

# U.S. Department of Energy

Oakland Operations Office, Oakland, California

---

## FINAL QUALITY ASSURANCE PROJECT PLAN

for the

LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH  
UNIVERSITY OF CALIFORNIA, DAVIS

*Prepared for:*

**United States Department of Energy**  
Oakland Operations Office  
1301 Clay Street  
Oakland, California 94612-5208

*Prepared by:*

**Weiss Associates**  
5801 Christie Avenue, Suite 600  
Emeryville, California 94608-1827

June 27, 2000  
Rev. 3

DOE Oakland Operations Office Contract DE-AC03-96SF20686

---

# FINAL QUALITY ASSURANCE PROJECT PLAN

for the:

LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH  
UNIVERSITY OF CALIFORNIA, DAVIS

*Prepared for:*

**United States Department of Energy**  
Oakland Operations Office  
1301 Clay Street  
Oakland, California 94612-5208

*Prepared by:*

**Weiss Associates**  
5801 Christie Avenue, Suite 600  
Emeryville, California 94608-1827

June 27, 2000

Rev. 3

DOE Oakland Operations Contract DE-AC03-96SF20686

Issued To: \_\_\_\_\_ Date: \_\_\_\_\_

Copy No.: \_\_\_\_\_  Controlled  Uncontrolled

# FINAL QUALITY ASSURANCE PROJECT PLAN

for the:  
LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH  
UNIVERSITY OF CALIFORNIA, DAVIS

*Prepared for:*

**United States Department of Energy**  
Oakland Operations Office  
1301 Clay Street  
Oakland, California 94612-5208

*Prepared by:*

**Weiss Associates**  
5801 Christie Avenue, Suite 600  
Emeryville, California 94608-1827

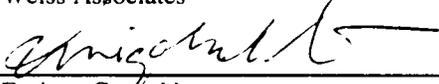
June 27, 2000

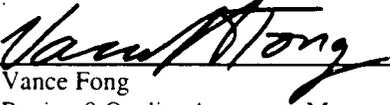
Rev. 3

Approved by:  Date: 7/31/00  
Dolores Loll  
Project Quality Assurance Manager  
Weiss Associates

Approved by:  Date: 7/28/00  
Robert Devany, C.E.G., C.H.G.  
Project Manager  
Weiss Associates

Approved by:  Date: 7-31-00  
Michael D. Dresen, C.E.G., C.H.G.  
Program Manager  
Weiss Associates

Approved by:  Date: 7/7/2000  
Enrique Capaldo  
Quality Assurance Officer  
U.S. Department of Energy

Approved by:  Date: 7-17-2000  
Vance Fong  
Region 9 Quality Assurance Manager  
U.S. Environmental Protection Agency

## CONTENTS

STATEMENT OF LEHR PROGRAM QUALITY ASSURANCE POLICY	ii-I
1. INTRODUCTION	1-1
1.1 Project Definition	1-1
1.2 Objective	1-1
1.3 Scope of Work	1-2
1.4 Graded Approach	1-2
2. ORGANIZATION AND RESPONSIBILITIES	2-1
2.1 Quality Control Responsibilities	2-1
2.1.1 Program Manager	2-1
2.1.2 Project Manager	2-2
2.1.3 Project Task Leaders	2-3
2.1.4 Site Coordinator	2-3
2.1.5 Project Environmental & Regulatory Compliance Manager	2-4
2.1.6 Project Technical Advisors	2-4
2.1.7 Contracts Administrator	2-4
2.1.8 Executive Sponsor	2-5
2.1.9 Project Health and Safety Manager/Radiological Control Manager	2-5
2.1.10 Project Quality Assurance Manager	2-6
2.1.11 Project Quality Assurance Specialist	2-6
2.1.12 Project Chemist	2-7
2.1.13 Occurrence Coordinator	2-7
2.1.14 Additional Key Project Personnel	2-7
3. QUALITY CONTROL MANAGEMENT	3-1
3.1 Quality Assurance Project Plan	3-1

