

UMTRA Ground Water Project  
Quality Assurance Program Plan

February 1998

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Prepared for  
U.S. Department of Energy  
Albuquerque Operations Office  
Grand Junction Office

Prepared by  
MACTEC Environmental Restoration Services, LLC  
Grand Junction, Colorado  
**UMTRA Ground Water Project**

**UMTRA Ground Water Project**  
**Quality Assurance Program Plan**

**Policy**

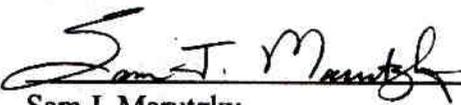
This Quality Assurance Program Plan identifies and documents the applicable Quality Assurance requirements of the GJO Quality Assurance Manual and other additional QA requirements that apply to the quality-related activities for the UMTRA Ground Water Project. This QAPP is one of several planning documents for the project. All work performed by MACTEC Environmental Restoration Services, L.L.C., on this project must comply with this Quality Assurance Program Plan.

**Prepared By:**

  
\_\_\_\_\_  
Ardis K. Rukavina,  
MACTEC-ERS QA Coordinator

2-25-98  
\_\_\_\_\_  
Date

**Reviewed and Approved By:**

  
\_\_\_\_\_  
Sam J. Marutzky,  
MACTEC-ERS Project Manager

2-25-98  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Roberta A. Bowen,  
MACTEC-ERS Groundwater Programs Coordinator

2/27/98  
\_\_\_\_\_  
Date

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## I. Introduction

Uranium Mill Tailings Remedial Action (UMTRA) was initiated by the *Uranium Mill Tailings Radiation Control Act* of 1978 (UMTRCA). The UMTRCA established a program of assessment and remediation at 24 inactive uranium Title I sites in 10 states and on 4 Native American-owned lands to ensure protection of human health and the environment from ground water contaminated by past uranium milling operations. MACTEC Environmental Restoration Services, L.L.C. (hereafter known as MACTEC) is the Technical Assistance and Remediation (TAR) Contractor for the Grand Junction Office.

The UMTRA Project consists of two phases: surface remediation and ground water restoration. The ground water restoration phase began in 1991 under interim standards drafted by the Environmental Protection Agency (EPA). Final standards were promulgated in January 1995. The UMTRA Ground Water (UGW) Project supports interim actions, conducts site characterization and compliance actions for meeting the EPA ground water standards to protect the public health and environment. This Quality Assurance Program Plan (QAPP) applies to these activities from plan preparation to an eventual turn over to the Long-Term Surveillance and Maintenance Program for monitoring. Quality Assurance requirements will be transmitted through procurement documents to Subcontractors when appropriate.

This QAPP is based on the requirements defined in the *GJO Quality Assurance Standards* manual, GJO 1. MACTEC and the Facilities Operations and Support (FOS) contractor, WASTREN-Grand Junction, have jointly adopted the Quality Assurance Program and implementing procedures and will conduct functions and activities under the single joint QA Program. The standard meets the requirements of DOE Order 5700.6C, Quality Assurance, the specific requirements and philosophy of Title 10, Part 830.120, of the *U.S. Code of Federal Regulations* (CFR), and ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs."

### Revisions

This QAPP is controlled by the Document Control Specialist (DCS) for the Project Manager. It will be revised by the QA Coordinator and the Project Manager as required to meet the needs of the Project. Revisions will require approvals at the same levels as the original document. Shading will be used in the future to identify sections that were changed. Copies of the QAPP may be obtained from the DCS who maintains the distribution list and issues changes to the QAPP.

## Applicable Company Manuals

The following manuals implement portions of the QA Program. These documents will be referenced by manual title throughout this QAPP as implementing documents. The current revision of each document is to be used.

