performed under the direct observation and supervision of a qualified person.
 - b. The documented verification of conformance shall be performed by the qualified person and not by the person being administered on-the-job training.
- Additionally, Level II personnel shall have demonstrated capabilities in:
 - a. Inspection or test planning.
 - b. Supervising or monitoring the inspections or tests.
 - c. Supervising and certifying lower-level personnel.
- Level III personnel shall have Level II capabilities for the corresponding category or class. In addition, Level III personnel shall also be capable of evaluating the adequacy of specific programs used to train, qualify and certify the personnel.

- The requirements for education and experience shall be considered with recognition that other factors commensurate with the scope, complexity, or special nature of the inspections or tests affect the assurance that a person can competently perform a particular task. Other factors that demonstrate capability in a given job and the basis for their equivalency shall be documented.
- The responsible organization shall identify any special physical characteristics needed for performance in each functional level (category or class) including identifying the need for initial and subsequent visual acuity and other physical examinations
- The qualification of inspection and test personnel shall be certified in writing by the responsible organization. The certification shall document the:
 - a. Name of the certifying organization.
 - b. Results of periodic evaluations.
- Reevaluation shall be by evidence of continued satisfactory performance or re-determination of required capability in accordance with the qualification requirement specified for the job as described in this section.
- Documentation of personnel qualifications shall be established, kept current, and maintained by the responsible organization. This documentation shall contain the information required for the initial qualification and the maintenance of qualification.
- Documentation for each person shall be maintained and updated according to the following requirements.
 - a. Removal of a person from performing in an area of certification when the responsible organization determines that the capabilities of the individual are not in accordance with the qualification requirements specified for the job as described in this section. This shall be documented at the time of removal.
 - b. Reinstatement of certification for the qualified area when the required capability has been demonstrated as described in this section. This shall be documented at the time of reinstatement.
 - c. This shall be updated every three years.

Results:

Based on interviews with REECo personnel and examination of REECo documentation, it is determined that REECo's procedures adequately reflect the requirements of the QARD.

Inspection Program (MC-09.0)

Requirements:

- Personnel who conduct inspections shall be qualified and certified in accordance with Reference 3.3. Personnel performing inspections using special processes; i.e., non-destructive testing, are qualified in accordance with Reference 3.5.
- Nonconformances identified during inspections shall be handled in accordance with Reference 3.4.
- Modifications, repairs, or replacements of items performed subsequent to final inspection shall require reinspection or retests to the same code, specification or standard, as appropriate, to verify acceptability.

Results:

Based on interviews and examination of objective evidence including Rock Bolt Installation Inspection Reports, this procedure is being adequately implemented.

Inspection Planning and Performance (MC-09.1)

Requirements:

- Inspection planning shall be performed, documented and include:
 - Identification of each work operation when inspection is necessary to insure quality and identification of implementing documents that will be used to perform the inspection.
 - Identification of the characteristics to be inspected.
 - Identification of inspection or process monitoring methods to be employed.
 - Inspection and process monitoring shall be conducted when control is inadequate with only one method.

- Provision for the final inspection shall be planned to arrive at a conclusion regarding conformance of the item to specified requirements.
 - Identification of the functional qualification level (by discipline) of personnel performing inspections.
 - Identification of acceptance criteria.
 - Identification of sampling requirements.
 - Statistical sampling methods, when used for acceptability of a group of items, shall be based on recognized practices.
 - Methods to record inspection results.
-
- Selection and identification of the measuring and test equipment to be used to perform the inspections to ensure that the equipment is calibrated and is of the proper type, range, accuracy, and tolerance to accomplish the intended function.
 - Inspection Checklists (ICs) shall be prepared using Exhibits I and II. This format provides for the documentation of both in-process and final inspections as well as an indicator of inspection status.
 - Upon completion of the review, the IC shall be assigned a control number, a revision level, and logged in the IC Control Log. The Quality Control Section Chief (QCSC) shall sign and date the IC signifying that all comments have been resolved and the IC is acceptable for issuance.
 - The IC Control Log shall include, as a minimum, the IC control number and revision.
 - Revisions to ICs shall contain the same control number with the next consecutive revision number.
 - The QCSC shall assure that all inspection personnel performing inspections for acceptance of items or activities are qualified and certified in accordance with Reference 3.7 and appropriately indoctrinated to the requirements of this procedure.
 - If during the review of the IC prepared to perform specific inspections, the inspector determines that a specific attribute on the IC is not applicable to the work scope, the inspector shall mark "N/A" on the IC or Inspection Report (IR) and initial and date the entry.

- Upon completion of the above reviews, the inspector shall sign and date the IC to indicate that the IC adequately covers that particular scope of work.
- Upon completion of each inspection attribute identified on the IC, the inspector shall document the results (accept or reject) either on the IC or on the IR as directed by the IC. As a minimum, the information identified on Exhibit III shall be included on the IC, IR, or a combination of both.
- Items which are identified as not meeting specified requirements and cannot be corrected through normal work activities shall be documented on an NCR.
- The IR shall, as a minimum, include that applicable information identified on Exhibit III of this procedure and the words "Reinspection per NCR #," if applicable, or identify the governing document.

Results:

Based on interviews with REECO personnel and examination of objective evidence including inspection plans and inspection checklists this procedure is being adequately implemented.

**Training, Qualification, and Certification of Inspection and Test Personnel
(MC-09.2)**

Requirements:

- The designated Level III shall complete an appropriate evaluation checklist (Exhibits III, IV, and V) for each candidate dependent on the desired certification level
- Personnel considered for certification shall receive training to become familiar with the principles and practices of the inspection and testing program and level of certification required.
- Visual Examination - All inspection and test personnel shall receive an annual eye examination.
- The qualification of inspection personnel shall be certified in writing by the PQAM or his designee. The certification shall include:
 - a. Employer's name.
 - b. Identification of the person being certified which includes the employee number.

- c. **Activities certified to perform within the given discipline.**
 - d. **Level of capability.**
 - e. **Basis used for certification that includes such factors as:**
 - **Education, experience, indoctrination, and training (when necessary) and**
 - **Either test results (where applicable); and/or results of capability demonstration.**
 - f. **Results of physical examination (when required).**
 - g. **Signature of individual responsible for such certification.**
 - h. **Date of certification and expiration date.**
- **Candidates considered for certification shall be certified to perform activities within one or more inspection disciplines listed below and shall have the necessary education and experience stated herein to insure understanding of the principles associated with inspection and testing.**
 - a. **Civil/Structural (e.g., concrete, soils, structural steel)**
 - b. **Mechanical/Piping (e.g., dimensional)**
 - c. **Electrical (e.g., cable trays and supports, spacing, termination)**
 - d. **Welding (visual only per code)**
 - e. **Receipt Inspection (when performed to a Technical Inspection Report)**
 - **The designated Level III shall evaluate the job performance of inspection and test personnel annually.**
 - **EXHIBIT II, Inspection and Testing Level II**
 - **One year satisfactory performance as a Level I in corresponding inspection/testing category, or**
 - **High school graduate plus three years of related experience in equivalent inspection or testing activities, or**

- Completion of college-level work leading to an associates degree in a related discipline, plus one year of related experience in equivalent inspection or testing activities, or
- Graduation from a four year college, plus six months of related experience in equivalent inspection or testing activities.
- **EXHIBIT II, Inspection and Testing Level III**
 - Six years of satisfactory performance as a Level II in the corresponding inspection/test category, or
 - High school graduate plus ten years of related experience in equivalent inspection or testing activities; or high school graduate plus eight years of experience in equivalent inspection or testing with at least two years as a Level II and with at least two years associated with a nuclear facility, or
 - Completion of college-level work leading to an associates degree and seven years of related experience in equivalent inspection or testing activities with at least two years of this experience associated with nuclear facilities or sufficient training to be acquainted with the relevant quality aspects of a nuclear facility, or
 - Graduation from a four year college, plus five years of related experience in equivalent inspection or testing activities with at least two years of experience associated with nuclear facilities or sufficient training to be acquainted with the relevant QA aspects of a nuclear facility.

Results:

Based on interviews with REECo personnel and examination of objective evidence, including documentation of inspector training and qualifications, this procedure is being adequately implemented.

Summary for the QA Program Element:

The REECo implementing procedures were found to adequately incorporate QARD requirements based upon the sample selected for evaluation. Two deficiencies were identified and corrected as described in Items 5 and 6, Section 5.5.2 of this report. Based on the interviews conducted and review of objective evidence, including inspector qualifications and certifications, inspection planning, execution, and reporting, the implementation of QA Program Element 10.0 is considered satisfactory.

12.0 CONTROL OF MEASURING AND TEST EQUIPMENT

The evaluation of QA Program Element 12.0 was based on interviews with the REECo Calibration Laboratory Supervisor, REECo QA, QC. Construction and Drilling personnel and by the examination of objective evidence to determine the degree of compliance with selected requirements from MC-10.0. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECo's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below.

Control of Measuring and Test Equipment (QARD, Section 12)

Requirements:

- Measuring and test equipment(M&TE) is calibrated, adjusted, and maintained at prescribed intervals against reference calibration standards having traceability to nationally recognized standards. If no nationally recognized standards or physical standards exist, the basis for calibration shall be documented.
- The calibration standards have a greater accuracy than the required accuracy of the measuring and test equipment being calibrated.
- The method and interval of calibration for each device is defined, based on the type of equipment, stability characteristics, required accuracy, intended use, and other conditions affecting measurement control.
- Calibrated measuring and test equipment is labeled, tagged or otherwise suitably marked or documented to indicate due date or interval of the next calibration.
- Calibrated measuring and test equipment is uniquely identified to provide traceability to its calibration data.
- The use of measuring and test equipment is documented and the documentation identifies the processes monitored, data collected, or items inspected or tested since the last calibration.

Results:

The QARD requirements for QA Program Element 12.0 are adequately incorporated into the REECo implementing procedures.

Measuring and Test Equipment (MC-10.0)

Requirements:

- All tools, gauges, instruments, devices or systems used to calibrate, measure, gauge, or inspect for obtaining data which will verify conformance to specific requirements or established characteristics are included in the category of M&TE.
- When calibration standards with a greater accuracy than required of the M&TE being calibrated do not exist or are unavailable, this is documented as well as the justification that using calibration standards with an accuracy equal to the required accuracy are adequate for the requirements.
- The M&TE selected are of the proper type and are capable of providing the proper range, tolerance, and accuracy such that the desired results are obtained.
- The following information is entered into the M&TE Tracking Log:
 - a. M&TE item description
 - b. M&TE serial number
 - c. M&TE model number
 - d. PTL (unique identification number)
 - e. Date calibrated
 - f. Calibration due date
 - g. Date the M&TE was used
 - h. Where the M&TE was used
- A calibration label is affixed to the M&TE, identifies the M&TE by PTL identification number and has the next calibration due date entered on the label.
- For M&TE consistently found out of tolerance, an evaluation is made by the Primary Standard and Calibration Laboratory (PSCL) to determine if repair, modification, replacement or a shorter calibration interval is appropriate.
- An evaluation is performed and documented on the Out-of-Tolerance Notification for previously calibrated M&TE found out of tolerance.

- The Calibration Report contains the following information:
 - a. Identification of the M&TE calibrated.
 - b. Traceability to the standard(s) used for calibration.
 - c. Calibration data.
 - d. Identification of the individual performing the calibration.
 - e. Date of calibration and the calibration due date.
 - f. Results of the calibration and statement of acceptability.
 - g. Reference to any actions taken in connection with out of tolerance or nonconforming M&TE.
 - h. Identification of the implementing document (including revision level).

Summary for the Program Element:

The evaluation of this QA program element was based on the examination of seventeen M&TE records for PSCL calibrated equipment as well as for PSCL equipment used in the calibration process. In addition, selected pieces of M&TE were examined for verification of items such as calibration tags. The M&TE records and instruments were found to be in compliance with procedural and programmatic requirements and the implementation of Program Element 12.0 is considered to be satisfactory.

13.0 HANDLING, STORAGE AND SHIPPING

The evaluation of this QA program element was based on interviews with REECO QA, Material Control, and Construction personnel and by examination of objective evidence. Implementation was evaluated utilizing REECO procedures MC-04.3 and MC-04.0. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECO's implementing procedures. The specified requirements selected for evaluation of compliance and effectiveness are listed below.

Handling, Storage, and Shipping (QARD, Section 13)

Requirements:

- For critical, sensitive, perishable, or high value articles, specific implementing documents for handling, storage, cleaning, packaging, shipping, and preservation have been prepared and used.

- If required for particular items, special equipment (such as containers, shock absorbers, and accelerometers) and special protective environments (such as inert gas and specific moisture and temperature levels) are specified and maintained.
- If special equipment and environments are used, provisions have been made for their verification.
- Operators of special handling and lifting equipment are experienced or trained to use the equipment.
- Measures have been established for marking and labeling for the packaging, shipping, handling and storage of items as necessary to adequately identify, maintain and preserve the item.

Results:

The REECo implementing procedures were found to adequately incorporate the QARD requirements for QA Program Element 13.0 .

Handling, Storage and Shipping (MC-04.3)

Requirements:

- After verification of the receipt and identification of equipment and/or materials in accordance with procedure MC-04.1, Material Receiving, the Supply/Just-in-time Superintendent (S/JITS) shall provide for proper handling as specified in the procurement documents, design specifications, and/or manufacturer's recommendations; otherwise that good commercial practice is used.
- Special handling tools and equipment or hoisting and rigging apparatus is inspected prior to use and properly maintained in accordance with approved procedures.
- Storage areas which have been established provide for drainage and are away from the immediate construction area.
- Interim worksite storage for ESF Title II items provide four secured segregated areas for items (1) requiring inspection, (2) nonconforming items, (3) QA items accepted for construction, and (4) non-QA items accepted for construction.
- The CND shall identify care and maintenance requirements from review of design specifications and manufacturer's and/or supplier's recommendations and generate and maintain Care and Maintenance Instructions (CMI) including instructions, performance frequency, and the CMI Log.

- The CND shall indicate in the Reference section of the CMI, the Quality Classification of the item(s); i.e. QA, QA; NA, Quality-Affecting Commercial Grade (QACG), etc.
- The custodian is responsible for the care and maintenance of the equipment/materials being stored in his or her area as prescribed by the CMI. The responsible maintenance organization; i.e., supply, CND, or other designated organization, has generated the Equipment/Material Summary Maintenance Form to be used as a planning tool to ensure that care and maintenance is performed as scheduled.
- Required traceability documents are referenced and retrievable by purchase order number.

Results:

The evaluation of implementation and compliance with this procedure was based on the observation of quality related materials and items stored at the ESF Pad. This was due to the fact that there are no quality related items in the procurement pipeline. There are problems of identification and traceability related to these items; however, REECO has identified these problems and has issued CAR CA-94-004 to document them. As a result, the implementation of this procedure is considered to be in compliance with the QA Program and applicable procedures and is considered satisfactory.

Material Control (MC-04.0)

Requirements:

- Detailed receipt inspection is performed in accordance with MC-04.2. Receipt Inspection.
- Nonconforming materials are tagged and physically segregated in a designated "HOLD" area, pending resolution of the nonconformance or return of the material to the supplier.
- Documentation which establishes traceability of the material is completed and delivered to the Material Control Section by the Logistical Support Department.
- The User installs the material at the location shown on the authorized JP, the relevant Title II drawings and specifications, and other installation documents.
- The User references the traceability documents by purchase order number and any other information as required by specification or installation procedure.

Results:

The evaluation of implementation and compliance with this procedure was based on interviews with cognizant REECo personnel and by observation of the release of material from the Nonconforming Material storage area by QC to Construction. There are procedural deficiencies which have been identified by REECo QA and which REECo CAR CA-94-004 is tracking. As a result, the implementation of this procedure and the REECo QA program is considered to be in compliance with the Project QA program and applicable procedures and is considered to be satisfactory.

Summary for the QA Program Element:

The evaluation of QA Program Element 13.0 was based on interviews with REECo QA, QC, Material Control and Construction personnel and to observation of the storage of quality related items at the ESF construction pad. The few quality related items that were observed at the ESF construction pad were left-over material from the construction of the ESF Starter Tunnel. The identification and storage of these left-over items has been identified by REECo as being deficient and the REECo QA Department has issued CAR CA-94-004. Since the conditions have been identified and are being tracked by the REECo QA Department, the results of the audit for QA Program Element 13.0 are considered to be satisfactory.

14.0 INSPECTION, TEST, AND OPERATING STATUS

The evaluation of this QA program element was based on interviews with REECo QA and QC personnel and examination of objective evidence to determine the degree of compliance with selected requirements from TC-581-TP-0002, TC-581-WP-0003, TC-581-SP-0007, and TC-581-SP-0011. In addition, a sample requirement from the QARD was selected to verify adequate incorporation into REECo's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below.

Inspection, Test, and operating Status (QARD, Section 14.0)

Requirement:

Indicating Status - The status of required inspection and tests of items shall be indicated when necessary to preclude inadvertent by-passing of such inspections and tests.

Results:

The REECo implementing procedures were found to adequately incorporate the QARD requirement for QA Program Element 14.0.

Testing of Underground Rock Bolt Ground Support (TC-581-TP-0002)

Requirements:

- Water usage for drilling will be monitored in accordance with Reference 3.8.
- Record required information from drilling and installation for all bolts installed on the Rock Bolt Installation and Testing Log (RBITL) in accordance with Reference 3.8.
- Pull tests will be performed in each distinct type of rock, or as directed by the Architect/Engineer (A/E). In-place pull tests will be performed on cement/resin grouted bolts selected by the A/E on 20 out of the first 100 bolts installed and five out of every 100 installed thereafter until directed by the A/E to stop in-place pull testing.

Results:

Based on interviews and examination of objective evidence including Rock Bolt Installation Inspection Reports, this procedure is being adequately implemented.

Drilling and Blasting for Underground Construction Activities (TC-581-WP-0003)

Requirements:

- The drill round shall be laid out by the survey crew in accordance with the applicable drawings and specifications. (See References 7.2 through 7.34.) The survey work shall be accomplished in accordance with Reference 7.36 and 7.36.1. HOLD POINT for Construction Department (CND), QC, and A/E.
- Drill the blast holes to the required size, line, and grade as indicated on the applicable drawings and specifications. HOLD POINT for CND, QC, and A/E.
- Blast hole loading and tie in complete. HOLD POINT for Construction Department Operations Supervisor (CNDOS), QC, and A/E.
- Round okay for initiation. HOLD POINT for CNDOS
- Inspect the blast area and the muck pile for undetonated explosives. HOLD POINT for CNDOS
- Visually inspect the blast results for conformance to the drawings and specifications. HOLD POINT for CNDOS, QC, and A/E

Results:

Based on interviews and examination of objective evidence including Drill and Blast Log Sheets which incorporated evidence of hole and witness point compliance, this procedure is being adequately implemented.