---

3.2	Task-Specific Quality Control Plan	3-2
3.3	Project Planning	3-2
3.3.1	Task Plans Submitted to DOE	3-3
3.3.2	Pre-Phase Planning Guidance	3-4
3.3.3	Work Plans	3-4
3.3.4	Sampling and Analysis Plans	3-6
3.3.5	Data Acquisition Requirements (Non-direct Measurement)	3-10
3.4	Quality Control Inspection System	3-12
3.5	Quality Control Meetings	3-12
4.	DOCUMENT CONTROL AND RECORDS MANAGEMENT	4-1
4.1	Controlled Documents	4-1
4.2	Review and Approval	4-2
4.3	Document Distribution	4-2
4.4	Correspondence Control and Action Items	4-2
4.5	Records	4-2
4.6	Indexing and Filing of Records	4-2
4.7	Storage of Records	4-3
4.8	Submittals	4-3
4.9	Resubmittals	4-3
4.10	Quality Control Report	4-3
4.11	Non-Routine Occurrences (Corrective Action) Reports	4-4
4.12	Format of Transmittals, Records, and Documents	4-4
5.	PERSONNEL TRAINING AND QUALIFICATION	5-1
5.1	Project Personnel	5-1
5.2	Laboratory Personnel	5-2
6.	INSTRUCTIONS, PROCEDURES AND DRAWINGS	6-1
6.1	Design and Constructability Reviews	6-1
6.2	Procedures	6-1
6.2.1	General	6-1

---

6.2.2	Standard Quality Procedures	6-2
6.2.3	Standard Operating Procedures	6-2
6.2.4	Health and Safety Procedures	6-2
6.3	As-Built Drawings and Specifications	6-2
7.	<b>PROCUREMENT QUALITY ASSURANCE ACTIVITIES</b>	7-1
7.1	General	7-1
7.2	Procurement Document Control	7-1
7.3	Procurement Quality Assurance Documentation Revision	7-2
7.4	Control of Purchased Items and Services	7-2
7.5	Procurement Quality Assurance Source Evaluation and Selection	7-3
8.	<b>FIELD SAMPLING ACTIVITIES</b>	8-1
8.1	Quality Assurance/Quality Control Sample Types	8-1
8.2	Field Documentation	8-3
8.2.1	Sample Information Documentation	8-3
8.2.2	Preparation of Field Activity Log	8-3
8.2.3	Photographs	8-3
8.3	Field Equipment, Containers, and Supplies	8-3
8.3.1	Sample Equipment Decontamination Procedures	8-4
8.4	Sampling Activities	8-4
8.5	Sampling Handling Procedures	8-4
8.5.1	Sample Preservation and Holding Times	8-5
8.5.2	Sample Collection Log	8-5
8.5.3	Sample Custody and Documentation Procedures	8-6
8.5.4	Sample Shipping	8-6
9.	<b>ANALYTICAL ACTIVITIES</b>	9-1
9.1	Laboratory Receipt and Entry of Samples	9-1
9.1.1	Sample Custody and Control	9-1
9.2	Sample Storage	9-2
9.2.1	Pre-Analysis Storage	9-2
9.2.2	Post-Analysis Storage	9-2

9.3	Analytical Methods Requirements	9-2
9.4	Quality Control Requirements	9-3
9.5	Laboratory Documentation	9-3
9.6	Analytical Standards	9-3
9.7	Laboratory Data Reduction/Verification/Reporting and Records Management	9-4
9.7.1	Data Reduction	9-4
9.7.2	Data Verification	9-4
9.7.3	Data Reporting	9-5
9.7.4	Raw Data Packages	9-6
9.7.5	Laboratory Records Management	9-10
9.7.6	Data Validation	9-12
9.7.7	Data Review	9-12
9.7.8	Data Validation Report	9-12
9.7.9	Validation and Verification Methods	9-13
9.8	Reconciliation with Data Quality Objectives	9-15
9.9	Analytical/Statistical Control Parameters	9-15
9.10	Surveillance, Audits, and Corrective Actions	9-17
9.10.1	Performance Evaluation Samples	9-17
9.10.2	Corrective Actions	9-17
10.	DESIGN CONTROL	10-1
10.1	General	10-1
10.2	Design Inputs	10-1
10.3	Design Analyses	10-2
10.3.1	Design Calculations	10-2
10.4	Computer Codes	10-3
10.4.1	Software Development	10-4
10.5	Design Verification	10-5
10.5.1	Personnel Qualifications	10-6
10.6	Independent Technical and Peer Reviews	10-7
10.7	Drawings	10-7
10.8	Logs and Tables	10-8
10.9	Design Changes	10-8
10.10	Instructions to Field Personnel	10-8