GJO Quality Assurance Standards, GJO 1  
GJO Health and Safety Standards, GJO 2  
GJO Site Radiological Control Manual, GJO 3  
GJO Training Manual, GJO 4  
GJO Environmental Procedures Catalog, GJO 6  
GJO Formality of Operations Manual, GJO 7  
MACTEC-ERS General Administrative Procedures Manual, MAC-1000  
MACTEC-ERS Environmental Compliance Manual, MAC-1001  
MACTEC-ERS Project Control System Manual, MAC-1002  
MACTEC-ERS Engineering Process Planning Guidelines, MAC-3001  
MACTEC-ERS Procurement Manual, MAC-3010  
*WASTREN-GJ* Calibration and Control Program Manual, FOS 213  
*WASTREN-GJ* Stores, Property, and Transportation Manual, Unnumbered

## List of Acronyms

CFR - Code of Federal Regulations  
CTMS - Commitment Tracking and Management System  
DCS - Document Control Specialist  
DOE - Department of Energy  
EPA - Environmental Protection Agency  
FOS - Facilities Operations and Support  
GAP - General Administrative Procedures  
GJO - Grand Junction Office  
M&TE - Measuring and Test Equipment  
NCR - Nonconformance Report  
QA - Quality Assurance  
QAI - Quality Assurance Instruction  
QAPP - Quality Assurance Program Plan  
QAPjP - Quality Assurance Project Plan  
TAR - Technical Assistance and Remediation  
UGW - UMTRA Ground Water  
UMTRA - Uranium Mill Tailings Remedial Action  
UMTRCA - Uranium Mill Tailings Radiation Control Act

## II. Purpose and Scope

The purpose of this Quality Assurance Program Plan (QAPP) is to define the QA requirements and implementing documents for the UMTRA Ground Water (UGW) Project. This QAPP is based on the GJO QA Program as defined in the GJO *Quality Assurance Standards* manual. The GJO QA Program was developed in response to DOE Order 5700.6C, Quality Assurance, and 10 CFR 830.120. It also incorporates ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*. The GJO QA requirements have been graded to meet the needs of the project by this QAPP.

This Quality Assurance Program Plan has been prepared to provide assurance by MACTEC that the work performed under the UGW Project will be of the quality required to satisfy program objectives. This QAPP controls all work performed by MACTEC under the UGW Project. QA requirements will be applied to subcontractors through procurement documents as applicable.

## III. Program Quality Level

The GJO Quality Assurance Program uses a graded approach in the application of Quality Assurance Requirements identified in the *Quality Assurance Standards* manual. The graded approach provides a flexible, efficient, and effective means of controlling items and activities to assure that the required quality is achieved and is commensurate with the importance and risk of the activities. The importance assigned to an item or activity will determine the Quality Assurance Program's requirement level assigned to that item or activity. Criterion 1 of the QA Standards provides information on the QA Program Levels and Graded Program Requirements.

The UGW Project Manager has assigned an overall quality level of Standard. The GJO Quality Assurance Program Standard Level is a base quality assurance program that applies to all activities performed by MACTEC. The Standard Level designation notifies personnel at a glance that the Standard QA requirements implemented throughout the company are applicable to this project.

## IV. Quality Assurance Program Requirements

This QAPP describes the applicable requirements of the *GJO QA Standards* through the use of a graded approach. The applicability and level of each criterion of the standard is defined for implementation by the UGW Project. This section of the QAPP lists each criterion of the standard, states the applicable level (Standard), and provides modification to the QA requirements as necessary to meet project demands.

Quality Assurance Instructions (QAIs), which are contained within the *GJO QA Standards manual*, are referenced throughout this QAPP when applicable.

## Criterion 1, Quality Assurance Program

The Standard Requirements of the Criterion and the following QAIs apply:

QAI 1.1, QA Program Implementation - The UMTRA Ground Water Project is responsible for establishing procedures and methods for accomplishing the technical work under its control. The matrices contained in this QAI may be used as a cross reference of the GJO Quality Program to DOE Order 5700.6C, ANSI/ASQC E4, NQA-1 and ISO 9001-94.