Starter Tunnel Shotcrete (TC-581-SP-0007)

Requirements:

- Apply bonding coat to surface of the rock prior to placement of shotcrete to facilitate bonding and reduce possibility of shrinkage cracking. (HOLD POINT for inspection of surface preparation including reinforcement by QC.)
- Curing compounds will not be applied on any surface which additional shotcrete is to be bonded unless positive measures are taken to remove curing compounds completely prior to the additional application. (HOLD POINT for inspection of surface finish and verification of curing time by QC.)

Results:

Reviewed Shotcrete Inspection Reports for implementation of HOLD POINTS. This procedure is being adequately implemented.

Exploratory Studies Facility Ground Support (TC-581-SP-0011)

Requirements:

- Ensure holes are clean and free of cuttings after the drilling cycle. (HOLD POINT for inspection of location and dimensional inspection of reworked bolt holes for pattern bolts by QC. WITNESS POINT for inspection of pattern bolt holes by A/E.)
- Continue with cement grout bolt drilling and installation until all required pattern bolts have been installed. (HOLD POINT for inspection of permanent cement grout pattern bolt installation by QC.)
- Bolt each lattice girder section in place with support from ReeCo survey for line and grade using Split Set or cement/resin grouted bolts. (HOLD POINT for inspection of lattice girder installation by QC and A/E.)

Results:

Reviewed Drill and Blast Log Sheets and inspection reports for implementation of HOLD POINTS. This procedure is being adequately implemented.

Summary for the QA Program Element:

Based on the interviews conducted and review of objective evidence, the implementation of QA Program Element 14.0 is considered satisfactory.

15.0 NONCONFORMANCES

The evaluation of this QA program element was based on interviews with the REECo QC Section Chief and other QA/QC personnel, and examination of objective evidence to determine compliance with procedure YAP-15.1Q and MC-11.4. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECo's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Nonconformances (QARD, Section 15.0)

Requirements:

- Nonconformance documentation shall clearly identify and describe the characteristics that do not conform to specified criteria.
- Nonconformance documentation shall be reviewed and recommended dispositions of nonconforming items shall be proposed.
- Recommended dispositions shall be evaluated and approved.
- Nonconforming items shall be identified by marking, tagging, or other methods that do not adversely affect their end use.
- The disposition of an item to be reworked, or repaired shall contain a requirement to reexamine (inspect, test, or nondestructive examination) the item to verify acceptability.

Results:

The REECo implementing procedures were found to adequately incorporate the QARD requirements based upon a selected sample size selected from the RTN matrix for evaluation and verification of the QARD requirements.

Control of Nonconformances (YAP-15.1Q)

Requirements:

- An NCR is initiated when a nonconforming item is identified.
- The cognizant supervisor of the Affected Organization is notified of the nonconforming condition.
- A "Hold" tag is applied to the item to prevent further processing, installation, or inadvertent use of the item.
- An NCR Log and Tracking System (supplied by the YMPO) is used to track YMP related NCRs.
- Upon receipt of an NCR that has been invalidated or notification of validation, the NCR Coordinator updates the NCR log.
- The Dispositioner evaluates the nonconformance and determines the actions necessary to resolve the nonconforming condition, specifies the action required in Block 4 (Disposition Evaluation) of the NCR.
- The disposition factor requirements delineated in sections 6.1.1 through 6.1.7 have been complied with when dispositioning items.
- The Specifying Organization QA:
 - Reviews the disposition for concurrence
 - Performs a review for reportability in accordance with Attachment 9.4.
 - Determines the need for additional corrective action and if appropriate initiates corrective action.
 - Forwards the NCR to the organization responsible for performance of the disposition and sends a copy to the NCR Coordinator.
- The performing organization completes the required actions in accordance with the approved disposition by signing and dating Block 7 of the NCR, and forwarding the NCR to the performing organization QA.

- **The Performing Organization QA or Specifying Organization QA:**
 - Verifies that all actions required by the disposition have been completed.
 - Transmits a copy of the NCR to the NCR Coordinator and the original NCR to the Specifying Organization.
- **The NCR Coordinator:**
 - Updates the NCR working file with a copy of the NCR,
 - Updates the NCR Log as to the status of the NCR.
- **The Specifying Organization QA signs and dates the NCR, Block 8, Final Review, indicating acceptance of the review and transmits the completed NCR to the NCR Coordinator.**
- **The NCR Coordinator updates the NCR Log and if the NCR crosses organizational boundaries, forwards a copy to YMQAD for trending.**
- **The NCR Coordinator transmits the original NCR to the LRC/DR Center in accordance with appropriate implementing documents.**
- **If a revision to an NCR is required, a revision number is placed inside a delta adjacent to the revision on all pages. All other processes are completed as originally designated.**
- **NCRs are maintained as QA records.**

Results:

A selected sample of NCRs listed on the NCR Log, that were identified by REECO in accordance with YAP 15.1Q, were reviewed. Three of the selected NCRs were open and red hold tags were verified attached to the nonconforming items in the field. The records for three closed NCRs were verified to have been submitted to the LRC and retrieved through the CRF using the Records Information System (RIS). Two NCRs were closed on 4/21/94 and were not yet indexed in the RIS. Copies of the 11 open NCRs identified by REECO in accordance with AP-5.27Q were found in the file of open NCRs kept by REECO QC, but were not reviewed during this audit. These NCRs are being tracked by the M&O in accordance with its implementing procedure MGP-15-1. No deficiencies were identified in the review of NCRs. REECO's implementation of their activities and responsibilities under the YAP 15.1Q were satisfactory.

Trending (MC-11.4)

Requirements:

- The data from the deficiency reporting documents are entered into a tracking and trending data base and as a minimum include.
 - Report types
 - Report Number
 - Issue or identification date
 - Responsible organization
 - Deficient item
 - Subject of deficiency
 - Apparent or root cause
- The QAO issues a quarterly trend evaluation report showing the result of the trend evaluation to cognizant YMP management.
- The QAO initiates a CAR or DN when an adverse trend is identified.
- The quarterly trend reports are submitted as QA Records.

Results:

Four quarterly trend evaluation reports were reviewed. One of the reports, the 1993 Third Calendar Quarter Trend Report, indicated a negative trend. Two Corrective Action Reports were initiated to identify the negative trend. The trend reports and associated documentation were submitted as QA Records and were verified in the RIS. No deficiencies were identified. REECO's implementation of MC-11.4 was satisfactory.

Summary for the QA Program Element:

Based on interviews and review of objective evidence, the implementation of QA Program Element 15.0 is satisfactory.

16.0 CORRECTIVE ACTION

The evaluation of this QA program element was based on interviews with REECO QA personnel and examination of objective evidence to determine the degree of compliance with selected requirements from MC-11.0, MC-11.1, and MC-11.3. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECO's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below.

Corrective Action (QARD, Section 16.0)

Requirements:

- Conditions adverse to quality shall be documented and reported to the appropriate levels of management responsible for the conditions and to the QAO for tracking.
- Responsible Management shall investigate and document the investigation of conditions adverse to quality.
- The QAO shall concur with the proposed remedial action to ensure that QA program requirements are satisfied.
- Criteria for determining a significant condition adverse to quality shall be established.
- Trend evaluation shall be performed in a manner and at a frequency that provides for prompt identification of adverse quality trends.
- The QAO shall establish criteria for determining adverse quality trends.

Results:

The REECo implementing procedures were found to adequately incorporate QARD requirements.

Deficiency Notices (MC-11.1)

Requirements:

- The log of DNs generated shall contain the following minimum information:
 - DN number
 - Originators name/department
 - Date evaluated
 - Responsible organization
 - Response due date
 - QAO acceptance date
 - Estimated completion date
 - Closure date and comments
- The QAO shall evaluate DNs to determine their validity; whether a significant condition adverse to quality exists; and whether it might be a material condition.

- The responsible organization shall, upon receipt of the DN, take immediate actions to remedy the adverse conditions.
- The responsible organization shall respond by the response due date.
- The QAO shall evaluate the proposed corrective action to ensure that the required actions have been properly addressed.
- The corrective actions shall be completed by the estimated completion date.
- The QAO shall notify the responsible organization, in writing, for overdue responses.
- The QAO shall verify that the corrective action(s) have been completed.
- The QAO is responsible for submitting the records package.

Results:

Based upon a random sample of REECO DN's as noted in Attachment 3 to this report, the implementation of MC-11.1 is considered satisfactory.

Corrective Action (MC-11.3)

Requirements:

- The QAO shall document the significant condition, determining whether a Stop Work Condition exists, and transmit to the responsible/cognizant manager and their upper management.
- The QAO shall evaluate to ensure that root cause was identified and that the actions taken were adequate to resolve the condition and prevent recurrence.
- The QAO shall perform verifications of corrective action(s), document the objective evidence reviewed to determine status, and sign/date to signify acceptance.

Results:

Based upon a random sampling of CARs generated by REECO as noted in Attachment 3 to this report, the implementation of MC-11.3 was determined to be satisfactory.

Problem Identification and Control (MC-11.0)

Requirements:

- Significant conditions adverse to quality shall be evaluated by the QAO to determine the possible existence of a Stop Work Condition.
- Significant conditions adverse to quality shall have the root cause identified.
- The QAO shall periodically analyze CARs for quality trends.

Results:

Based upon a review of the trend reports identified in Attachment 3, the implementation of MC-11.0 is considered satisfactory.

Summary for the QA Program Element:

One recommendation was identified as described in Item 6, Section 6.0 of this report. Based upon the interviews with REECo QA personnel and the review of objective evidence as noted in Attachment 3 to this report, the implementation of QA Program Element 16.0 is considered satisfactory.

17.0 QUALITY ASSURANCE RECORDS

This QA program element was evaluated based on the review of objective evidence to determine compliance with selected requirements taken from implementing procedures MC-12.0 and MC-12.1. In addition, a sample of requirements from the QARD was selected to verify adequate incorporation into REECo's implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Quality Assurance Records (QARD, Section 17.0)

Requirements:

- An individual or organization shall be assigned the responsibility for receiving QA Records.
- QA Records shall be protected from damage, deterioration, or loss when received.
- Legibility and completeness of QA Records shall be verified.

- Documents that provide evidence of the quality of items on the Q-List shall be classified as lifetime QA Records.
- Personnel training and qualification documents for individuals executing QA program requirements shall be classified as lifetime QA Records.
- Individuals creating QA Records shall ensure that the QA Records are legible, accurate, and complete.
- Corrections shall include the initials or signature of the person authorized to make the correction and the date the correction was made.
- QA Records shall be temporarily stored in a container or facility with a fire rating of 1 hour, or dual storage shall be provided.

Results:

The REEC_o implementing procedures were found to adequately incorporate the QARD requirements.

Records Management Program (MC-12.0)

Requirements:

- The managers complete a RAF, identifying the personnel within their organization and the records tasks they are authorized to perform.
- Personnel authorized to authenticate QA Records are qualified to do so as described in MC-2.4.2, Personnel Qualification and Certification.
- Records and records packages are be legible and complete.
- Records and record packages (QA and Non-QA) to be generated , supplied, submitted, and maintained are specified and identified in procedures, plans, instructions, or other REEC_o documents.
- Documents that meet the following requirements are classified as QA records
 - Personnel training and qualification documents for individuals executing QA requirements.
 - Documents considered Implementing Documents.
 - Documents that provide objective evidence that the QA program has been properly executed.

- Record packages contain a Table of Contents and are arranged in a systematic manner.
- QA Records and record packages are authenticated.
- DOE System 80, qualification, training and certification records and record packages are marked PRIVILEGED.
- Corrections to "Records/Record Packages" are made by personnel authorized to do so on the RAF.
- Access to records is controlled.
- Managers identify personnel authorized access to DOE System 80 records or personnel from within their organization by checking the appropriate box on the RAF. A copy of this form is sent to the TA and to the Information Management Department (IMD).
- The REECO TPO provides by letter to the TPO of the participant organization responsible for operating the LV LRC and the CRF a list of names of REECO personnel authorized access to DOE System 80 Records.
- DOE System Records are maintained in locked cabinets. Access to computer records is by password only.
- The IMD maintains microfilm copies of these records separately from the rest of the microfilm and stores the microfilm in locked cabinets. These microfilm reels and microfilm boxes are labeled on "2" sides INFORMATION RELEASE RESTRICTED in black ink on a pink background.
- The TA and the IMD restrict access to those allowed access by paragraph 6.6.4 and those authorized on the RAF.
- All completed records and records packages are submitted to the LV/LRC through the ISC. Record Sources transmit all records and record packages to the ISC. This may be done by any of the following methods.
 - Sending them through the ISC for distribution.
 - Copying the ISC and/or the TPO as a recipient.
 - Sending a copy directly to the ISC for records retention purposes.
 - Providing a copy to their Records Administrator who will transfer the copy to the ISC.
- Procedures are submitted to the LV LRC by the CDC through the ISC as described in reference 3.6 "MC 06.0, Document Control."

- Record Package segments generated by REECo that will become part of a record package completed by another affected organization are submitted to the records system by the completing affected organization. REECo Record Sources transmit a duplicate copy of these record package segments to the ISC. The ISC does not submit these duplicates to the LV/LRC.
- Records generated by REECo which will become part of a JP record package are submitted to the YMSCO, DRC according to reference 3.15, "Job Package Completion and Records." A duplicate of the completed form used to submit records to the DRC is sent to the ISC.
- Completed QA records and record packages are submitted to the LV/LRC no later than 10 working days after authentication.
- The RAFs are treated as QA records.

Results:

Construction Department records are in the process of being reviewed and corrected to resolve the procedure/record deficiencies in Shotcrete Placement Logs and Starter Tunnel Drill and Blast Logs, Identified by REECo QA in DN-94-017 and DN-94-02. The QC records are currently being reviewed by QC inspectors for submittal to the DRC. All deficiencies relating to MC 12.0 were isolated in nature and only require remedial action. Results were satisfactory

Records Management For Records Sources (MC-12.1)

Requirements:

- Records and Record Packages are complete.
- QA records and record packages are authenticated by authorized personnel by stamping, signing, or initialing and dating the record or record package.
- Record packages include a Table of Contents. The Table of Contents inventories the contents of the package by listing the individual records that constitute the package and indicating the page count for each individual record or group of records.
- Correction of records prior to submittal to the LV/LRC are corrected by scribing a single line through the incorrect information using black ink and entering the correct information. The correction indicates the date, initials or signature of the person who is authorized to make the corrections.

- The LV LRC is immediately notified of any serious errors in previously processed records or record packages. The corrected modified or supplemented records are submitted and identified to the LV/LRC through the ISC in accordance with paragraph 6.2.3.1.
- Materials destined to become QA records are protected against loss, damage, destruction, or degradation of data until they have been authenticated. Once authenticated, QA records are protected in one hour Underwriter's Laboratory (UL) or equivalent fire rated safes or containers.

Results:

Bases on the evaluation of objective evidence listed in Attachment 3, implementation of MC-12.1 is satisfactory.

Summary for the QA Program Element:

Four deficiencies were identified and corrected during the audit as described in Items 1-4, Section 5.5.2 of this report. In addition four recommendations were identified as described in Items 1-4, Section 6.0 of this report. Based on interviews and review of objective evidence, the implementation of QA Program Element 17.0 is satisfactory.

18.0 AUDITS

The evaluation of this QA program element was based upon interviews with REECO QA personnel and examination of objective evidence to determine the degree of compliance with selected requirements from MC-13.0 and MC-13.1. In addition, a sampling of requirements from the QARD was selected to verify adequate incorporation into REECO implementing procedures. The specific requirements selected for evaluation of compliance and effectiveness are listed below:

Audits (QARD, Section 18.0)

Requirements:

- Regularly scheduled internal audits shall be supplemented by additional audits of specific subjects when necessary to provide an adequate assessment of compliance of effectiveness.
- An audit team shall be identified before beginning each audit. The audit shall include representatives from the QA organization and any applicable technical organizations.

- Internal audits shall be scheduled to begin as early in the life of the work as practical and shall be scheduled to continue at intervals consistent with the schedule for accomplishing the work.
- In the case of internal audits, personnel having direct responsibility for performing the work being audited shall not be involved in the selection of the audit team.
- Audits shall include technical evaluation of the applicable procedure, instructions, activities and items.
- Nonconformances identified during an audit shall be controlled by the audited organization according to the requirements of Section 15.0.

Results:

The REECo implementing procedures for QARD Section 18.0 were found to contain some minor anomalies which were shown as incorrect on the submitted matrix. The matrix indicated incorrect paragraph references but did cover the QARD requirement elsewhere in the procedure. A listing of the correct paragraph reference was given to REECo management for their correct input to the matrix. Submittal of a corrected reference matrix will be required. REECo management indicated that this will be done according to the list supplied by YMQAD.

Audits (MC-13.0)

Requirements:

- The PQAM is responsible for approving audit schedules assigning qualified audit personnel to conduct audits, reviewing and approving audit reports, and assuring that corrective action follow-up has been conducted.
- Applicable elements of the YMP QA program shall be audited at least annually or at least once during the life of the activity.
- As a minimum, audits of each applicable section of a QA program shall be conducted within one year from the date of the previous audit of the activity.
- The PQAM shall periodically review and revise the audit schedule as necessary to assure coverage to be maintained and current.
- The PQAM shall approve the audit schedule.
- The Lead Auditor shall prepare and complete the QA Audit/Survey Plan in accordance with the instructions for Exhibit III.

- The Lead Auditor shall approve the audit checklist.
- The Auditor(s) shall document the objective evidence reviewed, and whether or not the checklist attribute is acceptable or unsatisfactory, and that each attribute has been initialed to indicate completion.
- The audit reports shall be issued by the PQAM within 30 calendar days of completion of the audit.
- A log of audits conducted shall be maintained by the QAO and contain all required information.
- The QAO is responsible for submitting the required records.

Results:

Based upon the objective evidence reviewed and noted on Attachment 3 to this report, the implementation of MC-13.0. was found to be satisfactory.