---

10.11 Item Identification and Control	10-8
11. REPORT PREPARATION	11-1
11.1 Report Format	11-1
11.2 Submittal	11-3
12. REVIEW OF WORK ACTIVITIES	12-1
12.1 Technical Review	12-1
12.2 Peer Review	12-2
12.3 Review Documentation	12-3
13. INSPECTIONS	13-1
13.1 Items to Inspect	13-1
13.2 Inspection Scheduling	13-1
13.3 Personnel Qualifications	13-2
13.4 Preparatory Phase	13-2
13.5 Initial Phase	13-3
13.6 Follow-up Phase	13-3
13.7 Readiness Review Inspections	13-4
13.7.1 New Task	13-4
13.7.2 Resumption of Work	13-5
14. CALIBRATION AND MAINTENANCE OF MEASURING AND TEST EQUIPMENT	14-1
14.1 Control of Measuring and Test Equipment	14-1
14.2 Calibration Control	14-1
14.3 Calibration Procedure	14-2
14.4 Equipment Identification	14-2
14.5 Calibration Frequency	14-2
14.6 Reference Standards and Equipment	14-3
14.7 Calibration Failure	14-3

---

14.8	Calibration Documentation	14-3
15.	TEST CONTROL	15-1
15.1	Testing Laboratories	15-1
15.2	Testing Procedures	15-1
15.3	Test Personnel Qualifications	15-2
15.4	Geotechnical and Material Testing	15-2
15.5	Tests	15-3
15.6	Standard Operating Procedure	15-3
15.7	Analytical Testing	15-3
15.8	Test Documentation	15-4
15.9	Test Failures	15-4
16.	NONCONFORMANCE CONTROL AND CORRECTIVE ACTIONS	16-1
16.1	Nonconformance Report	16-1
16.2	Responsibilities	16-1
16.3	Corrective Action Requests	16-2
16.4	Stop Work Authority	16-2
16.5	Problem Prevention and Continuous Improvement	16-3
17.	CHANGE CONTROL	17-1
17.1	Field Work Variance	17-1
18.	AUDITS AND SURVEILLANCE	18-1
18.1	Audits	18-1
18.2	Audit Objectives	18-1
18.3	Audit Schedule	18-2
18.4	Auditor Qualifications	18-2
18.5	Audit Teams	18-2
18.6	Audit Reporting	18-3
18.7	Audit Response	18-3

18.8 Management Assessment	18-3
18.8.1 Assessments and Response Actions	18-4
18.9 Surveillances	18-5

## FIGURE

Figure 2-1. LEHR Site Project Organizational Chart

## TABLES

Table 4-1. Typical Records List

Table 9-1. Data Validation Qualifier Flagging Conventions

## APPENDICES

Appendix A – List of Acronyms

Appendix B – Terms and Definitions

Appendix C – List of Standard Quality Procedures and Proposed Standard Operating Procedures

## RECORD OF REVISIONS

Revision Number	Description	Date
B	Draft QAPP for DOE review and comment	2/14/97
0	QAPP Issued as Controlled Document for project use.	6/20/97
1	Revised QAPP issued as Final Controlled Document for project use.	2/27/98
2	Revised QAPP issued as Final Controlled Document for project use.	11/99
3	QAPP revised for compliance with DOE O 435.1 and DOE P. 450.4 and in response to DOE comments in the ISMS Phase I Verification Report, June 8, 2000	6/27/00

## STATEMENT OF LEHR PROGRAM QUALITY ASSURANCE POLICY

It is the policy of all contractors involved in the Laboratory for Energy-Related Health Research (LEHR) project to carry out the management and performance of tasks on the LEHR project in accordance with the requirements of this document entitled Quality Assurance Project Plan (QAPP). It is the project line management's responsibility to plan for and achieve compliance with the QAPP requirements and to provide sufficient resources to accomplish the project objectives. In addition, every project participant is individually responsible for the quality of his/her work.