QAI 1.2, Notification of Incoming work - The Project Manager will notify the QA Coordinator or Quality Assurance Manager of new work or significant changes in scope. This information will be used to determine if revision of the QAPP or other project documents is required.

QAI 1.3, Suspension of Activities - MACTEC personnel are responsible for suspending activities when conditions that jeopardize safety or quality are identified. When significantly adverse conditions are identified and management response has not been initiated, or is ineffective, the Project Manager may order a suspension of activities. A suspension of activities may be ordered by the Quality Assurance Manager if conditions affecting quality have not been addressed by the Project Manager. Suspension of activities for subcontractors will be issued through MACTEC Subcontract Administration. Justification must be thoroughly documented.

QAI 1.4, Development and Approval of QA Program Plans - The Project Manager, assisted by the QA Coordinator, will be responsible for maintaining this plan. The QAPP will be reviewed by affected organizations and the Quality Assurance Manager. Approval of the Project Manager and Task Order Manager is required. Records of review will be maintained in the QA files. When significant revisions are made, the Project Manager will be responsible for obtaining the required approvals. A Quality Assurance Project Plan (QAPjP) may be prepared for projects that support the UGW Project if additional QA requirements beyond those specified in this QAPP are needed.

QAI 1.5, Administrative and Technical Planning - The Project Manager is responsible for assigning the planning of project activities.

MACTEC requirements for planning documents are presented in this QAI and the *General Administrative Procedures Manual* (GAP), MAC-1000, MACTEC Procedure and Planning Documents.

As appropriate, planning documents should address administrative, technical, safety, environmental and quality assurance issues. The UGW Project Manager is responsible for assigning responsibility for preparation of planning documents. The following are the primary UGW Project planning documents:

## **Project Planning Documents**

- UMTRA Ground Water Project Management Action Process - Reflects project strategies and status.
- Quality Assurance Program Plan for the UMTRA Ground Water Project, (this document) - Defines the requirements of the GJO QA Program that are applicable to the UGW Project.

## **Site-Specific Planning Documents**

- Site-Specific Work Plans - Define site activity requirements.
- Quality Assurance Project Plans (QAPjP) NOTE: To be prepared should additional tasks need specific QA requirements. Define QA requirements for a particular task outside the scope of this QAPP.
- Site-Specific Health and Safety Plans - Project planning documents and revisions must be reviewed by the affected organizations, and comment resolution must be documented. Records showing document review for the current version will be maintained by the originator.