Auditor Qualification (MC-13.1)

Requirements:

- Competence of personnel for performing the various audit functions shall be developed.
- The PQAM shall certify and document to the individual's training files their qualification as an auditor.
- The PQAM shall document to the individual's training file their qualification as a Technical Specialist.
- Prospective Lead Auditors shall have verifiable evidence that a minimum of ten-credits have been accumulated.
- The prospective Lead Auditor shall participate in at least one audit under the supervision of a YMP Lead Auditor prior to qualification.
- Qualification and certification of lead auditors shall be documented.

- **Lead Auditors shall maintain their proficiency through one or more of the following:**
 - **Regular active participation in the audit process.**
 - **Review and study of codes, standards, etc.**
 - **Participation in training programs.**
- **The annual assessment shall be conducted during January of each year and be documented on the individuals training file, on Exhibit II.**
- **The following QA records are generated by this procedure**
 - **Auditor Qualification Records**
 - **Technical Specialists Qualification Records**
 - **Lead Auditor Evaluations**
 - **Lead Auditor annual Evaluation Record.**

Results:

Based upon a review of objective evidence as indicated in Attachment 3 to this report, the implement of MC-13.1 was considered satisfactory.

Summary for the QA Program Element

The REEC's implementing procedures were found to adequately incorporate QARD requirements. One deficiency was identified and corrected during the audit as described in Item 8, Section 5.5.2 of this report. Based upon the interviews conducted and the review of objective evidence, the implementation of QA Program Element 18.0 is considered satisfactory.

ATTACHMENT 3

OBJECTIVE EVIDENCE

QA Program Element 1.0, Organization:

Procedures:

Compliance with the following procedures was reviewed:

DOE-RW/0333P, Revision 0, QARD, Section 1.0
MC-01.0, Revision 3, Organization
MC-01.1, Revision 0, Stop Work Authority
MC-01.2, Revision 0, Resolution of Disputes
MC-01.3, Revision, 0, Delegation of Authority

Objective Evidence Reviewed:

REEC_o/YMP Organization Chart, dated 5/2/94
REEC_o/YMP Division, dated 4/1/94
REEC_o/YMP Quality Assurance Department, dated 4/1/94
REEC_o/YMP Information Management Department, dated 4/1/94
REEC_o/YMP Drilling Department, dated 4/1/94
REEC_o/YMP Construction Department, dated 4/1/94
REEC_o/YMP Project Control Department, dated 4/1/94

Construction and Inspection Plan:

CIP-94-0001

Line of Succession Letters:

B. R. Gardella, dated 3/21/94
W. Pugmire, dated 4/4/94
D. Wonderly, dated 4/6/94

QA Program Element 2.0, Quality Assurance Program:

Procedures:

Compliance with the following procedures was reviewed:

DOE-RW/0333P, Revision 0, QARD, Section 2.0
MC-02.0, Revision 3, Quality Assurance Program
MC-02.1, Revision 1, Determination of Importance
MC-02.4, Revision 0, Training and Qualification
MC-02.4.1, Revision 2, YMP Indoctrination and Training
MC-02.4.2, Revision 2, Personnel Qualification and Certification
MC-02.4.3, Revision 1, Required Reading
MC-02.4.4, Revision 1, Classroom Training
MC-02.4.5, Revision 2, Developing a Training Course
MC-02.5, Revision 0, Management Assessment
MC-02.8, Revision 1, Preparation, Review, and Approval of QAPP Change Notices
MC-13.2, Revision 1, Surveillances

Objective Evidence Reviewed:

Quality Implementing Plan:

QIP-DIV-93-002, Revision 0

Activity Grading Work Sheet:

AGW-DIV-93-001, Revision 0

Individual Training Files and Records Reviewed for the following personnel:

J. D. Geimer, N. R. Bennett, J. Constable, W. Gratza, D. L. Knight, J. M. Arnold, M. Moulder, C. Olson, A. McMullen, L. Roggins, S. Ziehm, C. Mathews, D. Key, E. Mouser and E. Williams

The following records from the above files were verified for completeness:

Indoctrination and Training
Training Requirements Forms
Qualification Records
QR Packages
Verification of Experience and Education
Required Reading Notices

Surveillance Plans:

SR-014-94
SR-002-94
SR-013-94
SR-007-94

Surveillance Report Log:

Covers reports issued from 2/12/92 through 4/29/94

Lesson Plans Reviewed:

<u>Title</u>	<u>Course #</u>	<u>Approval date</u>
Material Logistics	LP-93-005	10/28/93
Document Control Procedure Training	LP-92-001	09/25/92
Nonconformance Control	LP-93-004	06/29/93
CA 94-001, CA 94-002 Action	LP-94-002	04/21/94
Instructor Qualification Training	TR-002	01/16/90
YMP Orientation/Indoctrination	OR-92-001	10/19/92

QA Program Element 4.0, Procurement Document Control
QA Program Element 7.0, Control of Purchased Items and Services

Procedures:

The following implementing procedures were evaluated to determine if adequate instructions on the methodology to implement the QARD requirements were present:

DOE-RW/0333P, Revision 0, QARD, Sections 4.0 and 7.0
MC-03.0, Revision 2, Procurement
MC-03.1, Revision 1, ICNs 1 & 2, Purchasing Requisitions and Purchase Order Processing
MC-03.3, Revision 2, Source Verification
MC-03.2.1, Revision 0, ICN 1, Supplier Quality Approval
MC-03.2, Revision 1, Source Selection and Evaluation
MC-04.2, Revision 0, ICNs 1 & 2, Control of Vendor Submittals
MC-04.2, Revision 1, ICNs 1 & 2, Receipt Inspection

Compliance with the following procedure was reviewed:

MC-03.2.1, "Supplier Quality Approval"

Objective Evidence Reviewed:

Computer Data Base of QA reviewed purchase documents, Lotus 1-2-3, file name:

93PRW-WK3 E-PR-Log-WK3
E-JIT-Log-WK3 S-Cont-Log-WK3

Material Control Log dated 4/28/94 (Listing of YMP/REECO Procurements)

Supplier Quality Approvals:

QA Audit/Survey Report, REECO-SO2-93
Ruska Instrument Corporation, dated 7/21/93
Initial Evaluation Plan, dated 6/11/93
Supplier Evaluation Report SER-93-002, dated 7/8/93
Supplier QA/QC Program Manual/Document Evaluation (checklist), dated 6/1/93
QA Audit/Survey Report, REECO-SO1-94
EG&G Energy Measurement, dated 11/5/93
REECO YMP QA Audit/Survey Plan-SO1-94, dated 10/1/93
Initial Supplier Evaluation Plan, dated 10/1/93
Supplier Evaluation Report SER-94-001, dated 4/25/94
QA Audit/Survey Checklist, dated 10/4/93
Technical Specialist Comments, dated 10/6/93
Supplier QA/QC Program/Manual/Document Evaluation, dated 10/1/93

Reynolds Electrical & Engineering Company, Inc., Yucca Mountain Project Approved Suppliers List (ASL) DOC No. 586-ASL-1, issue No. 94-2, date of issue 2/23/94

QA Program Element 5.0, Implementing Documents

Procedures:

Compliance with the following procedures was examined:

DOE-RW/0333P, Revision 0, QARD, Section 5.0
MC-05.0, Revision 2, Instructions, Procedures and Drawings
MC-05.1, Revision 2, Preparation, Review & Approval of Management Control Procedures
MC-05.2, Revision 2, Preparation, Review & Approval of Technical Control Procedures
MC-05.3, Revision 0, Preparation, Review and Approval of Work Procedures

Objective Evidence Reviewed:

Management Control Procedures:

MC-07.0, Revision 2 Work Stop
MC-07.1, Revision 0 Work Planning
MC-09.0, Revision 2 Inspection Control
MC-09.0, Revision 2,- ICN-1
MC-09.1, Revision 4 Inspection Planning and Performance
MC-10.0, Revision 1 Measuring and Test Equipment
MC-11.0, Revision 2 Problem Identification and Control
MC-11.4, Revision 4 Trending

Technical Control Procedures:

TC-515-CP-DIM-1, Revision 0, Depth Micrometers
TC-515-CP-GEN-1, Revision 1, Measuring and Test Equipment-General
TC-580-SP-0003, Revision 0, Shotcrete Nozzelman Certification
TC-581-SP-0001, Revision 2, Water Use, Control and Accountability
TC-581-SP-0006, Revision 1, Survey Instrument Repeatability Tests
TC-581-SP-0007, Revision 2, Starter Tunnel Shotcrete
TC-581-SP-0010, Revision 0, Operation of Initial Tank Tracer Injection System
TC-581-SP-0010-ICN-1
TC-581-SP-0010-ICN-2
TC-581-SP-0011, Revision 3, Exploratory Studies Facility Ground Support
TC-581-SP-0017, Revision 0, Surveying Operations for the Starter Tunnel
TC-581-TP-0002, Revision 1, Testing of Underground Rock Bolt Ground Support
TC-581-TP-0002-ICN-2

Work Procedures:

TC-581-WP-0003, Revision 1 Drilling and Blasting for Underground
Construction Activities

Document Review Records for:

MC-06.3, Revision 1	TC-581-TP-0002, Revision 1
MC-07.0, Revision 2	TC-581-SP-0012, Revision 0
MC-07.4, Revision 1	TC-581-SP-0017, Revision 0
MC-09.1, Revision 4	TC-581-SP-0006, Revision 1
MC-11.0, Revision 2	TC-581-WP-0003, Revision 1

QA Program Element 6.0, Document Control

Procedures:

Compliance with the following procedures was examined:

DOE-RW/0333P, Revision 0, QARD, Section 6.0
MC-06.0, Revision 3, Document Control
MC-06.1, Revision 3, Control and Distribution of Controlled Documents
MC-06.2, Revision 0, Control of Supplier Submittals
MC-06.3, Revision 1, Externally Controlled Documents
MC-06.5, Revision 0, Expedited Changes

Objective Evidence Reviewed:

Controlled Copy Numbers (internal documents):

Copy 3 - M. Moulder
Copy 33 - S. Singer
Copy 36 - D. Koss
Copy 38 - R. Rommel
Copy 109 - K. Hodges

Controlled Documents Examined:

MC-02.0, Revision 3, Quality Assurance Program
MC-02.1, Revision 1, Determination of Importance
MC-02.2, Revision 1, Regulatory Compliance for Reporting Defects
MC-02.4.1, Revision 4, YMP Indoctrination and Training
MC-02.5, Revision 0, Management Assessment
MC-03.1, Revision 1, Purchasing Requisition and Purchase Order Processing
MC-07.0, Revision 2, Work Control
MC-07.6, Revision 0, Tracers, Fluids and Materials Reports
MC-11.2, Revision 3, Nonconformance Control
MC-11.3, Revision 1, Corrective Action
TC-581-SP-0007, Revision 2, Starter Tunnel Shotcrete

Drawings:

Copyholder Number - 101404.1

BAB000000-01717-2100-20001, Revision 0
BAB000000-01717-2100-20002, Revision 0
BAB000000-01717-2100-20003, Revision 0
BABA00000-01717-2100-20011, Revision 0

BABA00000-01717-2100-20088, Revision 0
BABBAD000-01717-2100-22410, Revision 0
BABBAF000-01717-2100-24151, Revision 0

Copyholder Number - 101404.15

BABB00000-01717-2100-20010, Revision 1
BABBD0000-01717-2100-20028, Revision 1
BABB00000-01717-2100-24000, Revision 0
BABBA0000-01717-2100-24005, Revision 1
BABBD0000-01717-2100-24060, Revision 0
BABBD0000-01717-2100-24070, Revision 0
BABBD0000-01717-2100-24072, Revision 0

Copyholder Number - 101404.4

YMP-025-1-MING-MG121, Revision 2
YMP-025-1-MING-MG122, Revision 1
YMP-025-1-MING-MG123, Revision 3
YMP-025-1-MING-MG125, Revision 2
YMP-025-1-MING-MG126, Revision 2
YMP-025-1-MING-MG128, Revision 2
YMP-025-1-MING-MG135, Revision 2
YMP-025-1-MING-MG139, Revision 2
YMP-025-1-MING-MG142, Revision 2
YMP-025-1-MING-MG143, Revision 2

Copyholder Number - 101404.5

YMP-025-1-MING-MG143, Revision 2

Specifications:

Copyholder Number - 101404.1

BAB000000-01717-6300-16050, Revision 2
BAB000000-01717-6300-16110, Revision 2
BAB000000-01717-6300-16195, Revision 2

Copyholder Number - 101404.15

BAB000000-01717-6300-01400, Revision 1
BAB000000-01717-6300-01600, Revision 1
BAB000000-01717-6300-02225, Revision 1
BAB000000-01717-6300-02230, Revision 0

BABBA0000-01717-6300-06410, Revision 0
BABBA0000-01717-6300-07900, Revision 0
BABBA0000-01717-6300-08330, Revision 0
BABFCA000-01717-6300-14555, Revision 2
BABBA0000-01717-6300-15140, Revision 0
BABBA0000-01717-6300-15855, Revision 0

Work Procedures:

TC-581-WP-0003, Revision 1 Drilling and Blasting for Underground
Construction Activities

Job Packages:

JP 92-2, Revision 2 JP 93-02, Revision 0
JP 93-02A, Revision 1 JP 93-05, Revision 1

Supplier Submittal Review forms (associated with the following specifications):

YMP-025-1-SP09-02310-VD-1-0
YMP-025-1-SP09-02310, Revision 1
YMP-025-1-SP09-02165, Revision 1

Authorization Memorandums:

Construction Personnel authorized to approve Expedited Changes - dated 6/11/93
QAD individuals authorized to approve Expedited Changes - dated 5/21/93

Master Index of Controlled Documents - dated 4/28/94

QA Program Element 8.0, Identification and Control of Items
QA Program Element 13.0, Handling, Storage, and Shipping

Procedures:

Compliance with the following procedures was reviewed:

DOE-RW/0333P, QARD, Sections 8.0 and 13.0
MC-04.5, Revision 1, Material Identification

MC-04.3, Revision 1, Handling, Storage, and Shipping
MC-04.0, Revision 1, Material Control

Objective Evidence Examined:

P.O. No. 1-QYP-01--3
Line item no.1 , rockbolts

P. O. No. 70-YP-01-3
Line item no.1, fence fabric(partial roll)

P.O. No. 1-QYP-01-3,
Line item unmarked, anchors

P.O. No. 1-QYP-01-3
Line item 06, couplings
Line item unmarked, beveled washers
Line item unmarked, resin epoxy (in cans)
Line item unmarked, PVC inserts

Other items:

Keyhole plates, P.O. No. unmarked, line item no. unmarked

QA Program Element 10.0, Inspection

Procedures:

Compliance with the following procedures was reviewed:

MC-09.0, Revision 0, "Inspection Program"
MC-09.1, Revision 4, "Inspection Planning and Performance"
MC-09.2, Revision 1, "Training, Qualification and Certification of Inspection and
Test Personnel"

Objective Evidence Examined:

Inspection Plans:

Rock Bolt Ground Support
ESF Ground Support
Lithium Bromide Testing
Shotcrete Inspection

Qualification and certification records for the following inspection and test personnel:

Qualification Records:

E. Mauser, 11/29/92
E. Williams, 4/15/93
S. Ricks, 7/19/93
D. Busick, 4/15/93
S. Loftfield, 3/29/93
J. Geimer, 3/29/93

YMP Education and Experience Verification Records:

E. Mauser, 11/16/92
E. Williams, 4/9/93
S. Ricks, 7/12/93
D. Busick, 4/8/93
S. Loftfield, 3/16/93
J. Geimer, 3/16/93

Position Titles:

E. Mauser, 10/1/89
E. Williams, 10/1/89
S. Ricks, 10/1/89
D. Busick, 8/1/83
S. Loftfield, 8/1/83
J. Geimer, 8/1/83

Inspection and Test Personnel Record of Certification:

E. Mauser, 2/22/93
E. Williams, 11/2/93, 4/14/93
S. Ricks, 11/2/93, 7/19/93
D. Busick, 4/14/93, 11/2/93
S. Loftfield, 2/24/93
J. Geimer, 4/14/93, 11/2/93

Level II / Level III Evaluation Checklists:

E. Mauser, Level III, 2/22/93
E. Williams, Level II, 4/13/93, 11/1/93
S. Ricks, Level II, 7/1/93, 11/1/93
D. Busick, Level II, 4/13/93, 11/1/93
S. Loftfield, Level II, 2/24/93
J. Geimer, Level II, 4/14/93, 11/1/93

Annual Visual Requirements records:

E. Mauser, 11/8/93
 E. Williams, 6/16/93
 S. Risks, 6/28/93
 D. Busick, 6/16/93
 S. Loftfield, 6/16/93
 J. Geimer, 6/16/93

Inspection Checklists for Lithium Bromide Storage Tank Tests:

QC0108, 5/7/93	QC0122, 6/30/93
QC0109, 6/3/93	QC0123, 7/1/93
QC0110, 6/4/93	QC0124, 7/6/93
QC0111, 6/7/93	QC0125, 7/6/93
QC0112, 6/10/93	QC0167, 9/27/93
QC0113, 6/15/93	QC0166, 9/22/93
QC0114, 6/17/93	QC0165, 9/16/93
QC0115, 6/22/93	QC0163, 9/9/93
QC0121, 6/24/93	QC0162, 9/7/93
QC0161, 9/5/93	QC0160, 9/2/93

Inspection Reports for Lattice Girder Installation:

Girder Station	Vertical or Horizontal	Date	Bolt#s
0+03	V	8/5/93	5-8, 41-44
0+00	V	8/5/93	5-8, 41-44
0+00	V	5/27/93	9-40
0+03	V	5/27/93	9-40
0+05	H	5/27/93	1-16
0+08	V	8/5/93	5-8, 41-44
0+08	V	5/27/93	9-40
0+10	H	5/27/93	1-4, 13-16
0+18	V	8/5/93	5-8, 41-44
0+18	V	5/27/93	9-16, 37-40
0+18	V	5/28/93	17-36
0+10	H	5/28/93	5-12
0+13	V	8/5/93	5-8, 41-44
0+13	V	5/27/93	9-40
0+15	H	5/27/93	1-4, 13-16
0+15	H	5/28/93	5-12
0+20	H	5/27/93	1-4, 13-16