It is the intent of this policy to implement the requirements of this plan in a way that is adequate to enable compliance with the U.S. Department of Energy (DOE) and project requirements and that is resource-efficient. Because of this, the QAPP embodies the following business principles:

- Problem prevention is more cost effective than problem correction;
- People who actually perform the work have the greatest effect on quality and are empowered to make improvements in the work processes; and,
- Frequent communication between the project management/task leaders and field personnel is essential to success.

This document reflects current quality principles and practices, and it uses concepts and methods that have evolved through experience on environmental restoration/waste management programs. Quality is defined as the degree to which a process or service meets or exceeds DOE requirements and expectations. Quality Assurance (QA) constitutes those planned and systematic actions which when carried out, provide adequate confidence that the appropriate level of quality has been achieved. Quality Control (QC), as a subset of Quality Assurance, provides for the verification of the implementation. Management's goal on this project is to nurture a positive culture in which there is a commitment to achieve a rising standard of quality. This culture demands that processes and services, including the methods employed to achieve quality, be consistently improved.

The principles and practices embodied in this document apply to all aspects of LEHR Environmental Restoration/Waste Management (ER/WM) (the Project). It is the role of senior management to establish and cultivate principles that integrate quality requirements into the daily work and provide individuals performing the work with proper information, tools, support, and encouragement to properly perform their assigned work.

Additionally, project management shall support the quality program, properly train and motivate personnel, provide appropriate resources, and assess the effectiveness of the program and personnel to achieve quality through their active participation in the implementation of this document. The individual's role is to meet the quality requirements while recommending improvements in processes and/or services.

## 1. INTRODUCTION

### 1.1 Project Definition

Weiss Associates (WA) has been retained by the U.S. Department of Energy (DOE) to perform environmental related activities in support of a broad range of environmental restoration/waste management activities for the Laboratory for Energy-Related Research (LEHR), University of California at Davis (UCD), California. This document has been prepared to document the program management system that will be implemented by WA and its subcontractors to assure that activities performed during the course of the contract will be of the quality necessary to achieve Project objectives.

This document has been developed utilizing selected concepts from the best or accepted industry quality management practices and requirements from applicable national and international standards. These practices and requirements are based upon such documents as U.S. DOE Order 414.4a.6c "Quality Assurance"; 10 CFR 830.120 "Nuclear Safety Management, Quality Assurance Requirements"; U.S. Environmental Protection Agency (EPA) QA/R-5, EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA, 1998); QA/R-2 "Interim Draft EPA Requirements for Quality Management Plans" (EPA, 1993); and, International Standards Organization (ISO) 9004 (1987) "Quality Management and Quality System Elements Guidelines". These standards reflect the latest operational, technological, and engineering practices, thereby providing a sound Quality Assurance/Quality Control (QA/QC) systems approach to the conduct of Environmental Restoration/Waste Management (ER/WM) at LEHR.

### 1.2 Objective

The LEHR Quality Assurance Project Plan (QAPP) describes the management system and requirements to be used in the performance of all work on the Project, to ensure that project goals, objectives, and DOE expectations are met. The system described herein is designed to ensure that work is planned, performed, and assessed in a controlled and specified manner and is adequately documented.

The objective of this document is to establish an effective and efficient quality management system which will assure that appropriate controls are implemented based on the relative importance and complexity of services to be provided for each project task. The determination of the quality control to be applied will be accomplished by qualified technical, quality and management personnel working as a team.