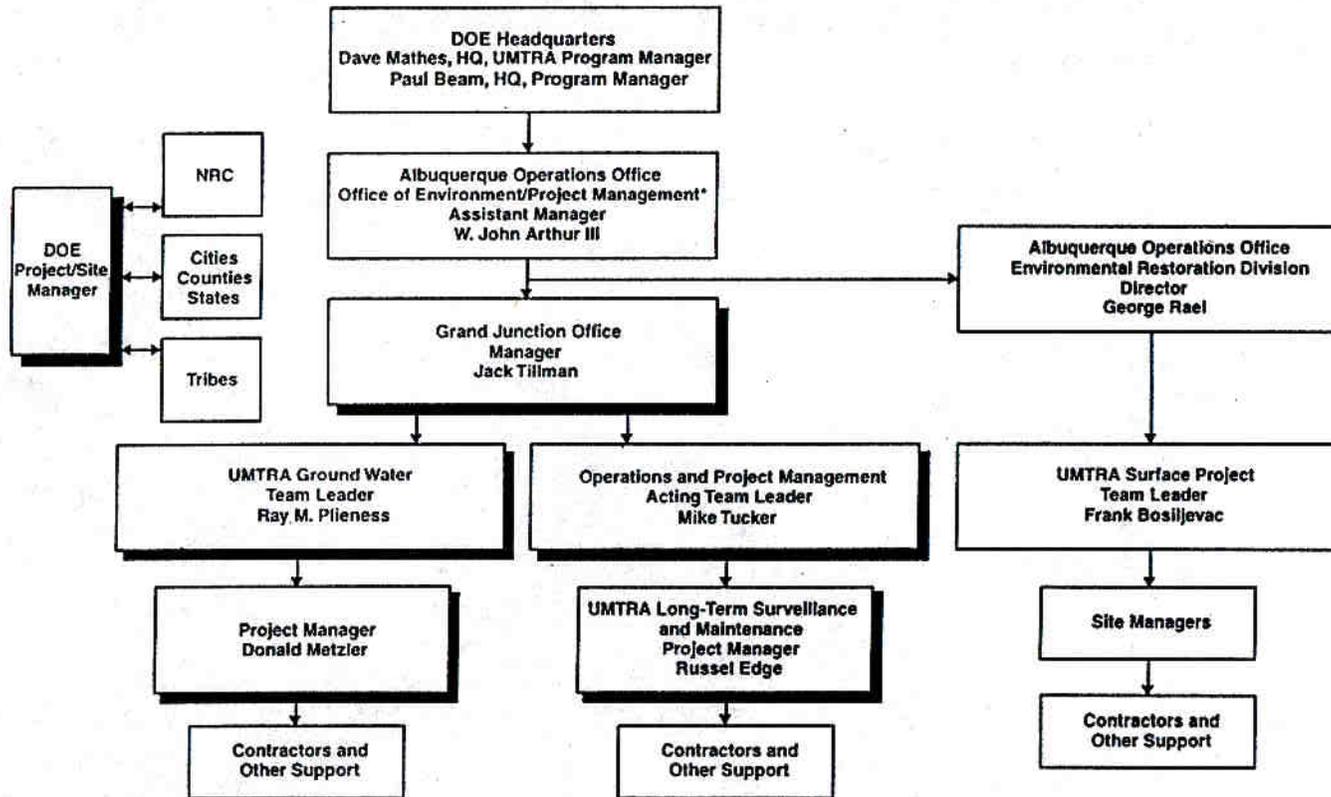
Before starting physical work on the project, when directed by Project Management, or following a Stop Work Order, an Activity Review will be performed in accordance with this QAI.

Pre-activity briefings will be conducted before departure for ground water sites to assure that equipment, procedures, personnel, and other resources are adequate, ready and available to complete the work.

QAI 1.6, QA Organizational Interfaces - The organizational structure and interfaces for the DOE UMTRA Organization are shown in [Figure 1](#). MACTEC's organizational structure for UMTRA Ground Water is shown in [Figure 2](#). The verification of quality is performed by personnel other than those responsible for performing the work. QA staff may also verify the achievement of quality by surveillance and audit. Individuals who have been identified as responsible for verification of quality shall be provided access to activities and the documentation supporting those activities.

QAI 1.7, QA Review of Documents that Implement the QA Program - Documents and procedures that implement the QA Program or cross organizational lines for the UGW Project will be reviewed by the MACTEC QA Coordinator in accordance with this QAI.

