U.S. NUCLEAR REGULATORY COMMISSION

OBSERVATION AUDIT REPORT NO. 91-4

FOR THE OFFICE OF CIVILIAN

RADIOACTIVE WASTE MANAGEMENT

AUDIT NO 91-02 OF

REYNOLDS ELECTRICAL AND ENGINEERING COMPANY, INC.

Prepared by: John T. Buckley 04/8/91

John T. Buckley
Repository Licensing and Quality Assurance
Project Directorate
Division of High-Level Waste Management

Reviewed and Approved by: Kenneth R Hooks 04/11/91

Kenneth R. Hooks
Repository Licensing and Quality Assurance
Project Directorate
Division of High-Level Waste Management

1.0 INTRODUCTION

From February 24-28, 1991, the U.S. Nuclear Regulatory Commission (NRC) staff observed the U.S. Department of Energy (DOE) Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance (QA) Audit No. 91-02 of Reynolds Electrical and Engineering Company, Inc. (REECo), conducted in Las Vegas, Nevada and at the Nevada Test Site.

REECo provides support for subsurface and surface construction, drilling, and mining. In addition, REECo also assists in the operation and maintenance of the site facilities and provides procurement activities for Yucca Mountain Site Characterization Project (YMP) when requested. This report addresses the effectiveness of the OCRWM audit, and to a lesser extent, the adequacy of the REECo QA program.

2.0 OBJECTIVES

The objectives of the OCRWM audit were to evaluate the implementation and effectiveness of the REECo QA program. The NRC staff's objective was to gain confidence that OCRWM and REECo are properly implementing the requirements of their QA programs by evaluating the effectiveness of the DOE audit and determining whether the REECo QA program is in accordance with the requirements of the OCRWM Quality Assurance Requirements Document (QARD), Revision 4.

3.0 SUMMARY AND CONCLUSIONS

The NRC staff based its evaluation of the OCRWM audit process and the REECo QA program on direct observation of the auditors, discussions with the audit team, and reviews of the pertinent audit information (e.g., the audit plan, checklists, and REECo documents). The NRC staff has determined that, overall, Audit No. 91-02 of REECo achieved its purpose of determining the adequacy of the REECo QA program implementation. The audit was conducted in a professional manner. The audit team was well prepared and their checklist items were adequately described in the audit plan.

The NRC staff agrees with the preliminary OCRWM audit team findings that REECo generally has an adequate QA program in the areas of Instructions, Procedures, Plans and Drawings (Criterion 5), and Document Control (Criterion 6). The NRC staff also agrees with the audit team findings that the REECo QA program is marginally adequate in the area of Quality Assurance Program (Criterion 2) and inadequate in the areas of Organization (Criterion 1), Control of Measuring and Test Equipment (Criterion 12), Quality Assurance Records (Criterion 17), and Audits (Criterion 18).

OCRWM should monitor the REECo program to ensure that deficiencies identified during this audit are corrected and future implementation is carried out in an adequate manner. The NRC staff expects to participate in this monitoring as observers and may perform its own independent audit at a later date to assess the adequacy and effectiveness of the REECo QA program.

4.0 AUDIT PARTICIPANTS

4.1 NRC

John T. Buckley	Observer	
Robert D. Brient	Observer	Center for Nuclear Waste Regulatory Analyses

4.2 OCRWM

Robert H. Klemens	Audit Team Leader	Science Applications International Corp. (SAIC)
A. Edward Cocoros	Auditor	MAC Technical Services Co. (MACTEC)
Mario R. Diaz	Auditor	DOE/YMPO
Frank J. Kratzinger	Auditor	SAIC
John S. Martin	Auditor	SAIC
Albert C. Williams	Auditor	DOE/YMPO
Terry Noland	Auditor	Westinghouse

5.0 REVIEW OF THE AUDIT AND AUDITED ORGANIZATION

The audit was conducted in accordance with OCRWM Quality Assurance Administrative Procedure (QAAP) 18.2 Revision 2, "Audit Program". The audited requirements include the REECo Yucca Mountain Project Office Administrative Procedures-Quality (AP-Qs), REECo Quality Systems MQA-IP-Series Procedures, and REECo Quality Assurance Program Plan (QAPP), 568-DOC-115, Revision 8, and applicable implementing procedures. The NRC staff observation of the audit was based on the NRC procedure "Conduct of Observation Audits" issued October 6, 1989.