The provisions of the QAPP apply to work performed by the Prime Contractor (also referred to as Weiss Associates, WA, and Contractor) and their subcontractors (also referred to as Contractor

for pass through QA/QC), vendors, and suppliers (as specified in procurement documents and contract) in support of the LEHR project activities and tasks described in the contract. The Client sponsoring the LEHR ER/WM project is the U.S. Department of Energy, Oakland Operations Office, under Contract No. DE-AC03-96SF20686. All projected LEHR ER/WM activities are covered by this document.

### **1.3 Scope of Work**

This document is applicable to project work assigned to the Contractor by the DOE. The ER/WM activities to be provided under this contract will be regulated under federal/state environmental regulations/laws. The Scope of Work for each Task Assignment will be clearly defined by the contractor task plan and the DOE task assignment. Within the contractor task plan there may be specific subtasks that require task-specific plans which could include Sampling and Analysis Plans (SAPs), Task-specific Quality Control Plans (TQCPs), and other procedures. These and ancillary plans will be developed using the procedures set forth in this document.

### **1.4 Graded Approach**

Quality Assurance will be implemented on the LEHR project using the graded approach. The complete set of activities necessary to meet the quality assurance requirements, as well as the level of depth, rigor, and thoroughness in applying them to the LEHR project, are determined by applying a graded approach. The graded approach is defined as a process by which the level of analysis, documentation, and actions necessary to comply with a quality assurance requirement is commensurate with the relative importance of quality assurance to the project task or activity. The graded approach will permit tailoring the quality assurance activities for each task to ensure that resources are not unnecessarily expended.

## 2. ORGANIZATION AND RESPONSIBILITIES

This section describes the responsibilities and authorities of key personnel which affect or may affect the quality of the Project. It also identifies the responsibilities of personnel for the assessment of implementation of the requirements established by this document and describes reporting relationships, and lines of communication and authority. Figure 2-1 depicts the project organization, reporting relationships and lines of communication and authority. Summaries of the responsibilities of key program personnel are provided in this section.

Key personnel may delegate the execution of, but not the responsibility for, their QA/QC tasks to other qualified project personnel. Key project personnel may delegate a substantial subset of their functions to a deputy. The deputy will assume full responsibility for the delegated duties. The delegated duties and responsibilities shall be clearly defined and documented in writing.

### 2.1 Quality Control Responsibilities

The Contractor Quality Control (CQC) staff are specifically responsible for identifying, reporting, and documenting activities affecting quality, and for verifying correction of materials and activities that do not conform to the specified requirements. The CQC staff maintain a close working relationship with operational management, keeping them advised of situations which, if not corrected or controlled, may adversely affect the overall quality of the Project. A brief description of CQC personnel responsibilities is provided in the following subparagraphs.

#### 2.1.1 Program Manager

The Program Manager will be fully responsible and accountable for all program and contractual activities. He will serve as the focal point and main channel of communication between the DOE and CQC Team. Using the Project staff, he will establish and interpret project policies, monitor schedule and cost, coordinate all reporting, ensure that necessary resources are made available, prepare long-range program plans, identify and resolve potential problems or conflicts, and provide for safe performance and quality of the work. Other duties, as appropriate, will include:

- Procure, along with Administrative personnel, materials and services;
- Receive, negotiate, and track the performance of the Project;
- Assign the Project Manager (PM) to direct the Project and provide the necessary resources to this manager;
- Approve and consistently implement the project planning documents (e.g., this document, Project Health and Safety Plan (PHSP), etc.);
- Assess the overall Program for compliance with federal, state, and local regulations/laws and with specific DOE orders and directives;

- Interact with regulatory/public agency clients at the request of the DOE;
- Disseminate Program-related information from the DOE and others;
- Provide Program change order control;
- Report any significant conditions adverse to quality and obtain concurrence on proposed resolution(s);
- Provide overall Program technical, quality, and performance consistency;
- Attend meetings and conferences between the contractor and the DOE; and,
- Review Program quality assurance audit reports and any resulting corrective action disposition.