# DOE UMTRA Organization

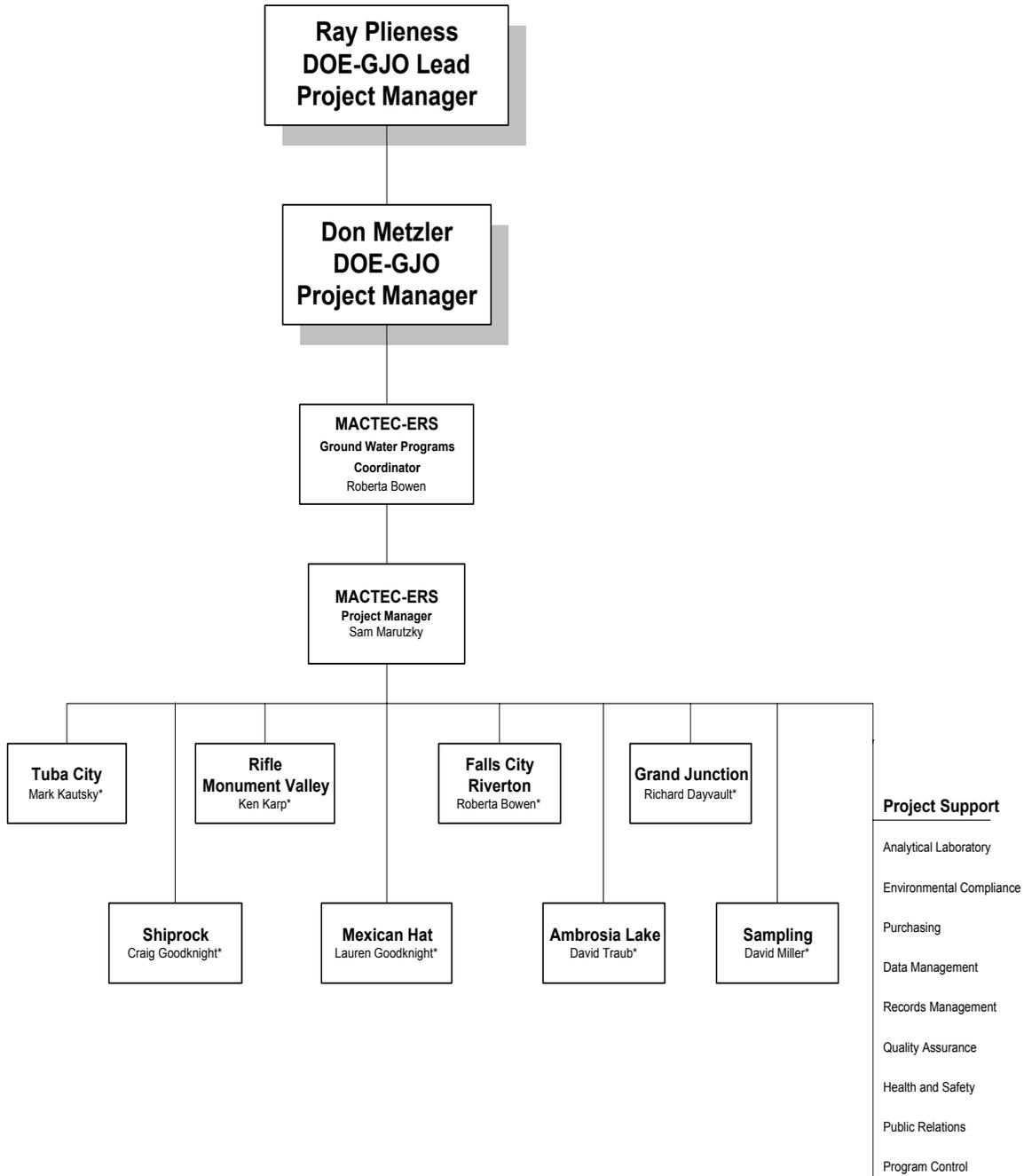


 Grand Junction Office

\*Only the portion of the organization related to UMTRA is shown.

Figure 1

UMTRA Ground Water Project Organization Chart  
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\* Task Leads

Figure 2

## **Criterion 2, Personnel Training and Qualification**

The Standard Requirements of this Criterion are applicable to the UGW Project. Management will determine and document the minimum requirements for each position. MACTEC personnel will be trained by requirements contained in the *GJO Training Manual*, GJO 4. All MACTEC personnel will be familiarized with project requirements and plans before assignment. Training must be documented and the records forwarded to the FOS for retention.