NRC staff observations are classified in accordance with the procedure guidelines. The NRC staff findings may also include weaknesses (actions or items which enhance the QA program) and requests for information required to determine if an action or item is deficient. Written responses to weaknesses identified by the NRC staff will be requested when appropriate.

In general, weaknesses and items related to requests for information will be examined by the NRC staff in future audits or surveillances.

5.1 SCOPE OF AUDIT

The audit scope was to verify the implementation and effectiveness of the REECo Quality Assurance Program.

(a) Programmatic Elements

The audit utilized checklists developed from requirements in the AP-Q's, Quality Systems MQA-IP-Series Procedures, QAPP, and applicable implementing procedures. The checklists covered QA program controls for 11 of the 10 CFR Part 50 Appendix B Criteria. The 11 Criteria evaluated were 1, 2, 4, 5, 6, 7, 9, 12, 16, 17, and 18. The remaining seven Criteria were examined to assure that REECo was inactive in these areas or that they were not applicable to the REECo scope of work.

(b) Technical Areas

No technical areas were evaluated during this audit.

5.2 TIMING OF THE AUDIT

Although REECo has performed very little quality affecting support activities for YMPO since the last audit in 1989, the NRC staff believes the timing of this audit was appropriate in order to evaluate REECo's capability to do so in the future.

5.3 EXAMINATION OF PROGRAMMATIC ELEMENTS

The programmatic checklists covered the QA program controls for the 11 elements listed below.

Programmatic Elements

1.0 Organization
2.0 Quality Assurance Program
4.0 Procurement Document Control
5.0 Instructions, Procedures and Drawings
6.0 Document Control
7.0 Control of Purchased Materials, Equipment and Services
9.0 Control of Special Processes
12.0 Control of Measuring and Test Equipment
16.0 Corrective Action
17.0 Quality Assurance Records
18.0 Audits

The NRC staff observed the OCRWM audit team's evaluation of selected programmatic elements of the REECo QAPP. Only portions of some elements were observed. Therefore, some programmatic deficiencies identified by the audit team were not observed by the NRC staff. Such deficiencies will not be discussed in detail in this report.

(a) Organization (Criterion 1)

The auditors evaluation of the REECo organization included interviews with the REECo YMP Division Manager and QA Manager. From the interviews the auditors determined that there has been a severe reduction in the number of dedicated QA personnel over the past several months. At the time of the audit close-out, REECo had only one dedicated QA staff member. The auditors developed a potential Corrective Action Request (CAR) against REECo for insufficient dedicated QA staff members. This finding was further substantiated by the information collected in the evaluation of Criterion 12. The QA program in this area is considered to be ineffective.

In addition, it was determined that REECo has done very little quality affecting work since the REECo audit in 1989. Some of the quality affecting work which has been done includes development of procedures, and review of implementing procedures, audits, and surveillances.

The auditors' interview questions were based on the published checklist. The auditors were thorough and probed beyond the checklist questions when necessary.

(b) Quality Assurance Program (Criterion 2)

A very limited portion of this area was observed, specifically, that involved with training. The auditors evaluated an adequate sample of records, and utilized a detailed checklist and worksheets to facilitate the documentation of findings. The REECo personnel interviewed were familiar with the QA requirements and their respective QA responsibilities. The audit of this criterion was considered to be marginally effective. Two potential CARs were identified; one concerning indoctrination of personnel performing quality affecting activities, the other concerning the lack of training program evaluations.

(c) Procurement Document Control (Criterion 4)

The auditors examined seven REECo purchase requisitions to determine the adequacy of the procurement document control system. All of these procurements involved commercial grade items. Although the auditors reviewed the available procurement documents, insufficient evidence existed for the auditors to make a determination on the adequacy of the REECo procurement document control system. The auditors utilized the published checklist in conducting a thorough and professional audit.

(d) Instruction, Procedures and Drawings (Criterion 5)

The portion of the audit observed involved review of procedures and procedure review documents. The auditors used the checklist and appropriate worksheets, evaluated significant samples of the various types of procedures, were thorough and identified a significant finding. Both dedicated YMP and matrix (typically Nevada Test Site [NTS] Weapons) departments within REECo were evaluated. The audit of this criterion and the REECo QA program in this area were considered to be effective, with one unsatisfactory condition being identified concerning the lack of required annual procedure reviews.