0+20	H	5/28/93	5-12
0+23	V	8/5/93	5-8, 41-44
0+23	V	5/28/93	17-36
0+23	V	5/27/93	9-16, 37-40
0+25	H	5/27/93	1-4, 13-16
0+25	H	5/28/93	5-12
0+28	V	8/5/93	5-8, 14-44
0+28	V	5/27/93	9-12
0+28	V	5/28/93	13-20, 29-40
0+28	V	5/28/93	21-28
0+30	H	5/27/93	1-4, 13-16
0+30	H	5/28/93	5-12
0+33	V	8/5/93	5-8, 41-44
0+33	V	5/27/93	9-12
0+33	V	5/28/93	13-20, 29-40
0+33	V	5/29/93	21-28

Drill and Blast Log Sheets (including Rock Bolt Installation Inspection Reports):
See objective evidence for QA Program Element 14.0

QA Program Element 12.0, Control of Measuring and Test Equipment

Procedures:

Compliance with the following procedures was reviewed:

DOE-RW/0333P, Revision 0, QARD, Section 12.0
MC-10.0, Revision 1, Measuring and Test Equipment

Objective Evidence Examined:

The following equipment was verified and checked:

PTL STD 22A	Torque cell with indicator
PTL STD 22B	Torque cell with indicator
PTL STD 37	Pressure gauge, panel 0 to 60 psig
PTL STD 38	Pressure gauge, panel 0 to 600 psig
PTL STD 40	Pressure gauge, 0 to 100 psig
PTL STD 66	Thermometer, digital -40 to + 1999 degrees F
PTL STD 70	Thermometer, digital -40 to + 1999 degrees F
PTL STD 110	Pressure controller calibrator, 0 to 100 psig, 0 to 1000 psig
Y103	Wire cloth sieve
Y105	Wire cloth sieve
Y10117	Gauge 0 to 30
Y10669	Balance, triple beam,
Y10673	Temperature gauge, -40 to 160 degrees
Y10716	Sieve tray 2.0 inches
Y10798	Scale,(platform)0-131 LBS

Y10900
Y10901

Thermometer, (glass) -5 to 400 degrees C
Thermometer, (glass) -10 to 400 degrees

QA Program Element 14.0, Inspection, Test and Operating Status

Procedures:

Compliance with the following procedures was reviewed:

- DOE-RW/033P, QARD, Section 14
- TC-586-SP-0001, Revision 1, "Sampling Lithium Bromide (LiBr) Tracer"
- TC-581-TP-0002, Revision 1, "Testing of Underground Rock Bolt Ground Support"
- TC-581-WP-0003, Revision 1, "Drilling and Blasting for Underground Construction Activities"
- TC-581-SP-0007, Revision 2, "Starter Tunnel Shotcrete"
- TC-581-SP-0011, Revision 3, "Exploratory Studies Facility Ground Support"

Objective Evidence Examined:

Nonconformance Reports:

- YMPO-94-1
- YMPO-94-2
- YMPO-94-3

Shotcrete Inspection Reports:

Number	Date	Number	Date
930622-1	6/22/93	930727	7/27/93
930623	6/24/93	930806	8/6/93
930624-1	6/24/93	930807-1	8/7/93
930624-2	6/28/93	930807-2	8/7/93
930628-3	6/28/93	930807-3	8/9/93
930702-1	7/2/93	930809-1	8/9/93
930720-3	7/20/93	930809-2	8/9/93
930721-1	7/21/93	930809-3	8/9/93
930721-2	7/21/93	930810-1	8/10/93
930722-1	7/22/93	930810-2	8/10/93
930722-2	7/22/93	930817	8/17/93
930723-1	7/23/93	930818-1	8/18/93
930726-1	7/26/93	930818-2	8/18/93
930729-2	7/26/93	930819-1	8/19/93
930729-3	7/26/93	930819-2	8/19/93

Cement Grout Bolt Installation Inspection Reports:

Bolt or ring number	Date	Bolt or ring number	Date
25.0 C	8/26/93	25.4 L	8/24/93
25.5 L	9/23/93	25.1 R	8/26/93
25.6 L	9/23/93	25.2 R	8/25/93
25.7 L	9/23/93	25.3 R	8/25/93
25.1 L	7/28/93	25.4 R	8/25/93
25.2 L	7/28/93	26.0 C	7/28/93
25.3 L	8/27/93		

Drill and Blast Log Sheets (including Rock Bolt Installation Inspection Reports) for rounds and dates:

Round	Date	Round	Date
NB, CB, SB-001	7/31/93	NB, CB, SB-014	8/18/93
NB, CB, SB-002	8/2/93	NB, CB, SB-015	8/31/93
NB, CB, SB-003	8/2-3/93	NB, CB, SB-016	9/1/93
NB, CB, SB-004	8/3/93	NB, CB, SB-017	9/2/93
NB, CB, SB-005	8/4/93	NB, CB, SB-018	9/2/93
NB, CB, SB-006	8/11/93	NB, CB, SB-019	9/3/93
NB, CB, SB-007	8/11/93	NB, CB, SB-020	9/3/93
NB, CB, SB-008	8/12/93	NB, CB, SB-021	9/7/93
NB, CB, SB-009	8/13/93	NB, CB, SB-022	9/7/93
NB, CB, SB-010	8/13/93	NB, CB, SB-023	9/8/93
NB, CB, SB-011	8/14/93	NB, CB, SB-024	9/8/93
NB, CB, SB-012	8/16/93	NB, CB, SB-025	9/9/93
NB, CB, SB-013	8/16/93		

QA Program Element 15.0, Nonconformances

Procedures:

Compliance with the following procedure was reviewed:

DOE-RW/0333P, Revision 0, QARD, Section 15.0
YAP-15.1Q, Revision 0, ICN 1, Control of Nonconformances
MC-11.4, Revision 1, Trending

Objective Evidence Examined:

NCR Logs dated 4/19/94, 5/3/94

Nonconformance Reports:

<u>NCR Number</u>	<u>Date Initiated</u>	<u>Status/Date Closed</u>	<u>Disposition/Comments</u>
YMPO-94-0001#	12/1/93	Closed 1/26/94	Conditional Release/Use-As-Is*
YMPO-94-0002+	12/9/93	Closed 4/21/94	Conditional Release/Use-As-Is*
YMPO-94-0006	2/2/94	Closed 2/7/94	Use-As-Is*
YMPO-94-0010+	2/17/94	Closed 4/21/94	Conditional Release/Use-As-Is*
YMPO-94-0024@	3/17/94	Closed 3/31/94	Use-As-Is*
YMPO-94-0031#	4/27/94	Open	Reject/Scrap \$
YMPO-94-0032	4/27/94	Open	Conditional Release* \$
YMPO-94-0035	4/27/94	Open	Not completed \$

Notes:

- # Revision 1
- + REEC_o DN 93-025 indicated in Block 6
- @ REEC_o DN 93-030 indicated in Block 6
- * Technical Justifications were provided in Block 4 for each Conditional Release and Use-As-Is dispositions.
- \$ Hold Tags were verified attached to items

NCRs retrieved at the Local Records Center:

<u>NCR Number</u>	<u>Accession Number</u>
YMPO-94-0001	NNA.940502.0118 Correction to NNA.940221.0098
YMPO-94-0006	NNA.940502.0120 Correction to NNA.940221.0097
YMPO-94-0024	NNA.940411.0044

REEC_o NCRs written in accordance with AP 5.27Q and now being tracked by the M&O in accordance with CRWMS MGP-15.1, Revision 0 are listed below:

NCR-93-022 NCR-93-026 NCR-93-046 NCR-93-049
 NCR-93-053 NCR-93-054 NCR-93-056 NCR-93-057
 NCR-93-058 NCR-93-059 NCR-93-060

CRWMS MGP-15.1, Revision 0, Control of Nonconforming Items

<u>Trend Reports</u>	<u>Date</u>	<u>Document ID</u>	<u>Accession Number</u>
1993 Second Calendar Quarter	7/9/93	93-005611	NNA.930727.0045
1993 Third Calendar Quarter	10/4/93	93-008261	NNA.931020.0007

1993 Fourth Calendar Quarter	1/6/94	94-000151	NNA.940204.0062
1994 First Calendar Quarter	4/4/94	94-003052	NNA.940502.0002

Quality Program Status Reports:

<u>Date</u>	<u>Document ID</u>
7/3/93	93-005612
10/4/93	93-008260
1/5/94	94-000111
4/5/94	94-002991

Corrective Action Reports issued to identify negative trends:

CA-94-001, 10/22/93
CA-94-002, 10/22/93

QA Program Element 16.0 Corrective Action

Procedures:

Compliance with the following procedures was reviewed:

DOE-RW/0333P, Revision 0, QARD, Section 16.0
MC-11.1, Revision 2, Deficiency Notices
MC-11.0, Revision 2, Problem Identification and Control
MC-11.3, Revision 1, Corrective Action

Objective Evidence Examined:

Deficiency Notices:

DN-94-003
DN-94-006
DN-94-004
DN-94-007
DN-94-011
DN-94-017
DN-94-018
DN-94-022
DN-94-026
DN-94-030
DN-94-033

DN Log, dated 4/29/94
DN Transmittal letter, dated 4/1/94, #585-94-012
DN Transmittal letter, dated 4/5/94, #586-94-010

Corrective Action Requests:

CAR-94-001
CAR-94-002
CAR-94-004
CAR-94-005
CAR-94-003
CAR-93-002
CAR-93-005
CAR-93-006

Trend Reports:

First Quarter 1994, dated 4/4/94
Fourth Quarter 1993, dated 1/6/94

Trend Report Submittal:

Fourth Quarter 1993, dated 1/18/94, #586-94-002
Third Quarter 1993, dated 10/6/93, #586-93-027
First Quarter 1994, dated 4/13/94, #586-94-011

QA Program Element 17.0, Quality Assurance Records

Procedures:

Compliance with the following procedure was reviewed:

DOE-RW/0333P, Revision 0, QARD, Section 17.0
MC-12.0, Revision 2, Records Management Program
MC-12.1, Revision 2, ICN 4, Records Management for Records Sources

Objective Evidence Examined:

Records Authorization Forms:

YMP QA Department, 8/18/93, 6/10/92, 5/6/93, 4/21/93
Procurement & Property Management, 5/6/94

Qualification Records of Personnel authorized to Authenticate records:

<u>Name</u>	<u>Evaluated by</u>	<u>Date</u>
Robert R.Rommel	T. M. Leonard	6/21/91
David Wonderly	C. J. Mason	5/11/93
Thomas M. Leonard	R. F. Pritchett	6/21/91
Kristina L. Limon	R. F. Pritchett	2/14/92
Jon P. Hedlund	T. M. Leonard	5/3/93
Dave Hackbert	W. Glasser	6/21/91
Catheryn Davenport	T. M. Leonard	4/26/93
Marjorie Moulder	K. L. Limon	4/24/92
John P. McGoldrick	Steve Stroub	7/1/91

Record and Records Packages reviewed:

Accession Number Document ID/Date Authenticated by Description

NNA.930520.0088	93-003678	5/11/93	Connie Barker	Personnel file for Jon P. Hedlund
NNA.930525.0126	93-003928	5/17/93	Connie Barker	Personnel file for K. L. Limon
NNA.930525.0124	93-003926	5/17/93	Connie Barker	Personnel file for T. M. Leonard
NNA.930525.0118	93-004010	5/18/93	Connie Barker	Personnel file for D.M.Wonderly
NNA.930720.0022	93-005534	7/9/93	Connie Barker	Personnel file for R.R.Rommel
NNA.920601.0042	92-003837	3/9/92	R. F. Pritchett	DOE System 80 Access List
NNA.931020.0007	93-008261	10/4/93	W. J. Glasser	1993 Third Calendar Quarter Trend Evaluation Report
NNA.930727.0045	93-005611	7/9/93	W. J. Glasser	1993 Second Calendar Quarter Trend Evaluation Report
NNA.940204.0062	94-000151	1/6/94	W. J. Glasser	1993 Fourth Calendar Quarter Trend Evaluation Report
NNA.940502.0002	94-003052	4/4/94	W. J. Glasser	1994 First Calendar Quarter Trend Evaluation Report

REECo Procedures verified for records and record packages to be generated:

TC-581-SP-007, Revision 2, Starter Tunnel Shotcrete
TC-581-WP-003, Revision 1, Drilling and Blasting for Underground Construction Activities
MC-13.2, Revision 1, Surveillances
MC-02.4.2, Revision 2, Personnel Qualification and Certification
MC-11.4., Revision 1, Trending
MC-12.1, Revision 2, ICN 3, Records Management for Record Sources
MC-05.1, Revision 2, Preparation, Review, and Approval of Management Control Procedures
MC-05.2, Revision 2, Preparation, Review, and Approval of Technical Control Procedu

MC-05.3, Revision 0, Preparation, Review, and Approval of Work Procedures
MC-07.0, Revision 2, Work Control

DOE System 80 Qualification Access List, Letter # 580-01-270, dated 3/9/92 from R. F. Pritchett to L.D. Foust, Accession Number NNA.92061.0042
DOE System 80 Qualification Access List, Letter # 580-01-453, dated 5/6/94 from D.L. Koss to L.D. Foust.

Microfilm reels verified for Privileged Records:

REECO Tracking Numbers 930922.0361 and 940215.0035

Records Submittal Forms:

<u>Transmittal Number</u>	<u>Date</u>	<u>Transmitted By</u>
587-94-003	1/31/94	M. D. Moulder, 9 procedure packages
587-94-009	3/29/94	M. D. Moulder, 9 procedure packages
584-93-028	5/17/93	A.L. McMullen, 3 training packages
584-93-029	5/20/93	A.L. McMullen, 25 training packages
584-93-042	7/13/93	A.L. McMullen, 19 training packages
586-94-010	4/5/94	A.L. McMullen, 9 QA record/record package
586-94-011	4/13/94	A.L. McMullen, 3 QA record/record package

Corrected Records:

Document ID SR-014-94, Dated 5/3/94, Surveillance Report SR-014-94, submitted as Document ID 94-003705
Accession Number NNA.930922.0361, REECO YMP Document Review Records (DRRs) for MC-06.3, Rev. 1
Accession Number NNA.940215.0035, REECO YMP DRRs for TC-581-SP-0001, Rev. 2

Corrections Prior to Submittals:

Training Requirements Form for Joseph A. Cutozzi by Connie Barker, 1/14/94
Construction and Inspection Plan 93-0004, 2/11/93 corrected by R. R. Rommel, 2/24/93
Inspection Monitoring Report 3/18/93 for CIP 93-0004 corrected by E. Mouser, 3/19/93
Inspection Monitoring Report 3/19/93 for CIP 93-0004 corrected by E. Mouser, 10/6/93
Inspection Monitoring Report 3/22/93 for CIP 93-0004 corrected by E. Mouser, 10/4/92
Inspection Monitoring Report 3/23/93 for CIP 93-0004 corrected by E. Mouser, 10/4/93

Record, dated 11/19/93, Rock Storage Pad Geomembrane Liner, resubmitted as Record Package Segment, dated 5/6/94, Rock Storage Pad Geomembrane Liner, dated 5/6/94, Tracking Number DRC-026A, Job Package 92-20

Job Package 92-20 Revision 0, ESF North Portal Pad & Facilities, issued 10/29/92
Job Package 92-20 Revision 1, ESF North Portal Pad & Facilities, issued 1/10/94

In-process Construction Records at the FOC and Field Trailers for Job Package 92-20, Revision 0.

Drill and Blast Logs:

<u>Date</u>	<u>Drill and Blast Round Number</u>	<u>Blast Location</u>
4/13/93	NP-PD003	North Portal Sta. 0+10
4/29/93	NP-PD012	North Portal Sta. 61
8/4/93	NS-001, SS-001	North Portal Sta. 0+00
5/24/93	NS-004, SS-005	North Portal Sta. 0+15
6/3/93	NS-014, SS-014	North Portal Sta. 0+65
7/8/93	PD-026	North Portal Sta. 1+55
6/21/93	NS-021, SS-021	North Portal Sta. 1+10
7/31/93	NP-CB-01	North Portal Sta. 0+00
8/11/93	NP-CB-006 NB-006, SB-006	North Portal Sta. 0+44
9/1/93	NP-CB-016 NB-016, SB-016	North Portal Sta. 1+06
9/3/93	NP-CB-020 NB-020, SB-020	North Portal Sta. 1+44
9/7/93	NP-CB-021 NB-021, SB-021	North Portal Sta. 1+54

Shotcrete Placement Logs:

<u>Date</u>	<u>Shift</u>
9/16/93	Grave
9/17/93	Day
9/17/93	Grave
9/10/93	Grave
9/13/93	Day
8/6/93	Swing
7/23/93	Day
7/21/93	Swing
7/19/93	Day
7/2/93	Swing
6/25/93	Swing
6/23/93	Swing
6/9/93	Swing
5/10/93	Day

Deficiency Notice (DN) 94-017, issued 2/9/94, Shotcrete Placement Logs do not meet procedure and/or record requirements

Deficiency Notice (DN) 94-021, issued 2/25/94, Starter Tunnel Drill and Blast Logs were not completed correctly

In-process QC Records at the FOC and Field Trailers for Job Package 92-20, Revision 0.
Construction and Inspection Plan
Inspection Checklists
Inspection Reports

QA Program Element 18.0, Audits

Procedures:

Compliance with the following procedures was verified:

DO: 7/0333P, Revision 0, QARD, Section 18.0
MC: 18.0, Revision 3, Audits
MC: 18.1, Revision 3, Auditor Qualifications

Audit Schedules:

Fiscal Year 1993, Revision 2
Fiscal Year 1994, Revision 0

Audits Reviewed:

REEC0 001-93, Training and Qualification
REEC0 002-94, Training and Qualification
REEC0 003-94, Work Control
REEC0 004-94, Work Control
REEC0 009-93, Measuring and Test Equipment

Lead Auditors and Auditors Reviewed:

Position Description, Verification of Education and Experience, Annual Evaluations, Certifications:

D. A. Hackbert, Lead Auditor (LA)	6/17/92	1/20/94
E. S. Reiter, LA	6/21/91	1/20/94
P. J. Wilson, LA	6/17/92	1/19/94
K. A. Hodges, LA	10/21/93	1/19/94
W. J. Gratza, LA	6/15/91	1/19/94
Bob Hasson, Auditor (A)	4/14/94	
J. C. Constable, A	6/1/93	
P. E. Bryant, A	4/14/94	

Technical Specialists:

G. Erickson

Performed on Audit -0193 as a Technical Specialist prior to his orientation being documented.
REEC0 initiated D/N 93-001 dated 1/7/93 to document this deficiency.