The hiring manager is responsible for ensuring personnel meet the position qualifications and receive training for their job assignment by company policy. UGW personnel will be briefed on the site specific issues during pre-activity briefings.

QAI 2.2 Certification of Personnel - Activities performed by Quality Assurance will be performed by personnel qualified/certified in accordance with this QAI and internal QA Group Instructions.

## **Criterion 3, Quality Improvement**

The Standard Requirements of this Criterion are applicable to the UGW Project. Management will encourage the identification of problems and create an atmosphere of openness. Improvement processes will help ensure that the proper focus is provided, adequate resources are made available, and difficult issues are resolved. The Criterion also identifies several implementation mechanisms designed to support quality improvement efforts.

QAI 3.3, Dissemination of Lessons Learned - The Project Manager may generate a report for lessons learned because of project activities and forward it to QA with a suggested distribution list. The Project Manager will also distribute lessons learned reports, provided by QA, to the applicable project personnel.

QAI 3.4, Nonconformance Reporting, Disposition, and Closure - The UGW Project will use the nonconformance report (NCR) system defined within this QAI. The QA Coordinator should be called on for advice or assistance in the evaluation of conditions and the subsequent treatment of identified nonconformances.

Formal reporting is not required for nonconforming items discovered before delivery or transmittal to other organizations. These items will be documented and evaluated internally by the organization.

QAI 3.5, Corrective Action Request System - The Project Manager will be responsible for evaluating, investigating, and documenting corrective actions. The QA Coordinator will track and verify the corrective actions.

## **Criterion 4, Documents and Records**

The Standard Requirements of this Criterion are applicable to all MACTEC documents. Control and distribution of documents will be in accordance with the GAP manual, MAC-1000, Document Control.

Section 3.0 of the GAP manual, Records Management Procedures, applies to all records created or managed by UGW personnel. Management of project records is supported by a working file index. The use of an index and the procedure identified meets the requirements of a project record's management plan. The Records Management Procedure provides guidance for the management of TAR documents and records from creation to final disposition. The guidance ensures that TAR documents and records are created, used, maintained, and protected.

Distribution of UGW Project documents will be controlled to assure that current, correct documents are used by those doing the work. Control and distribution of UGW Project planning documents is the responsibility of the Document Control Specialist (DCS). All requests for these documents must be sent to the DCS who will document the distribution. Records of distribution will be maintained. Support organization procedures will be controlled by those organizations.

## **Criterion 5, Work Processes**

The Standard Requirements of the Criterion and the following QAIs apply:

QAI 5.1, Preparation of Instructions, Procedures, and Drawings - The procedure manuals that implement the requirements of the QA Program are listed under Applicable Company Manuals. Procedures written to control the work for the UGW Project will comply with the GAP manual, which explains the company system for procedures.

The *GJO Environmental Procedures Catalog*, GJO 6 contains general field procedures for a variety of tasks. These procedures may be adopted or modified for use on this project.

QAI 5.2, Control of Processes - The Standard Requirements are implemented by using qualified personnel to do the work as defined and controlled by the resource plan or procedures. No special processes are anticipated.

QAI 5.3, Test Control - The QAI is applicable to equipment standardization, operating checks, or other comparisons that are a part of measurement of site performance. Records of checks and/or standardization must be maintained as detailed in procedures specific to the equipment.

## **Criterion 6, Design**

The Standard Requirements of the Criterion apply.

QAI 6.1, QA Review of Design Input and Output Documents - QA will review design documents in accordance with QA Desk Instructions when the design organization has determined that the QA review may be beneficial.

QAI 6.3, Design of Data Collection Programs - The collection of data for evaluation will be performed using the data collection design process described in this QAI.

## **Criterion 7, Procurement**

The Standard Requirements of this Criterion are applicable to all UGW procurement activities. Procurement documents must ensure that appropriate specifications are included or identified within those documents.

QAI 7.2, Procurement-Related Nonconformances - NCRs for purchased items and services will be processed in accordance with this QAI and QAI 3.4.