All REECo YMP personnel and the individual from the matrix Quality Services Division at NTS involved with the Criterion 5 audit appeared familiar with applicable procedures and QA requirements.

(e) Document Control (Criterion 6)

REECo YMP document control activities are performed by the Yucca Mountain QA group and by the matrix Quality Services Division at NTS. The auditors evaluated an adequate number of records against checklist requirements, and found the controls to be properly implemented. REECo document control personnel were capable and familiar with their QA responsibilities.

(f) Control of Special Processes (Criterion 9)

Control of special processes was evaluated by examining the REECo welding procedures. Since REECo is currently doing no welding for the YMP, the welding procedures are not being implemented. Although there is a lack of welding activity, the auditors examined the welding procedures developed and signed in 1987. These procedures would be in effect should welding activity begin.

The auditors effectively used the published checklist to obtain information from the REECo Welding Operations Support Supervisor. The interview and examination of the objective evidence were conducted in an efficient and professional manner.

Three CARs were identified by the DOE/YMPO auditors with regard to the welding program. First, welder requalification did not occur within the specified three month time period. REECo corrected this deficiency during the audit by pulling the welder's certification. Second, no code of record existed to indicate which welding code was in effect. Finally, there was no evidence that Non-Destructive Examination (NDE) reports were attached to the Procedure Qualification Records (PQR) as required.

(g) Control of Measuring and Test Equipment (Criterion 12)

To determine the adequacy of the control of measuring and test equipment (M&TE) the auditors interviewed the REECo Calibration Laboratory Supervisor and reviewed calibration records for 25 pieces of test equipment. The audit was conducted in a thorough and professional manner.

Two potential CARs were identified by the auditors. First, it was determined that the required M&TE tracking system log is incomplete. Second, REECo calibration procedure, CP-GEN-1, inappropriately imposes requirements on non-REECo users.

In addition to the two CARs identified above, the auditors identified two minor concerns regarding the calibration procedures. The procedures require that equipment calibration frequency be based on manufacturer's recommendations, type of equipment, required accuracy and precision, intended use, and other conditions. During the interview with the Calibration Laboratory Supervisor it was determined that calibration frequency is most often based on the service record of the equipment. The auditors suggested adding this criteria to the procedure when they are revised in the near future. The calibration procedure also requires that nine environmental conditions be considered prior to performing calibration activities. Some of these conditions do not affect calibration activities, and it was recommended by the auditors that they be removed from the calibration procedure.

Although the NRC staff is satisfied that the calibration laboratory staff is competent in performing calibrations, the concerns noted above suggest that laboratory staff are not as familiar with the calibration procedures as they should be and thus the QA program in this area is inadequate.

(h) Quality Assurance Records (Criterion 17)

The audit of records control was accomplished utilizing a detailed checklist and worksheets to efficiently document observations and findings. The auditors evaluated records processing and storage at the Local Records Center (LRC), where controls were determined to be effectively implemented. Additionally, the auditors reviewed each department generating records for records authentication, validation and transmittal to the LRC. Several deficiencies concerning origination and transmittal of QA records were identified. The audit of this criterion was considered effective in identifying some significant weaknesses in the implementation of REECo's records control program.

(i) Audits (Criterion 18)

As observed with the other criteria, a detailed checklist and supporting worksheets were utilized. The auditor of this criteria was brought in late in the audit as a substitute for the auditor originally assigned. The only impact of this substitution was slightly more time being required to complete the checklist. The audit of this criterion was effective in identifying a significant deficiency, in that REECo had completed only four of the eleven scheduled audits for 1990, and neither 1990 nor 1991 audit schedules included Criteria 16 or 18. This potential CAR supported a finding in Criterion 1 of insufficient staff to perform the necessary functions of the QA department.

5.4 EXAMINATION OF TECHNICAL PRODUCTS

Due to the scope of the audit, there were no technical documents reviewed during the audit.

5.5 CONDUCT OF AUDIT

The OCRWM audit was productive and performed in a professional manner. The audit checklists were comprehensive and included the QA controls addressed in the REECo procedures. The audit team used the checklists effectively during interviews with REECo staff members. When necessary the auditors probed beyond the checklist questions to determine the operational aspects of the REECo program.