Audit Log, dated 4/29/94

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

AUDIT REPORT

OF

REYNOLDS ELECTRICAL AND ENGINEERING COMPANY, INC.

LAS VEGAS, NEVADA

AUDIT NUMBER YMP-94-02
DECEMBER 6 THROUGH 9, 1993

Prepared by: Donald J. Harris Date: 1/6/94
Donald J. Harris
Audit Team Leader
Yucca Mountain Quality Assurance Division

Approved by: Donald G. Horton Date: 1/13/94
Donald G. Horton
Director
Office of Quality Assurance

ENCLOSURE

1.0 EXECUTIVE SUMMARY

As a result of Quality Assurance (QA) Performance Based Audit YMP-94-02, the Audit Team determined that overall, Reynolds Electric and Engineering Company, Inc. (REECo) was satisfactory in meeting the program requirements, management commitments and expectations for the Kiewit/PB Subcontract preparation and award, procurement and processing of commercial-grade items, and corrective action related to the REECo QA Program Plan and implementing procedures for QA Program Elements 4.0, "Procurement Document Control" and 7.0, "Control of Purchased Items and Services."

The performance based evaluation of process effectiveness and product acceptability was based on 1) proper implementation of the procedures' critical process steps; 2) use of trained and qualified personnel working effectively; 3) safety, quality and cost conscious attitudes; 4) documentation that substantiated quality of the products, and 5) acceptable results and the quality of the end products.

The audit was performed based on direct observation of the activities in process, interviews with auditee personnel, and review of pertinent documents for performance based information in the selected designated areas. The auditors analyzed and evaluated the information gained throughout this process in order to make a determination whether or not the performance was satisfactory.

The Audit Team did not identify any deficiencies requiring the issuance of a Corrective Action Request (CAR). Three recommendations resulting from the audit are detailed in Section 6.0 of this report.

2.0 SCOPE

This performance based audit of REECo was an audit which evaluated the effectiveness of selected processes, and the quality of the resultant end products associated with REECo activities performed under QA Program Elements 4.0 and 7.0.

The Audit Team evaluated the effectiveness of the processes in meeting program requirements, management commitments and expectations for the subcontract preparation and award to Kiewit/PB, procurement and processing of commercial-grade rockbolts and accessories and corrective actions related to QA Program Elements 4.0 and 7.0.

Follow-up on previously issued CARs relating to the QA program elements audited was performed. Results of this follow-up are described in Section 5.5.1 of this report.

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

QA PROGRAM ELEMENTS/REQUIREMENTS

- 4.0 Procurement Document Control
- 7.0 Control of Purchased Items and Services

TECHNICAL AREAS

None

3.0 AUDIT TEAM AND OBSERVERS

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

<u>Name/Title</u>	<u>Areas Evaluated</u>
Donald J. Harris, Audit Team Leader Yucca Mountain Quality Assurance Division (YMQAD)/Quality Assurance Technical Support Services (QATSS)	Kiewit/PB Subcontract preparation and award and corrective action related to QA Program Elements 4.0 and 7.0
Cynthia Humphries, Auditor, YMQAD/QATSS	Rockbolts and Accessories
John S. Martin, Auditor, YMQAD/QATSS	Rockbolts and Accessories
Charles C. Warren, Auditor, YMQAD/QATSS	Kiewit/PB Subcontract preparation and award
Kenneth R. Hooks, Observer U.S. Nuclear Regulatory Commission (NRC)	
Bruce Mabrito, Observer, NRC	
William L. Petrie, Observer, Management and Operating (M&O) Contractor	
Ronald B. Berlien, Observer, M&O	

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

The preaudit meeting was held at the REECo office, at the Bank of America Center (BAC) in Las Vegas, Nevada on December 6, 1993. A daily debriefing and coordination meeting was held with the REECo management and staff and daily Audit Team/Observer meetings were held to discuss issues and potential deficiencies. The audit was concluded with a postaudit meeting held at the REECo office at the BAC in Las Vegas, Nevada, on December 9, 1993. Personnel contacted during the audit are listed in Attachment 1 to this report. The list includes an indication of those who attended the preaudit and postaudit meetings.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Effectiveness

The Audit Team concluded that the procurement process and product acceptability was satisfactory based on the evaluation of the procedures' critical process steps; the required qualifications and training of the personnel; safety, quality and cost conscious attitudes of the personnel interviewed; documentation that substantiated the quality of the product, and the acceptability of the end product. Three recommendations were presented to the auditee for consideration and are listed in Section 6.0 of this report.

5.2 Stop Work or Immediate Corrective Actions or Additional Actions

There were no Stop Work Orders nor related documents issued.

5.3 Performance Based Audit Activities

Details of the performance based audit activities are provided in Attachment 2. A list of objective evidence reviewed during the audit is provided in Attachment 3.

5.4 Technical Audit Activities

No technical activities were included within the scope of the audit.

5.5 Summary of Deficiencies

No deficiencies were corrected during the audit or documented on a CAR.

5.5.1 Follow-up of Previously Identified CAR

Corrective action to CAR YM-93-055, which was identified during the previous audit (YMP-93-12) regarding procurement of commercial-grade materials, was verified and the CAR was subsequently closed.

5.5.2 Deficiencies Corrected During the Audit

None

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for consideration by REECO Management:

1. It is recommended that REECO personnel in the Logistical Support Department (LSD) be required to receive training on the requirements of the Quality Assurance Requirements and Description (QARD) document, U.S. Department of Energy DOE/RW-0333P, Section 4.0, "Procurement Document Control." This section of the QARD delineates project requirements for procurement document control that are applicable to the activities performed by the logistical support personnel. This training is not required by REECO's QA Program; however, it would provide insight into the upper-tier program requirements.
2. It is recommended that REECO consider revising procedures to indicate that subcontracts may be awarded to suppliers prior to full approval of the suppliers quality program if appropriate restrictions are placed on the supplier in the subcontract. Subcontract 1-YUC-01-2, was issued to Kiewit/PB without the Kiewit/PB quality program being approved for all work to be performed under the subcontract scope of work. Restrictions for performance of work by Kiewit/PB were included in the REECO Approved Suppliers List (ASL) rather than in the subcontract in accordance with REECO's QA Program procedures.
3. It is recommended that REECO revise their Management Control MC-03.0 series of procedures related to procurement to resolve procedural inconsistencies with the System Acquisition and Method (SAM) procedures, and the Standard Operating Procedures (SOPs); and somehow sanction these procedures (i.e., SAMs and SOPs) as being applicable to the Yucca Mountain Site Characterization Project (YMP). The SAMs and SOPs have been approved by DOE as meeting the federal government's Federal Acquisition Regulations (FARs) and Department of Energy Acquisition Regulations (DEARs).

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Audit Details

Attachment 3: Objective Evidence Reviewed During the Audit

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>
Arnold, J.	REECO, MCS, Sr. Eng.		X	
Barker, M.	REECO, Training Admin.		X	
Berlien, R.	M&O, Observer	X		X
Buchari, M.	REECO, DQC Observer	X		
Constable, J.	REECO, QA Specialist II		X	
Diaz, M.	YMQAD, Gen. Eng.			X
Faiss, E.	REECO, Princ. Staff Assist.	X		X
Gardella, B.	REECO, Control Dept. Mgr.	X		X
Gilray, J.	NRC, On-Site Rep.	X		X
Glasser, W.	REECO, PQAM	X	X	X
Gratza, W.	REECO, Sr. QA Specialist	X	X	X
Greene, H.	QATSS, QA Div. Mgr.	X		
Hackbert, D.	REECO, Sr. QA Specialist	X	X	X
Hannaway, D.	REECO, Sr. MCA		X	
Harris, D.	QATSS, Lead Auditor	X		X
Hooks, K.	NRC, Observer	X		X
Humphries, C.	QATSS, Auditor	X		X
Koss, D.	REECO, Assist. Div. Mgr.			X
Leonard, T.	REECO, Constr. Dept. Mgr.	X		
Limon, K.	REECO, IMD Mgr.	X		
Mabrito, B.	NRC, Observer	X		X
Martin, J.	QATSS, Auditor	X		X
Mason,	REECO, Drill. Dept. Mgr.	X		
Maudlin, R.	QATSS, Sr. QA Specialist			X
McCracken, M.	REECO, Sr. Buyer		X	
McGoldrick, J.	REECO, Chief Purch. Agent	X	X	X
Petrie, W.	M&O, Observer	X		X
Pritchett, R.	REECO, TPO	X	X	X
Reite, E.	REECO, Sr. QA Specialist	X		
Rodgers, T.	QATSS, Audit Lead	X		X
Rommel, R.	REECO, Project Eng.			X
Spence, R.	YMQAD, Director			X
Straub, S.	REECO, LSD Mgr.	X	X	X
Sunday, R.	REECO, Purch. Agent		X	X
Warren, C.	QATSS, Auditor	X		X
Williams, B.	REECO, Office Assist. III		X	
Williams, E.	REECO, QA Specialist II		X	
Wilson, P.	REECO, Sr. QA Specialist	X	X	

ATTACHMENT 1
(Continuation)

Acronyms

DQC = Document Quality Control
IMD = Information Management Department
MCA = Management Control Agent
MCS = Management Control Supervisor
PQAM = Project Quality Assurance Manager
TPO = Technical Project Officer

ATTACHMENT 2

Audit Details

The following is a summary of REECO QA Program activities covered during the audit. Due to the unique aspects of performance based audits in addition to requirements, additional evaluations are made based on Management Objectives (MOs) as performance standards considered necessary to ensure these goals. The following summary reflects incorporation of these objectives as standards. The list of objective evidence reviewed and specific procedures audited is provided in Attachment 3.

PROCUREMENT OF SERVICES FROM KIEWIT/PB UNDER REECO SUBCONTRACT 1-YUC-01-2.

- Determine through the review of the Kiewit/PB contract that scope of work, technical requirements, bases for acceptance and QA requirements, are consistent with the procurement request from the requester. (Procedure Critical Step [PCS])
- Determine through the review that controls were in place to ensure the applicable regulatory requirements, and design bases were included or referenced in the procurement document. (PCS)
- Determine through the review that the contract contains the requirements for: (PCS)
 - The supplier to have a documented QA program based on the scope of the contract.
 - The supplier to pass on the appropriate QA requirements to any subtier.
 - Supplier identification of documents of the purchaser/client that implements requirements applicable to the supplier.
 - Rights of access for inspection or audit by the purchaser, Office of Civilian Radioactive Waste Management (OCRWM) or designee authorized by the purchaser.
 - Provision for establishing hold points.
 - Documents required to be submitted for information, review or acceptance and timeframe for submittal.
 - QA records, retention time, and records disposition requirements.

- Nonconformances and purchasers approval of use-as-is and repair dispositions.
- Review the approved procurement document and determine if it was reviewed by the REECo technical and quality organizations.
- Review the Procurement Document Package and determine if it was classified as quality-affecting (It is Important to Waste Isolation/It is Important to Safety). (PCS)
- Review the Request for Quotation (RFQ) to ascertain if it contained a detailed description (scope) of work reflective of the requesters procurement request and the RFQ was issued to two or more prospective sellers. (MO)
- Verify the Technical Evaluation Team evaluated the RFQ submittals to predetermined criteria and issued a Technical Evaluation Team Report. (MO)
- Verify that controls for procurement of quality-affecting services are adequate to assure that the providers are technically capable of performing the services in accordance with the procurement document requirements. (MO)
- Adequate controls have been applied to the evaluation and approval of quality programs for suppliers of quality-affecting services. (MO)
- Subcontracts for quality-affecting services are awarded only to suppliers with quality programs approved by the REECo QA Manager. (PCS)
- Quality programs of suppliers are approved and the supplier placed on the ASL prior to award of a subcontract. (PCS)
- Subcontract files contain a copy of the REECo QA approved quality manual. (MO)
- Controls for verification of quality-affecting services are adequate to determine compliance with specified requirements. (MO)
- Verify that REECo's implementing procedures/instructions for procurement of services provide adequate controls to meet QA program requirements. (MO)
- Personnel performing quality-affecting work related to procurement of services are appropriately qualified prior to performing work. (PCS)
- Qualification requirement for personnel performing quality-affecting work related to procurement of services are commensurate with personnel duties and responsibilities. (PCS)

- **Training (required reading) by personnel performing quality-affecting activities related to procurement of services was appropriate to the conduct of their work. (PCS)**
- **Was the process used to procure the Kiewit/PB contract considered to be effective? (MO)**
- **Will the Kiewit/PB contract accomplish the desired intent and add quality (i.e. value added) to the program? (MO)**

Results:

Based on review of Subcontract 1-YUC-01-2 (Kiewit/PB) and supporting documentation, review of personnel training and qualification records, and interviews with REECO management, QA and procurement personnel, it was determined that REECO has adequate controls in place to meet program requirements and management commitments which provide for the effective procurement of quality-affecting services. This area is considered to be satisfactory.

ROCK BOLTS AND ACCESSORIES

The evaluation of rockbolts and accessories was based upon interviews with REECO personnel and examination of objective evidence to determine the effectiveness of the process for the procurement of these items. The specific requirements selected for evaluation of program effectiveness are listed below.

- **Determination that controls for the stipulation of QA requirements, technical requirements and design basis requirements are instituted for procurement activities. (MO)**
- **Assessment of whether reviews and approvals of procurement documents were completed prior to the letting of Purchase Orders (POs). (PCS)**
- **Determination that suppliers of quality-affecting items were qualified prior to the letting of the PO or that provisions had been made for material dedication. (PCS)**
- **Assessment of the controls in place for material dedication and conformance to QA requirements, technical requirements, and basis of design documents. (PCS)**
- **Determination that upon receipt of items, adequate controls are in place for receipt inspection and acceptance. In addition, determination that attributes relative to acceptance criteria are in agreement with QA requirements, technical requirements and design basis documents. (MO)**

- Determination that controls were in place for the status of materials relative to their acceptability. (MO)
- Determination of whether measures for the control (i.e., marking and/or labeling) of materials assures traceability to shipments received and receipt inspection documentation. (PCS)
- Determination of the adequacy of the controls in place for qualification and certification of inspection and test personnel. (MO)
- Determination that personnel performing quality-affecting work related to procurement services have an adequate understanding of procedural requirements and that training is current. (MO)
- Determination of the adequacy of handling and storage of materials and that controls are in place for the preservation, handling, storage, cleaning (as required) and shipping. (MO)

Results:

The evaluation of process for the procurement of rockbolts and accessories was based upon; REECo personnel interviews, review of procedural critical steps, and evaluation of objective evidence. This included drawings, specifications, Field Change Requests (FCRs), PO's receipt inspection documentation, material dedication test reports, audit/survey report, vendor catalog, Nonconformance Reports (NCRs), and deficiencies documentation.

Based upon the above, it was determined that REECo has adequate controls in place to meet program requirements and management commitments which provide for the effective procurement of quality-affecting hardware with satisfactory results from this audit.

CORRECTIVE ACTIONS RELATED TO QA PROGRAM ELEMENTS 4.0 AND 7.0:

- Perform a detailed analysis of existing and former problems identified during the previous 12 months for problems associated with QA Program Elements 4.0 and 7.0. Document the selected documents evaluated, and the associated problem and the identified cause. Consider the following documents: (MO)
 - CARs
 - NCRs
 - Management Assessments
 - Monthly Reports
 - Trend Program
- Based on the results of the above checklist question, determine if the CAR and NCR remedial action was appropriate; and for those requiring action to preclude recurrence, was the proposed action appropriate to resolve future problems? (MO)

- **Have management assessments identified problems in QA Program Elements 4.0 and 7.0, and if so, has the problem been resolved promptly and completely? (MO)**
- **Has a trend program been established and does the trend program reports reflect the CAR and NCR generated in the area of interest? (MO)**
- **Did the responsible organization follow up corrective actions in an aggressive manner, and did they interface with the quality verification organization in developing their proposed corrective actions? (MO)**
- **Have corrective actions remained open for an excessive amount of time based on what would be expected for resolution of the identified problem? (MO)**
- **Were requests for extensions repeatedly requested for deficiency documents requiring corrective action, and if so, was documented justification furnished? (MO)**
- **Is the Trend Report distributed to the appropriate managers identified on the REECo YMP organization chart?**
- **Is REECo management system for tracking deficiencies updated to reflect current status and is the Tracking System Report distributed to the organizations responsible for the corrective action? (MO)**
- **Interview the REECo management personnel that are related to problems associated with procurement and control of purchased items and services, and determine based on the interviews if: (MO)**
 - **Communications and cooperation between the functional disciplines, line management, and the verification organization was adequate and responsive to each others needs.**
 - **The responsible managers' reviews the Deficiency Reports and provide direction for the resolution of the deficiency, or do they leave the resolution to their staff?**
 - **The responsible managers review both the internal and external audit reports and management assessments, and consider incorporation of the recommendations?**
 - **The responsible management reviews the Deficiency Tracking System Report and monitor it for status of their organization's corrective action responsibilities? Do the managers have the report readily available?**

- There was mechanism to escalate problems to upper management? If so, identify the process or procedure.

The Audit Team has determined that REECo was effective in implementing their Corrective Action Program which resulted in overall consistently acceptable results. The deficiency documents were appropriately dispositioned, and the remedial and corrective actions to prevent recurrence were determined to be satisfactory with closure of the document within the MO timeframe. In one instance, it appears that the corrective action to prevent recurrence for Deficiency Notice DN-93-002 was not effective in resolving procedural inconsistency, as evidenced by REECo's issuance of DN-94-003 for similar procedural inconsistencies identified in Audit/Survey REECo-001-94.

Overall, the Corrective Action Program for problems associated with QA Program Elements 4.0 and 7.0 is considered to be satisfactory.