QAI 7.3, Supplier Selection - Quality Assurance will participate in the selection of suppliers for procurement requisitions that require supplier pre-award evaluation or survey and for other procurements when assistance is requested by Contracts and Procurement or the Project Manager.

## **Criterion 8, Inspection and Acceptance Testing**

The Standard Requirements of this Criterion are applicable to the UGW Project. Measuring and Test Equipment (M&TE) used in assessment, verification, or analysis to generate project data must be calibrated in accordance with the provisions of *QAI 8.2, Calibration System*.

Inspections that verify and ensure conformance to specified requirements shall be planned, performed, and documented by written instructions, procedures, or checklists. Acceptance inspections must be performed by individuals other than those who performed the work. Final inspections must be documented and approved by authorized personnel. Reinspection is required for any items modified, repaired, replaced, or reworked after final inspection.

Identification and control of items will be specified in instructions, procedures and drawings that control a specific task.

Records will be maintained for each piece of equipment which identifies schedules and procedures for calibrations. The record must include the procedure or instructions for performing the calibration, calibration data, relevant environmental conditions, traceability to the standard used, person performing the calibration and the calibration date.

## **QAI 8.2, Calibration System**

UGW will maintain internal procedures for the calibration of project instruments. Any reference standards used will comply with the requirements of the QA Program.

UGW will designate individuals to serve as custodians for project instrumentation. These custodians are accountable for project specific M&TE items.

Custodians are responsible for the following:

- Assuring that M&TE have proper calibration labels and are within their calibration period. The custodians are also responsible for submitting M&TE and reference standards for calibration before retiring them from service (closeout calibrations).
- Requests for the purchase of M&TE, reference standards, and calibration services must be provided to the Instrument Calibration Laboratory for review to ensure that accuracy, uncertainty, traceability, and applicable calibration program standards are addressed in the procurement.
- Responding to Nonconformance Reports (NCRs) documenting instrumentation found out-of-tolerance to determine the effects on previously performed work.
- Maintaining and protecting instrumentation from damage or significant contamination.
- Performing and documenting routine functional tests and checks on instruments assigned to them. When the functional tests/checks indicate readings outside the acceptance range, the instrument will be taken out of service.

## **Criterion 9, Management Assessment**

The Standard Requirements of the Criterion and the following QAIs apply:

QAI 9.2, Performing and Reporting Management Assessments - The UGW Project at the direction of the General Manager will identify, plan, schedule, and appoint teams to perform Management Assessments with support from QA.

## **Criterion 10, Independent Assessment**

The Standard Requirements of the Criterion and the following QAIs Apply;

QAI 10.1, Performance and Reporting of Independent Assessments - Independent Assessments will be conducted by qualified lead assessors. Lead assessors will be qualified as lead auditors in accordance with QAI 2.2, Certification of Personnel. Audits of the UGW Project or elements of UGW will be performed by QA personnel as necessary to evaluate implementation of and compliance with the requirements of the QA Program.

Lead Assessors will be independent of the project, although the QA Coordinator for the project may assist. Technical expertise may be provided by persons outside the QA organization.

Assessments will be entered into the Commitment Management and Tracking System (CTMS) for tracking and status. More information on the CTMS is available in Appendix B of the QA Standards Manual.

QAI 10.2, Surveillances - Surveillances of elements of the UGW Project will be performed by QA as necessary to evaluate implementation of and compliance with the requirements of the QA Program.

QAI 10.3, External Audit/Appraisal Tracking - The Project Manager is responsible for responding to external assessments, preparing corrective action plans for any findings, completing corrective actions as scheduled, and attesting to completed corrective actions.

The QA Coordinator will assist the Project Manager by entering updates of assessment results into the CTMS. The QA Coordinator will also track and report on corrective action plan progress; verify completion of corrective actions; and prepare Completion Certificates.