5.6 QUALIFICATION OF AUDITORS

The qualifications of the DOE auditors on the team are acceptable based on certification in accordance with OCRWM QAAP 18.1.

5.7 AUDIT TEAM PREPARATION

The QA auditors were well prepared in their areas of assigned responsibility and knowledgeable of the REECo QAPP, AP-Qs and MQA-IP-Series. Audit Plan OCRWM 91-02 was generally complete and included: (1) audit scope and schedule, (2) a list of audit team personnel, (3) a list of audit activities, (4) the REECo QAPP and applicable reference list, and (5) audit checklists.

5.8 AUDIT TEAM INDEPENDENCE

The audit team members did not have prior responsibility for performing the activities they investigated, and thus audit team independence was preserved.

5.9 SUMMARY OF NRC STAFF FINDINGS

(a) Observations

The NRC observers did not identify any observations relating to deficiencies in either the OCRWM audit process or the REECo QA program.

(b) Weaknesses

There appears to be a lack of understanding of the QA procedures on the part of the REECo calibration laboratory staff. It was apparent on several occasions during the audit of Criterion 12 that the calibration laboratory staff were not as familiar with the calibration procedures as they should have been. However, there is no indication that this unfamiliarity has in any way jeopardized the quality of the data being collected. Although the NRC staff believes that the calibration laboratory is competent in performing calibrations, we are concerned because current calibration activities are inconsistent with the procedures in affect. (See Section 5.3(g)).

(c) Good Practices

The NRC observers believe the use of worksheets is a good practice. In reviewing several documents against the same checklist requirements, auditors evaluating Criteria 5, 6, 17 and 18 utilized worksheets to more efficiently record their results. Thus, the auditors were able to maximize the amount of time actually spent reviewing objective evidence.

5.10 SUMMARY - DOE/YMPO AUDIT FINDINGS

The audit team identified fourteen (14) potential deficiencies which require corrective action. CARs were issued in the following areas:

CAR #	IDENTIFIED DEFICIENCY SUMMARY
YM-91-025	Inadequate number of full-term dedicated QA personnel.
YM-91-026	Records of Personnel Qualification Evaluations, Indocrination, Training and Proficiency Evaluations have not been transmitted to LRC.
YM-91-027	Documented evidence of indoctrination for some personnel who performed quality affecting activities does not exist. In some cases, the indoctrination has been performed after the individuals have been assigned to perform those activities.
YM-91-028	NDE reports were not attached to the PQRs for those weld procedure qualifications for which NDE was performed.

YM-91-029 No code of record has been established within the procedures to designate which year or addenda is applicable.

YM-91-030 Contrary to procedures, the welder with stamp No. Z-001 had his qualifications renewed for weld procedures N-1112, N-1117G, and N-3914, without the performance of any welding process for a period greater than 2 months.

YM-91-031 No objective evidence was available to show that new procedures are being reviewed for consistency with existing procedures, and that existing procedures are being reviewed at least annually for possible revisions.

YM-91-032 Only 4 of their 11 scheduled audits were performed by REECo in 1990. Additionally, the QA organization and Criteria 16 and 18 were not scheduled for an audit in 1990 and are not scheduled for an audit on the 1991 Revision 0 Audit Schedule.

YM-91-033 The REECo M&TE Tracking System Log used in the Physical Standards and Calibration Lab is incomplete. Further, procedures developed for the internal Quality Systems Division contain requirements for user organizations.

YM-91-034 Documented evidence of the overall training program evaluation for the years 1989 and 1990 does not exist.

YM-91-035 Documented evidence that the qualifications of the lead auditor are in accordance with procedures does not exist.

YM-91-036 Audit Finding Report (AFR) No. 3 of Audit No. 001-90 has had corrective action accepted and the subsequent closure of subject AFR without full corrective action being implemented or a date for completion of the proposed corrective action being given.

YM-91-037 QA Record Packages for procedures and their revisions, plus QA Record Packages described in REECo QA Implementing Procedures, cannot be found within the QA Records System, or have not been transmitted to the LRC in a timely manner.

YM-91-038 Documents maintained as records are incomplete and do not contain all of the records generated by the implementation of the applicable procedures.