ATTACHMENT 3

Objective Evidence Reviewed During the Audit

Requirement Document:

DOE/RW-0214, Revision 4, Interim Change Notices (ICNs) 4.1 and 4.2, "Quality Assurance Requirements Document"

PROCUREMENT OF SERVICES FROM PETER KIEWIT/PB UNDER REECO SUBCONTRACT 1-YUC-01-2

Procedures Evaluated During The Audit:

Compliance with the critical process steps of the following procedures was evaluated:

MC-02.0, Revision 2, "Quality Assurance Program"
MC-02.4, Revision 0, "Training and Qualification"
MC-02.4.1, Revision 3, "YMP Indoctrination and Training"
MC-02.4.2, Revision 0, "Personnel Qualification and Certification"
MC-02.4.3, Revision 1, "Required Reading"
MC-03.0, Revision 1, "Procurement"
MC-03.1, Revision 1, ICN 1, "Purchase Requisition and Purchase Order Processing"
MC-03.2, Revision 1, "Source Selection and Evaluation"
MC-03.2.1, Revision 0, "Supplier Quality Approval"
MC-03.3, Revision 3, ICN 1, "Source Verification"
MC-03.4, Revision 0, ICN 1, "Subcontracts"

Objective Evidence Reviewed:

Subcontract 1-YUC-01-2, approved 8/9/93 by REECO's General Manager D. L. Fraser

Request for Proposal RFP 1-DH-92 issued 3/30/92

Amendment I, dated 5/14/92

Amendment II, dated 6/16/92

Amendment III, dated 6/19/92

Amendment IV, dated 7/2/92

Amendment V, dated 7/7/92

Letter, Request for Subcontract, dated 1/31/92, signed by T. M. Leonard, Construction Department Manager

Purchase Requisition, Request for Subcontract (quality-affecting), dated 2/3/93, requester T. M. Leonard

Subcontract 1-YUC-01-2, Special Clauses 02, 06, 07, 09, 15, 31, and 44

Subcontract 1-YUC-01-2, Modification II (designates subcontract as quality-affecting)

Letter from R. Sunday, Subcontract Administrator, to T. M. Leonard and W. J. Glasser, dated 11/30/93, reflects approval of the subcontract from the technical and QA organizations

Letter to D. L. Fraser, General Manager REECo, from W. J. White, Acting Assistant Manager for Administration (DOE), dated 3/30/92, authorizes release of RFP 1-DH-92

Source Evaluation Board Report for RFP 1-DH-92, dated 12/21/92

Source Selection Plan (predetermined criteria) for source evaluation and selection, approved by D. L. Fraser (no date)

Source Evaluation Board Handbook DOE/MA 0154

Kiewit/PB Quality Assurance Program Work Plan, dated 8/24/93

Letter, Subject: Acceptance of Kiewit/PB Quality Assurance Program Work Plan, dated 8/24/93 was accepted by W. J. Glasser, dated 9/9/93

REECo ASL, Issue 93-3, Approved 4/12/93

Letter to R. F. Pritchett (REECo) from L. deStwolinski (Kiewit/PB), dated 12/1/93 submitting Phase 2 QA Implementing Procedures

Drafts of the Kiewit/PB QA Implementing Procedures:

MCP-4.0, Revision 0, "Procurement Document control"
MCP-10.0, Revision 0, "Inspection Planning Control"
MCP-15.0, Revision 0, "Control of Nonconforming Items"
MCP-18.0, Revision 0, "Audits"

YMP Qualification Records for the following personnel:

W. J. Glasser, dated 6/20/91
W. J. Gratza, dated 6/25/91
J. P. McGoldrick, dated 7/1/91
S. O. Straub, dated 6/20/91
R. D. Sunday, dated 11/9/92

Position Descriptions for the following personnel:

W. J. Glasser, QA Manager, dated 12/12/90
W. J. Gratza, Sr. QA Specialist, dated 10/1/89
J. P. McGoldrick, Chief Purchasing Agent, dated 10/1/89
S. O. Straub, LSD Manager, dated 10/1/89
R. D. Sunday, Purchasing Agent, dated 5/18/93

YMP Education and Experience Verification records for the following personnel:

W. J. Glasser, dated 6/18/91
W. J. Gratza, dated 6/21/91
R. D. Sunday, dated 11/5/92

YMP Training Requirements Forms for the following personnel:

W. J. Glasser, dated 5/31/91
W. J. Gratza, dated 7/23/91
J. P. McGoldrick, dated 6/7/91
S. O. Straub, dated 6/14/91
R. D. Sunday, dated 10/26/92

Deficiency Notices:

REECo DN-94-006
REECo DN 94-003

Letter to T. M. Leonard, Construction Department/W. J. Glasser QA Department
obtains approval for the Subcontract Technical and Quality Assurance Reviews, from
R. Sunday, Contract Administrator, dated 11/30/93

ROCKBOLTS AND ACCESSORIES

Procedures Evaluated During The Audit:

Compliance with the critical process steps of the following procedures were evaluated:

MC-02.4, Revision 0, "Training and Qualification"
MC-02.4.2, Revision 0, "Personnel Qualification and Certification"
MC-03.0, Revision 1, "Procurement"
MC-03.1, Revision 1, ICN 1, "Purchase Requisition and Purchase Order Processing"
MC-03.2, Revision 1, "Source Selection and Evaluation"
MC-03.4, Revision 0, ICN 1, "Subcontracts"
MC-04.0, Revision 1, "Material Control"
MC-04.1, Revision 1, "Material Receiving"

MC-04.2, Revision 1, "Receipt Inspection"
MC-04.3, Revision 1, "Handling, Storage and Shipping"
MC-04.5, Revision 1, "Material Identification"
MC-09.0, Revision 3, "Inspection Program"
MC-09.1, Revision 3, "Inspection Planning and Performance"
MC-09.2, Revision 1, "Training, Qualification, and Certification of Inspection Personnel"

Objective Evidence Examined:

Purchase Orders:

00037-YP-013, dated 2/10/93
1-QYP-01-3, dated 5/28/93
1-QYP-01-3, modification dated 6/3/93

Nonconformance Reports:

NCRs 93-027 and 93-057

Specifications:

YMP-025-1-SP09, Revision 1, Section 2165, "Rock Bolts and Accessories"
YMP-025-1-SP09, Revision 2, Section 2165, "Rock Bolts and Accessories"
YMP-025-1-SP09, Revision 0, Section 2165, "Rock Bolts and Accessories"
American Society for Testing and Materials ASTM F 432-91, "Standard Specification for Roof and Rock Bolts and Accessories"

Drawings:

YMP-025-1-MING-MG142, Revision 2
YMP-025-1-MING-MG143, Revision 2

Field Change Requests:

FCRs 93/512, 93/320, and 94/010

QA Audit/Survey Report:

Audit/Survey Report REEC0-001-94

Deficiency Documentation:

OCRWM CAR YM-93-055
REEC0 DN-94-003, -004, -005 and -006

Receipt Inspection Reports, Technical Inspection Reports (TIRs)

TIR-Y585-93-039 (PO 1-QYP-01-3) for the following items:

1-1/8" x 8' Rockbolts
1-1/8" Couplings
1/4" x 6" x 6" Bearing Plates
1/2" x 8" x 8" Bearing Plates
1-1/8" diameter Heavy Duty Hex Nut
Beveled Washers for 1-1/8" Rockbolt
Flat Washers for 1-1/8" Rockbolt

TIR-Y586-93-005 supplement to TIR-Y585-93-039 (PO 1-QYP-01-3) for the following items:

1-1/8" x 8' Rockbolts
1-1/8" Couplings
1/4" x 6" x 6" Bearing Plates
1/2" x 8" x 8" Bearing Plates
1-1/8" diameter Heavy Duty Hex Nut

The following TIRs are supplemental to TIR-Y585-93-003 for PO 00037-YP-01-3:

TIR-Y586-93-004(A), 7/8" x 10' solid core rockbolts
TIR-Y586-93-004(B), 1/4" x 6" x 6" bearing plate with beveled hole
TIR-Y586-93-004(C), 7/8" diameter heavy duty hex nut
TIR-Y586-93-004(D), Hardened structural washer for 7/8" rockbolt
TIR-Y586-93-004(E), Hemispherical washer for 7/8" rockbolt

The following material test laboratory reports from Raytheon Services Nevada (RSN) were examined for PO 1-QYP-01-3:

1-1/8" x 8' Rockbolts
1-1/8" couplings
1/4" x 6" x 6" bearing plates
1/2" x 8" x 8" bearing pates
1-1/8" diameter heavy duty hex nut

The following material test laboratory reports from RSN were examined for PO 00037-YP-01-3:

7/8" x 10' solid core rockbolts
1/4" x 6" x 6" bearing plate with beveled hole
7/8" diameter heavy duty hex nut
Hardened structural washer for 7/8" rockbolt
Hemispherical washer for 7/8" rockbolt

Vendor Catalog

Williams Form Engineering Co. Inc. Products Catalog

Training Files

The following training files were reviewed for adequacy and current certification:

Juan Constable
Evert Mouser
Diane Hannaway
Val Sorenson

The following training files were reviewed for current Receipt Inspector certification:

Juan Constable
Evert Mouser

CORRECTIVE ACTIONS RELATED TO QA PROGRAM ELEMENTS 4.0,
PROCUREMENT DOCUMENT CONTROL AND 7.0, CONTROL OF PURCHASED
ITEMS AND SERVICES

Procedures Evaluated During the Audit:

Compliance with the critical process steps of the following procedures were evaluated:

MC-02.5, Revision 0, "Management Agreement"
MC-11.1, Revision 2, "Deficiency Notices"
MC-11.2, Revision 2, "Nonconformance Control"
MC-11.3, Revision 1, "Corrective Action"
MC-11.4, Revision 1, "Trending"

Objective Evidence Examined:

CA 93-004
CAR YM-93-055
DN-93-002
DN-93-010
DN-94-003
DN-94-004
DN-94-005
DN-94-006

1993 Management Assessment, dated 11/30/93 from Glasser to Straub - No recommendations in the area of QA Program Elements 4.0 and 7.0

1993 Third Calendar Quarter Trend Evaluation Report and cover letter, W. J. Glasser to Distribution, dated October 4, 1993, reflects three deficiencies in QA Program Element 4.0 in 1993. None in previous years 92 and 91

Quality Program Status Report, REEC Co YMP, to distribution, R. Spence and YMP REEC Co Management for 10/4/93 and 7/9/93

The following NCRs were reviewed:

- NCR-93-001, Chain Link Fence Fabric, issued 1/28/93, closed 4/4/93
- NCR-93-002, Rockbolt Plates, issued 2/10/93, closed 4/7/93
- NCR-93-003, Incorrect nuts for rockbolts, issued 3/3/93, closed 5/4/93
- NCR-93-004, Welded wire fabric has broken welds, issued 4/15/93, closed 6/10/93
- NCR-93-005, Bolts received without certification, issued 5/5/93, closed 5/14/93
- NCR-93-006, Skid-Mounted Chemical Tracer Injection System, issued 5/3/93, closed 7/7/93

Third Quarter 1993 Trend Report dated 10/4/92, distributed to all YMP REEC Co Managers

Deficiency Document Open Item Status Report - cover letters dated 11/29/93, 11/12/93, 10/4/93, 9/20/93 and 8/13/93 from W. J. Glasser to all YMP REEC Co Managers

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

QUALITY ASSURANCE AUDIT PLAN

FOR AUDIT YM-ARP-95-10

OF

THE REYNOLDS ELECTRICAL AND ENGINEERING COMPANY, INC.

LAS VEGAS, NEVADA

JUNE 5 THROUGH 9, 1995

Prepared by:

Cynthia A. Humphries

Cynthia A. Humphries

Audit Team Leader

Yucca Mountain Quality Assurance Division

Date:

5/2/95

Approved by:

Donald G. Horton

Donald G. Horton

Director

Office of Quality Assurance

Date:

5/8/95

ENCLOSURE



Department of Energy

Washington, DC 20585

MAY 09 1995

Daniel L. Koss
Technical Project Officer
for Yucca Mountain
Site Characterization Project
Reynolds Electrical & Engineering Co., Inc.
P.O. Box 98521
Las Vegas, NV 89193-8521

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT'S QUALITY ASSURANCE (QA) AUDIT YM-ARP-95-10 OF REYNOLDS ELECTRICAL & ENGINEERING CO., INC.'S (REECO) SUPPORT OF THE YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT (SCPB: N/A)

Please be advised a team of auditors from the Yucca Mountain Quality Assurance Division will conduct a QA audit of the REECO QA program in Las Vegas, Nevada. The audit will be conducted June 5-9, 1995, in accordance with the enclosed audit plan.

Observers from the State of Nevada, U.S. Nuclear Regulatory Commission, and other interested parties may also accompany the audit team. Please note that the scope of this audit may include activities being performed at the Yucca Mountain Site Office located at the Nevada Test Site in Mercury, Nevada.

You are hereby requested to arrange for appropriate space to conduct meetings, provide cognizant personnel to support the audit, and provide audit team access to appropriate current documentation and records.

If you have any questions, please contact Mario R. Diaz at 794-7974 or Cynthia A. Humphries at 794-7742.

D. G. Horton

Donald G. Horton, Director
Office of Quality Assurance

OQA:MRD-3164

Enclosure:
Audit Plan YM-ARP-95-10



1.0 SCOPE

This audit of the Reynolds Electrical and Engineering Company, Inc. (REECo) will be conducted by a team of auditors from the Yucca Mountain Quality Assurance Division (YMQAD). The audit will consist of a limited scope audit of three Quality Assurance (QA) program elements and a performance based audit of a specific element as specified below.

The limited scope programmatic audit will evaluate the effectiveness of the REECo procedures that implement QA Program Elements 15.0, "Nonconformances," 16.0, "Corrective Action;" and 18.0, "Audits."

The performance based audit will evaluate the effectiveness of selected products and processes related to REECo activities supporting the corrective action process including QA Program Elements 2.0, "QA Program," 5.0, "Implementing Documents," and 17.0, "QA Records."

2.0 AUDIT SCHEDULE

Pre-audit Team/Observer Meeting	8:30 a.m., June 5, 1995 Las Vegas, Nevada
Pre-audit Conference	9:00 a.m., June 5, 1995 Las Vegas, Nevada
Audit Activities	10:00 a.m. to 4:00 p.m. June 5, 1995
	8:00 a.m. to 4:00 p.m. June 6 through 8, 1995
	8:00 a.m. to 11:30 a.m. June 9, 1995
Post-audit Conference	1:00 p.m., June 9, 1995 Las Vegas, Nevada

There will be a daily Audit Team/Observer meeting at 4:00 p.m. to review audit progress. Beginning on Tuesday, June 6, 1995, there will also be a daily Audit Team Leader (ATL)/Observer/REECo management meeting at 8:15 a.m. to communicate audit progress, to discuss potential deficiencies and to establish needed liaison.

3.0 REQUIREMENTS TO BE AUDITED AND APPLICABLE REFERENCES

The requirements to be audited will be contained in programmatic and performance based checklists. These checklists will be developed from the latest available revision of REECo's approved and issued QA program procedures, study plans, technical procedures and the performance objectives established and agreed upon with REECo.

The conduct of the audit will be guided by the documents (latest revision) listed below:

- Quality Assurance Procedure (QAP) 18.2, "Audit Program"
- QAP 16.1, "Corrective Action"

4.0 ACTIVITIES TO BE AUDITED

The following QA program elements will be audited to determine the degree of compliance to REECo's implementing procedures:

- 15.0 Nonconformances
- 16.0 Corrective Action
- 18.0 Audits

The audit team will also conduct a performance based audit of activities supporting the corrective action process including program elements 2.0, "QA Program," 5.0, "Implementing Documents," and 17.0, "QA Records."

A performance based audit evaluates products and activities to determine the degree to which they meet program requirements and management commitments and expectations. This evaluation of process effectiveness and product acceptability will be based upon:

- Satisfactory completion of the critical process steps
- Acceptable results and quality of the end products
- Documentation that substantiates quality of products
- Performance of trained and qualified personnel
- Implementation of applicable QA program elements

5.0 AUDIT TEAM MEMBERS

Cynthia A. Humphries, YMQAD, Las Vegas, Nevada, Audit Team Leader
Patout H. Cotter, YMQAD, Las Vegas, Nevada, Auditor
Sam H. Horton, YMQAD, Las Vegas, Nevada, Auditor
Alan W. Rabe, YMQAD, Las Vegas, Nevada, Auditor

6.0 AUDIT CHECKLISTS

The following checklists will be used during the audit:

YM-ARP-95-10-01, Programmatic Checklist

YM-ARP-95-10-02, Performance Based Checklist

MAY 09 1995

cc w/encl:

D. A Dreyfus, HQ (RW-1) FORS
L. H. Barrett, HQ (RW-2) FORS
R. W. Clark, HQ (RW-3.1) FORS
W. L. Belke, NRC, Las Vegas, NV
J. G. Spraul, NRC, Washington, DC
R. R. Loux, NWPO, Carson City, NV
S. W. Zimmerman, NWPO, Carson City, NV
Cyril Schank, Churchill County Commission, Fallon, NV
D. A. Bechtel, Clark County Comprehensive, Las Vegas, NV
J. D. Hoffman, Esmeralda County, Goldfield, NV
Eureka County Board of Commissioners,
Yucca Mountain Information Office, Eureka, NV
Lander County Board of Commissioners, Battle Mountain, NV
Jason Pitts, Lincoln County, Pioche, NV
V. E. Poe, Mineral County, Hawthorne, NV
P. A. Niedzielski-Eichner, Nye County, Chantilly, VA
L. W. Bradshaw, Nye County, Tonopah, NV
William Offutt, Nye County, Tonopah, NV
Florindo Mariani, White Pine County, Ely, NV
B. R. Mettam, County of Inyo, Independence, CA
C. K. Van House, YMOAD/QATSS, Las Vegas, NV
C. J. Henkel, NEI, Washington, DC

Daniel L. Koss

-3-

MAY 09 1955

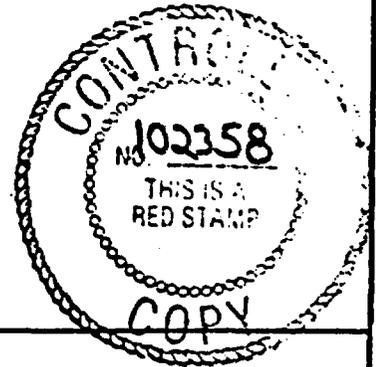
bcc w/encl:

C. A. Humphries, YMOAD/QATSS, Las Vegas, NV
W. E. Barnes, YMSCO, NV

bcc w/o encl:

W. A. Wilson, YMSCO, Mercury, NV, M/S 717
S. J. Brocoum, YMSCO, NV
G. N. Cook, YMSCO, NV
W. R. Dixon, YMSCO, NV
S. B. Jones, YMSCO, NV
J. J. Adams, YMSCO, NV
R. L. Craun, YMSCO, NV

**OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT**



QUALITY ASSURANCE PROCEDURE

Title:

CORRECTIVE ACTION

Procedure No.: QAP 16.1	Revision: 6	ICN:	Page 1 of 20
Approval: D.G. Horton	Date: 6/1/94 <i>RC Spence For OGA</i>	Concurrence: D.G. Horton	Date: 6/1/94 <i>RC Spence For OGA</i>

CHANGE HISTORY

Revision No.	Interim Change No.	Effective Date	Description of Change
0	-	03/27/89	Initial Issue
1	-	10/15/90	Eliminated Deficiency Reports; consolidated HQ and YMP procedures.
2	-	10/15/90	Minor change to delete definitions for CATQ and SCATQ. Delete requirements that audit CARs are at least SL2. Revise references and add instruction on relevant correspondence and invalidating CARs.
3	-	10/17/90	Minor change to add discussion on resolution of disputes.
4	-	11/12/91	Completely revised as a result of procedure consolidation. Replaces Severity Levels with Significant Conditions Adverse to Quality and Conditions Adverse to Quality. Criteria for determining validity of CARs, Stop Work conditions and Root Cause have been added.
5	-	02/14/94	Revised to incorporate new QAP 5.1 format and requirements of OCRWM <i>Quality Assurance Requirements and Description</i> (QARD), DOE/RW-0333P, Revision 0. Revises the process for CARs initiated outside QA and provides more definitive actions for Responsible Managers. Also revises the internal processing of CARs by OQA. Reference DAR 944.
6	-	06/27/94	Revised to incorporate Yucca Mountain Site Characterization Office reorganization, update definitions, incorporate editorial enhancements, and incorporate exhibits as attachments.

1.0 PURPOSE

This procedure establishes the responsibilities and process to ensure that conditions adverse to quality are promptly identified and corrected. This procedure contains detailed direction and may not be supplemented by Local Procedures.

2.0 APPLICABILITY

This procedure applies to all individuals within the Office of Civilian Radioactive Waste Management (OCRWM) and direct-support contractor personnel who identify, evaluate, correct, or verify corrective action for conditions adverse to quality.

This procedure applies to conditions adverse to quality identified in activities subject to quality assurance (QA) program controls. Item-related conditions adverse to quality are identified and controlled in accordance with YAP-15.1Q, *Control of Nonconformances*. However, repetitive or significant item-related conditions adverse to quality shall also be processed in accordance with this procedure.

3.0 DEFINITIONS

3.1 *Quality Assurance Representative* - An individual representing the OCRWM Office of Quality Assurance (OQA) who reviews Corrective Action Requests (CARs) to determine validity and significance, recommends CARs for issuance; evaluates CAR responses to recommend acceptability; and verifies implementation of corrective actions.

3.2 *Responsible Individual* - The OCRWM Associate, Office, or Division Director, Manager, or Associate Manager having functional responsibility for the item or activity that is the subject of a CAR.

NOTE: In instances where the functional responsibility for the item or activity that is the subject of a CAR lies with an individual outside OCRWM, instructions on responding to the CAR and completing corrective action will be provided to that individual via letter.

4.0 RESPONSIBILITIES

4.1 The Director, OQA is responsible for the preparation, change, and approval of this procedure.

4.2 Individuals having responsibilities for implementing this procedure are:

- a) OCRWM Personnel
- b) Quality Assurance Representative (QAR)
- c) CAR Coordinator
- d) Quality Assurance Division Director (QADD)
- e) Responsible Individual

Those responsibilities are described in the process outlined in Section 5.0.

5.0 PROCESS

A brief overview of this process is depicted in the flowchart shown in Attachment 9.1.

PROCESS OUTLINE

	<u>Page</u>
5.1 INITIATION AND ISSUANCE OF A CAR	3
5.2 CORRECTIVE ACTION RESPONSE	5
5.3 RESPONSE EVALUATION	6
5.4 CORRECTIVE ACTION	7
5.5 VERIFICATION OF CORRECTIVE ACTION	7
5.6 CAR CLOSURE	8

5.1 INITIATION AND ISSUANCE OF A CAR

5.1.1 OCRWM personnel, upon discovering a potential condition adverse to quality:

- a) complete the Initiator actions on the CAR (Attachment 9.2) and, as necessary, the CAR Continuation Page (Attachment 9.3) using the instructions provided; and either
- b) perform the QAR actions in accordance with Paragraph 5.1.3 if the CAR is initiated within the QA organization; or
- c) discuss the CAR with the applicable QADD who assigns a QAR to process the CAR in accordance with Paragraph 5.1.2 if the CAR is initiated from outside the QA organization.

5.1.2 The QAR:

- a) evaluates the CAR to determine if the identified condition represents a condition where a *Quality Assurance Requirements and Description (QARD)*, DOE/RW-0333P, or implementing document requirement is not met; and either
- b) recommends that the CAR is valid and continues to process the CAR in accordance with Paragraph 5.1.3; or
- c) recommends that the CAR is not valid, documents the justification, and returns the CAR to the Initiator for concurrence. If the Initiator does not concur, the matter is elevated to the QADD for resolution in accordance with Subsection 6.8. If the Initiator concurs, documentation of this concurrence is provided to the QADD.

5.1.3 The QAR, documenting these actions in blocks 9 through 12 on the CAR:

- a) evaluates the adverse condition to determine if a Significant Condition Adverse to Quality exists based upon the criteria provided in Subsection 6.1;
- b) evaluates CARs that identify Significant Conditions Adverse to Quality to determine if a stop work condition exists based on the criteria provided in Subsection 6.2;

- c) initiates the stop work process in accordance with QAP 16.2, *Stop Work*, if a stop work condition has been indicated;
- d) determines the types of action required for resolution of the adverse condition in accordance with Subsection 6.3, and, as necessary, provides recommended actions to correct the adverse condition;
- e) directs the preparation of CAR issuance correspondence that identifies the CAR Coordinator and provides a CAR Continuation Page, Instructions for Corrective Action (Attachment 9.4) and if applicable, Guidelines for Root Cause Determination (Attachment 9.5). The issuance correspondence also requests the Responsible Individual to respond by the due date identified in block 13 of the CAR or to transmit, prior to the due date, a written request for extension if it becomes evident that the response will not be completed by that date.
- f) forwards the CAR to the CAR Coordinator.

5.1.4 The CAR Coordinator, documenting these actions in block 8 on the CAR:

- a) assigns a CAR number and enters the CAR information in a log in accordance with Subsection 6.4; and
- b) forwards the CAR and the issuance correspondence to the QADD.

5.1.5 The QADD:

- a) reviews the QAR's recommendation of validity, significance, stop work, and types of required corrective action, and concurs that the CAR is valid and continues processing the CAR in accordance with Paragraph 5.1.5 b. If the QADD does not concur, the CAR is returned, along with justification for the nonconcurrence, to the QAR for processing in accordance with Paragraph 5.1.2 c;
- b) assigns a response due date and approves the CAR for issuance by signing and dating the CAR (in block 14) and signing the issuance correspondence;
- c) issues a copy of the CAR along with the issuance correspondence to the Responsible Individual for response in accordance with Subsection 5.2. In addition, when the CAR identifies a Significant Condition Adverse to Quality and the Responsible Individual is not an OCRWM Associate or Office Director, the QADD forwards copies of the CAR and the issuance correspondence to the OCRWM Associate or Office Director having line responsibility for the activities of the Responsible Individual.
- d) returns the original CAR and a copy of the issuance correspondence to the CAR Coordinator.

<p style="text-align: center;">OCRWM QUALITY ASSURANCE PROCEDURE</p>	<p>Procedure No.: QAP 16.1</p>	<p>Revision: 6</p>	<p>ICN:</p>	<p>Page: 5 of 20</p>
--	------------------------------------	------------------------	-------------	--------------------------

5.1.6 The CAR Coordinator:

- a) maintains the original CAR and CAR Continuation Pages, copies of the issuance correspondence, CAR responses, transmittal correspondence, requests for extension, notification correspondence, and all other relevant correspondence; and
- b) updates the CAR log as changes in status occur and provides reports in accordance with Subsection 6.5.

5.1.7 The QAR, after a CAR is issued:

- a) processes changes in accordance with Subsection 6.6; or
- b) voids CARs in accordance with Subsection 6.7.

5.2 CORRECTIVE ACTION RESPONSE

5.2.1 The Responsible Individual:

- a) reviews the required actions provided in block 11 of the CAR and, if applicable, the recommended actions provided in block 12 of the CAR, and determines the actions required to correct the adverse condition;
- b) identifies remedial action;
- c) directs the performance of investigative action, if required, to determine the extent of the deficiency or to identify root cause using the guidelines provided in Attachment 9.5;
- d) develops a corrective action response verifying that the content and format are correct and that all types of corrective action required in block 11 of the CAR have been addressed; and either
- e) transmits a response, by the due date, to the CAR Coordinator who notifies the QAR to evaluate the response in accordance with Subsection 5.3; or
- f) transmits, prior to the response due date, a written request for extension if it becomes evident that the response will not be completed by the due date. The request shall include appropriate justification for the delay and shall be sent to the CAR Coordinator who notifies the QAR to evaluate the request in accordance with Paragraph 5.2.2.

5.2.2 The QAR:

- a) evaluates the extension request and accepts or denies it;
- b) determines the revised due date if the extension request is accepted or provides justification for denial; and

- c) directs the preparation of notification correspondence providing the results of the evaluation and the new response due date or justification for denial.

5.2.3 The QADD:

- a) concurs in the QAR's evaluation of the extension request by signing the notification correspondence;
- b) issues the notification correspondence to the Responsible Individual; and
- c) returns a copy of the notification correspondence to the CAR Coordinator for processing in accordance with Paragraph 5.1.6

5.3 RESPONSE EVALUATION

5.3.1 The QAR:

- a) reviews the response to ensure that all required actions identified in block 11 of the CAR have been addressed;
- b) reviews the response to ensure that the content is in accordance with Attachment 9.5;
- c) evaluates the proposed actions to determine if they will sufficiently resolve the adverse condition; and either
- d) recommends acceptance of the response by signing and dating the CAR (in block 15 or 17, as applicable) and directs the preparation of notification correspondence directing the Responsible Individual to proceed with corrective action. The notification correspondence also requests the Responsible Individual to complete corrective action by the dates identified in the CAR response or to transmit, prior to the due date, a written request for extension to the corrective action completion dates if it becomes evident that the actions will not be completed as scheduled; or
- e) determines, for unacceptable responses, that an amended response is required and directs the preparation of notification correspondence requesting an amended response. Requests for amended responses must include specific identification of the actions determined unacceptable, justification for the determination, and a new response due date.

5.3.2 The QADD:

- a) concurs with the QAR's recommendation for acceptance and signs and dates the CAR (in block 16 or block 18, as applicable) or concurs with the request for an amended response;
- b) signs the notification correspondence and issues it to the Responsible Individual; and
- c) returns the CAR, response, and a copy of the notification correspondence to the CAR Coordinator for processing in accordance with Paragraph 5.1.6.

5.4 CORRECTIVE ACTION

The Responsible Individual:

- a) completes the actions required to correct the adverse condition in a manner and timeframe consistent with the approved CAR response; or
- b) transmits, prior to the due date, a written request for extension of the corrective action completion dates if it becomes evident that the actions will not be completed as scheduled. The request shall include appropriate justification for the delay and shall be sent to the CAR Coordinator who notifies the QAR to evaluate the request in accordance with Paragraph 5.2.2.

5.5 VERIFICATION OF CORRECTIVE ACTION

5.5.1 The QAR:

- a) upon completion of the actions identified in the approved response, performs verification to determine that the corrective actions have been satisfactorily implemented;
- b) documents the verification on a CAR Continuation Page identifying the objective evidence reviewed; and either
- c) indicates acceptable verification by signing and dating the CAR (in block 19) and directs the preparation of correspondence notifying the Responsible Individual that the CAR is closed; or
- d) determines that the corrective actions were unacceptable, incomplete, or that corrective action could not be verified and directs the preparation of correspondence notifying the Responsible Individual that additional actions with corresponding due dates and responsibilities are required. Justification for the additional actions must be provided and must include specific details of the corrective actions found to be unacceptable.

5.5.2 The CAR Coordinator:

forwards the request for additional action to the QADD for issuance in accordance with Paragraph 5.5.3 or forwards the CAR, response, verification, and closure correspondence to the QADD for closure in accordance with Subsection 5.6.

5.5.3 The QADD:

- a) concurs with the QAR's request for additional actions;
- b) signs and dates the request for additional action and issues it to the Responsible Individual; and
- c) returns the request for additional action to the CAR Coordinator for processing in accordance with Paragraph 5.1.6.

5.6 CAR CLOSURE

5.6.1 The QADD:

- a) approves closure of the CAR by signing and dating in block 20;
- b) issues the correspondence notifying the Responsible Individual that the CAR is closed; and
- c) forwards the CAR and the notification letter to the CAR Coordinator.

5.6.2 The CAR Coordinator:

- a) updates the CAR Log to indicate CAR closure;
- b) assembles, paginates, and processes the QA records in accordance with Section 7.0.

6.0 SUPPORTING DETAIL

6.1 SIGNIFICANT CONDITIONS ADVERSE TO QUALITY

CARs are evaluated by the QAR using the following criteria to determine if the deficiency is a Significant Condition Adverse to Quality.

- a) A condition determined to be repetitive in nature relative to the condition being evaluated.
- b) A serious failure or breakdown in the implementation of QA program requirements.
- c) An adverse quality trend exists.
- d) A significant deficiency in final design as approved and released for implementation such that the design does not conform to the criteria stated in design documents.
- e) A significant deficiency in construction, shipping, handling, or storage that caused significant damage to an item or product resulting in extensive evaluation, redesign, or repair to meet the criteria stated in requirements documents.

6.2 DETERMINATION OF STOP WORK CONDITIONS

CARs that identify significant conditions adverse to quality are evaluated by the QAR to determine whether a stop work condition exists. A stop work condition exists when continuing work would cause:

- a) The quality of scientific investigation results to be significantly impacted.
- b) An item not to function as intended due to a deficiency in the processing, installation, modification, or operation.
- c) A significant hazard to the health and safety of workers or the public.

6.3 REQUIRED CORRECTIVE ACTION

All CARs require, as a minimum, remedial action to correct the identified condition. For CARs that identify Significant Conditions Adverse to Quality, required actions also include investigative action to determine extent of the deficiency and identify root cause, and corrective action to eliminate root cause thus precluding recurrence. The QAR may also indicate any additional types of action required.

6.4 LOGGING AND NUMBERING OF CARs

A CAR Log is maintained by the CAR Coordinator for tracking the progress and status of CARs. The CAR Log identifies, as a minimum, the unique CAR number, the assigned QAR, the organization responsible for responding to the CAR, the dates of issuance and other action due dates as appropriate, whether the CAR identifies a Significant Condition Adverse to Quality, and whether a stop work condition was identified.

The CAR Coordinator assigns CAR numbers to CARs. Each CAR is uniquely identified in the format XX-YY-NNN, where:

- a) XX = Acronym for the QA Division issuing the CAR (i.e., HQ-Headquarters, YM-Yucca Mountain).
- b) YY = the last two digits of the fiscal year that the CAR is initiated.
- c) NNN = the next sequential number, beginning with "001" for each fiscal year.

6.5 REPORTING

The CAR Coordinator provides periodic status reports to the Director, OQA and the applicable QADD. The reports provide a status of open CARs issued by the Division. The Director, OQA periodically reports this information to OCRWM management and affected organizations. The CAR Coordinator periodically reviews the CAR Log and identifies those CARs that have not been responded to by the response due date or where corrective action is overdue. The QAR shall be notified for resolution. Should violation of established due dates persist or if unsatisfactory responses continue, the QAR shall direct the matter to the attention of the QADD and, if unresolved, to appropriate management as described in Subsection 6.8.

6.6 CHANGING CARs

The QAR documents changes required to a previously issued CAR on a CAR Continuation Page, providing justification for the changes. Changes that indicate an increase in the scope of the previously reported condition are reevaluated in accordance with Subsection 5.1. If extensive changes warrant superseding a previously issued CAR with a new CAR, the superseded CAR is voided in accordance with Subsection 6.7.

6.7 VOIDING CARs

When it is determined that an issued CAR should be voided, the QAR discusses the condition with the initiator and the QADD. If it is agreed that the CAR should be voided, the QAR ensures that complete

OCRWM QUALITY ASSURANCE PROCEDURE	Procedure No.: QAP 16.1	Revision: 6	ICN:	Page: 10 of 20
<p>justification is documented with signatures and dates of those involved in the decision and closes the CAR in accordance with Subsection 5.6. If all individuals involved do not agree that the CAR should be voided, the matter is elevated to the Director, OQA for resolution in accordance with Subsection 6.8.</p>				
<p>6.8 DISPUTE RESOLUTION</p>				
<p>Disputes that arise during the implementation of this procedure shall be directed to the attention of appropriate management, the QADD, and the Director, OQA for resolution. If not resolved, the matter is elevated to progressively higher levels of management including, if necessary, the Director, OCRWM.</p>				
<p>7.0 <u>QUALITY ASSURANCE RECORDS</u></p>				
<p>The documents listed in Subsections 7.1 and 7.2 shall be collected and maintained as QA records in accordance with QAAP 17.1, <i>QA Records Management</i>, or YAP-17.1Q, <i>Records Management Requirements and Responsibilities</i>. QA records generated as a result of implementing QAP 16.2, <i>Stop Work</i>, shall be filed in the same records package as the associated CAR.</p>				
<p>7.1 LIFETIME QUALITY ASSURANCE RECORDS</p>				
<p>Completed CARs (including CARs voided or changed after issuance), CAR Continuation Pages, CAR responses, CAR verification pages, and all relevant correspondence (including documentation of dispute resolution) shall be designated as lifetime QA records.</p>				
<p>7.2 NONPERMANENT QUALITY ASSURANCE RECORDS</p>				
<p>No nonpermanent QA records are generated as a result of implementation of this procedure.</p>				
<p>8.0 <u>REFERENCES</u></p>				
<p>8.1 <i>Quality Assurance Requirements and Description, DOE/RW-0333P</i></p>				
<p>9.0 <u>ATTACHMENTS</u></p>				
<p>9.1 QAP 16.1 FLOWCHART</p>				
<p>9.2 CORRECTIVE ACTION REQUEST</p>				
<p>9.3 CORRECTIVE ACTION REQUEST CONTINUATION PAGE</p>				
<p>9.4 INSTRUCTIONS FOR CORRECTIVE ACTION</p>				
<p>9.5 GUIDELINES FOR ROOT CAUSE DETERMINATION</p>				

10.0 EXHIBITS

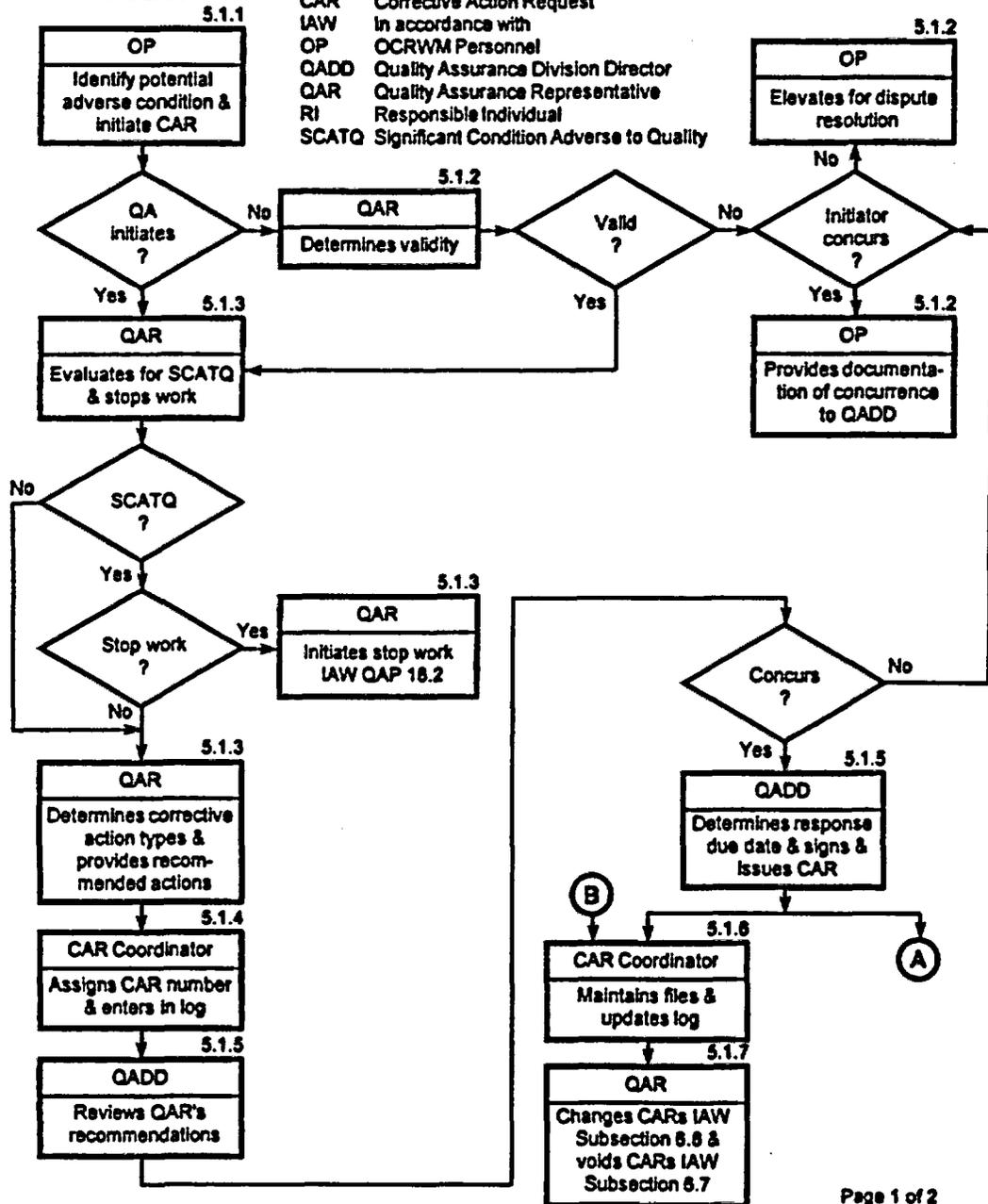
Exhibits listed below are controlled and distributed, as full-size exhibits, separately from this procedure; these exhibits may be copied for use when implementing this procedure. Alternative formats may be substituted provided that the alternative format is suitably controlled to ensure that all information shown on the exhibit is included. Reduced versions of the actual exhibits referenced in this procedure are provided as attachments and marked "EXAMPLE." The exhibits include:

- Exhibit QAP-16.1.1 - Corrective Action Request
- Exhibit QAP-16.1.2 - Corrective Action Request Continuation Page
- Exhibit QAP-16.1.3 - Instructions for Corrective Action
- Exhibit QAP-16.1.4 - Guidelines for Root Cause Determination

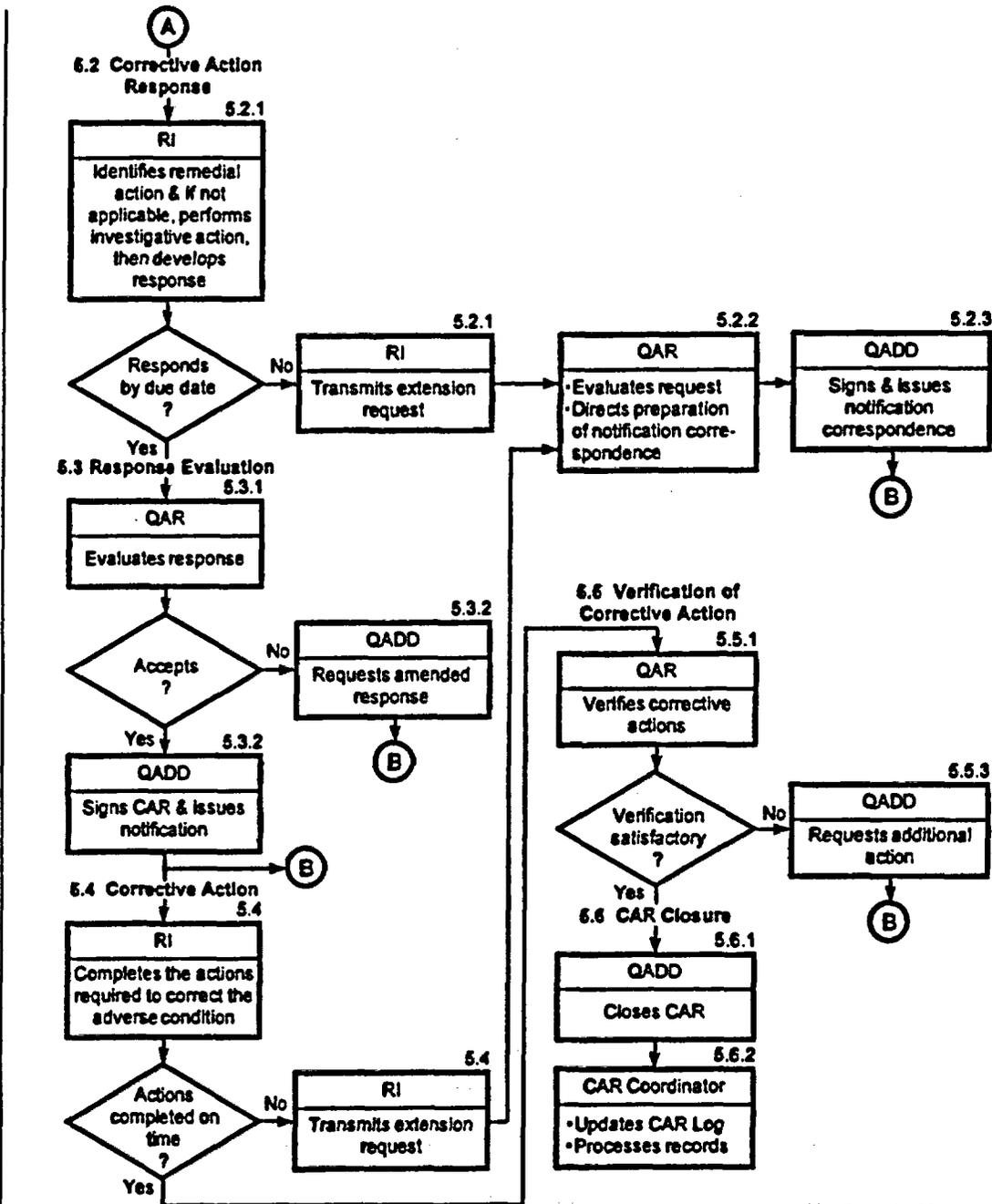
5.1 Initiation & Issuance of a CAR

LEGEND

- CAR Corrective Action Request
- IAW In accordance with
- OP OCRWM Personnel
- QADD Quality Assurance Division Director
- QAR Quality Assurance Representative
- Ri Responsible Individual
- SCATQ Significant Condition Adverse to Quality



Attachment 9.1 - QAP 16.1 Flowchart



Attachment 9.1 - QAP 16.1 Flowchart (Continued)

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

⁸ CAR NO. _____
PAGE _____ OF _____
QA

CORRECTIVE ACTION REQUEST

¹ CONTROLLING DOCUMENT:		² RELATED REPORT NO.	
³ RESPONSIBLE ORGANIZATION:		⁴ DISCUSSED WITH:	
⁵ REQUIREMENT:			
⁶ ADVERSE CONDITION:			
⁹ Does a Significant Condition Adverse to Quality exist? Yes ___ No ___ If Yes, Check One: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E		¹⁰ Does a stop work condition exist? Yes ___ No ___; If Yes, attach copy of SWD If Yes, Check One: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	
¹³ RESPONSE DUE DATE:			
¹¹ REQUIRED ACTIONS: <input type="checkbox"/> Remedial <input type="checkbox"/> Extent of Deficiency <input type="checkbox"/> Preclude Recurrence <input type="checkbox"/> Root Cause Determination			
¹² RECOMMENDED ACTIONS:			
⁷ Initiator		¹⁴ Issuance Approved by:	
		QADD _____ Date _____	
¹⁵ Response Accepted		¹⁶ Response Accepted	
QAR _____ Date _____		QADD _____ Date _____	
¹⁷ Amended Response Accepted		¹⁸ Amended Response Accepted	
QAR _____ Date _____		QADD _____ Date _____	
¹⁹ Corrective Actions Verified		²⁰ Closure Approved by:	
QAR _____ Date _____		QADD _____ Date _____	

EXAMPLE

Exhibit QAP-16.1.1

Rev. 06/27/94

Attachment 9.2 - Corrective Action Request

**INSTRUCTIONS FOR COMPLETING THE
CORRECTIVE ACTION REQUEST**

The numbered steps represent the renumbered blocks on the Corrective Action Request. Complete only the applicable information. Mark blocks that are not applicable N/A. Use the CAR Continuation Page if additional space is required.

CAR INITIATION AND ISSUANCE

Initiator

1. Enter the document and revision which has been violated.
2. Enter the number of the report that resulted in identifying the adverse condition (e.g., Audit Report Number, Surveillance Report Number, Nonconformance Report Number, Quality Concerns Identification Number). Enter N/A if there is not a related report.
3. Enter the organization responsible for the adverse condition (e.g., RW-40).
4. Enter the name of the individual(s) with whom the adverse condition was discussed.
5. State the requirement in concise, narrative form including specific reference (paragraph/section number) to the controlling document.
6. Describe the adverse condition found, in concise narrative form including references to examples discovered. Use and refer to the CAR Continuation Page, if needed.
7. Sign and date the CAR.

CAR Coordinator

8. Enter the CAR number. After closure, assemble the CAR records and paginate.

QAR

9. Check "Yes" or "No" as applicable indicating whether the condition is a significant condition adverse to quality. Check A, B, C, D, or E, identifying the applicable criterion of Subsection 6.1.
10. For Significant Conditions Adverse to Quality, check "Yes" or "No" as applicable indicating whether a stop work condition exists. Check A, B, or C identifying the applicable criterion of Subsection 6.2. Attach a copy of any Stop Work Order issued.
11. Check the applicable blocks based upon the following:
Condition Adverse to Quality - at a minimum, remedial action is required. Significant Condition Adverse to Quality - all four actions are required.
12. (Optional) Provide a recommended action that would be acceptable.

QADD

13. Enter the response due date.
14. Sign and date the CAR when acceptable.

RESPONSE ACCEPTANCE

QAR

15. As applicable, sign and date the CAR when acceptable.
17. As applicable, sign and date the CAR when acceptable.

QADD

16. As applicable, sign and date the CAR when acceptable.
18. As applicable, sign and date the CAR when acceptable.

VERIFICATION AND CLOSURE

QAR

19. Sign and date the CAR when acceptable.

QADD

20. Sign and date the CAR when acceptable.

Exhibit QAP-16.1.1

Rev. 06/27/84

Attachment 9.2 - Corrective Action Request (continued)

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

CAR NO. _____
PAGE _____ OF _____
QA

CORRECTIVE ACTION REQUEST (CONTINUATION PAGE)

EXAMPLE

Exhibit QAP-18.1.2

Rev. 06/27/94

Attachment 9.3 - Corrective Action Request Continuation Page

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

INSTRUCTIONS FOR CORRECTIVE ACTION

You are requested to provide a response to a Corrective Action Request (CAR) by the due date identified in block 13 of the CAR. If this due date cannot be met, provide a written request for extension to the identified CAR Coordinator. This request must include justification for the delay and must be provided to the CAR Coordinator prior to the due date.

In order to develop the CAR response, perform investigative action (if required in block 11 of the CAR) to determine the extent of the deficiency and to identify root cause. Next, determine the actions required to correct the adverse condition. These actions include remedial action, and in the case of CARs that identify significant conditions adverse to quality, corrective action to preclude recurrence. A review of the recommended actions (if any) provided in block 12 of the CAR may assist in this determination. The response must include the following information:

1. Corrective Action Response for CAR # _____
 - A. Remedial Action - Describe actions required to correct the specific conditions noted. (Required for all CARs)
 - B. Extent of the Deficiency - Describe the investigative actions performed to determine the extent of the condition and the results of the determination. (Required for all Significant Conditions Adverse to Quality or for any Condition Adverse to Quality if requested by OQA)
 - C. Root Cause Determination - Identify the root cause of the condition as determined through investigative action. (Required for all Significant Conditions Adverse to Quality or for any Condition Adverse to Quality if requested by OQA)
 - D. Corrective Action to Preclude Recurrence - Identify the actions required to address the root cause of the condition in order to preclude recurrence. (Required for all Significant Conditions Adverse to Quality or for any Condition Adverse to Quality if requested by OQA)
2. For each action above, identify the name of the individual assigned responsibility for completion of the action and the anticipated (or actual, if complete) completion date.

If it becomes apparent that any of the corrective action due dates cannot be met, a written request for extension must be provided to the identified CAR Coordinator. This request must include justification for the delay and must be provided to the CAR Coordinator prior to the due date.
3. The response must include the dated signature of the Responsible Individual.

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

GUIDELINES FOR ROOT CAUSE DETERMINATION

When it is established that an investigation to determine root cause is required, the following guidelines may assist in the determination:

- 1) Clarify the specific condition. Pertinent clarifying questions must be asked and answered as accurately as possible.
 - a) What happened?
 - b) Where did the condition occur?
 - c) When did the condition occur?
 - d) What was the extent of the condition?
 - e) Who was involved?
 - f) In what manner did it happen?
 - g) What reasons are given by knowledgeable personnel for why it happened?
- 2) Obtain information related to the identified condition.
 - a) Investigate, in detail, the specific condition adverse to quality.
 - b) Interview personnel.
 - c) Review pertinent documents.
 - d) Use quality tools (cause & effect diagrams, flowcharting, Pareto analysis, comparative analysis, etc.).
 - e) Identify and collect data needed to get to the root cause.
- 3) Most root causes fall into one or more the following generic categories. Specific review of these areas may be useful in arriving at cause determination.
 - a) Procedures
 - b) Personnel
 - c) Management systems
 - d) Supervision
 - e) Training
 - f) Communications
 - g) Scientific investigation/design methods
 - h) Human factors
 - i) Reliability considerations
 - j) Miscellaneous or multiple areas

Exhibit QAP-16.1.4

Rev. 2/14/84

Attachment 9.5 - Guidelines for Root Cause Determination

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

GUIDELINES FOR ROOT CAUSE DETERMINATION

- 4) Develop a list of potential causes:
 - a) Continue to ask the "Why" question. When there is confidence that the answer to "Why" will preclude recurrence, the root cause has been determined. Often, the "Ask Why Five Times" method will be successful.
- 5) Confirm the validity of the conclusions:
 - a) Review the cause against facts, opinions, and time sequences.
 - b) Obtain more information to test the root cause, if necessary.

EXAMPLE QUESTIONS

The following is a checklist of potential questions related to the ten categories that may be helpful in arriving at root cause:

1. Procedures
 - a) Was the procedure not used or used improperly?
 - b) Was there an error in following or interpreting the procedure?
 - c) Was the procedure wrong, inadequate, unclear, cumbersome, etc.?
2. Personnel
 - a) Was there a lack of awareness of the requirements?
 - b) Was there lack of personnel qualification?
 - c) Was there lack of attention given to a task?
3. Management System
 - a) Were there standards, policies, and administrative controls identified and in place?
 - b) Were audits and evaluations inadequate?
 - c) Was there lack of or inadequate corrective action of previously identified adverse conditions?
4. Supervision
 - a) Was the preparation and planning performed by supervisor adequate?
 - b) Was there a lack of supervision or inadequate supervision?

Exhibit QAP-16.1.4

Rev. 2/14/94

Attachment 9.5 - Guidelines for Root Cause Determination (continued)

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

GUIDELINES FOR ROOT CAUSE DETERMINATION

5. Training
 - a) Was there a lack of or inadequate training?
 - b) Were there inadequate training methods?
6. Communications
 - a) Was there a verbal or written miscommunication?
 - b) Was there a lack of communication or was the communication not timely?
7. Scientific Investigation/Design Methods
 - a) Was there a lack of scientific investigation or design documents?
 - b) Was there a lack of design or technical reviews?
 - c) Was there a lack of computer software controls?
8. Human Factors
 - a) Was there proper man-machine interface?
 - b) Was the work environment inadequate?
 - c) Was the system complexity a factor?
9. Reliability Considerations
 - a) Was there inadequate preventive maintenance?
 - b) Was the equipment unreliable?
 - c) Was there an error in fabrication?
 - d) Was there installation error?
10. Miscellaneous or Multiple Areas
 - a) Were multiple causes present?
 - b) Was this a true "isolated case?"

Exhibit QAP-16.1.4

Rev. 2/14/04

Attachment 9.5 - Guidelines for Root Cause Determination (continued)