### 2.1.2 Project Manager

The PM reports to the Program Manager. The PM will be responsible for project quality and the day-to-day management of technical, financial and scheduling matters. The PM will control project performance, and prepare or approve resulting invoices. Other duties as appropriate will include:

- Procure, along with Administrative personnel, materials and services;
- Organize the project staff, assign duties, and orient the staff to the needs and requirements of the Project;
- Evaluate the qualifications of project staff and critical subcontractor personnel and identify individuals who need additional training;
- Review, approve and implement project planning documents (e.g., Work Plan, PHSP, QAPP etc.) and standard procedures;
- Identify, document and notify the Program Manager, Project Quality Assurance Manager (PQAM), and project staff of changes in the scope of work;
- Serve as the "collection point" for project staff reporting and disposition of nonconformances and changes in work instructions and activities;
- Assess the effects of changes/nonconformances on the Project and report significant changes/nonconformances to the Program Manager;
- Review procurement documents, design bases, specifications and final reports; and,
- Review quality assessment reports and any resulting corrective action disposition.

### 2.1.3 Project Task Leaders

Project Task Leaders (PTLs) or designee's support the PM and are responsible for implementation of project-specific tasks delegated to them by the PM. They are responsible for coordinating support personnel and maintaining communication with the PM on the task progress. Other duties as appropriate include:

- Direct office support personnel;
- Direct field support personnel;
- Assure implementation of the QAPP;
- Approve field work variances and prepare variance documentation required by Standard Quality Procedure (SQP) 11.1, "Field Work Variance/Modification";
- Coordinate field labor and technical personnel;
- Ensure that staff are properly trained;
- Support the implementation of the Health and Safety Plan;
- Provide coordination of day-to-day activities for project task execution;
- Orient staff to the needs and requirements of the project work;
- Identify documents and notify the PM of changes in scope of work;
- Exercise operational supervision over the project field staff (labor and technical personnel); and,
- Evaluate worker input and implement improvements.

### 2.1.4 Site Coordinator

The Site Coordinator (SC) will report to the PTL or designee and is responsible for supervision of the field staff during daily site operations. Other duties, as appropriate include:

- Ensure work is conducted in accordance with the QAPP and relevant Work Plans;
- Notify the PTL of situations requiring a field work variance;
- Ensure control of site access;
- Enforce Health and Safety (H&S) and Environmental procedures;
- Coordinate with the Site Health and Safety Officer (SHSO) on H&S concerns; and,
- Solicit worker input and provide feedback.

### *2.1.5 Project Environmental & Regulatory Compliance Manager*

The Project Environmental and Regulatory Compliance Manager (PERCM) will report to the Program Manager and is responsible for ensuring that the Project meets all applicable environmental industry standards and is in compliance with all applicable regulatory conditions. Other duties as appropriate include:

- Compliance of Project with applicable DOE orders, regulations, statutes, and ordinances;
- Coordination with subcontractors on project compliance matters; and,
- Research and documentation of new and emerging compliance issues and regulations.

### *2.1.6 Project Technical Advisors*

The Project Technical Advisors (PTA) report to the Program Manager and are responsible for technical oversight of the Project. Other duties as appropriate include:

- Advise PM on technical issues;
- Initial development of environmental remedial action plans and procedures;
- Assist in project planning; and,
- Final review and authorization for release of plans and reports.

### *2.1.7 Contracts Administrator*

The Contracts Administrator (CA) will have overall responsibility for contract administration related to contract compliance and to the acquisition of supplies, services, materials and equipment for project execution. He/she will participate in preparing project cost estimates, and will assist the PM in identifying and preparing task revisions. The CA will administer the subcontracts. He/she will be responsible for placing and reviewing all procurement(s) performed for the Project, including negotiating with vendors, soliciting adequate competitive bids, and executing purchase orders. Procurement activities will follow the requirements of corporate and/or purchasing policies and procedures. This function receives direction from and reports to the Controller. Responsibilities of the CA are to, as appropriate:

- Serve as the primary point-of-contact with the DOE Contracting Officer;
- Review and approve contract/task assignment modifications;
- Develop, award, and administer all subcontracts and subcontract amendments;
- Ensure that subcontractors are accountable for Environmental Health and Safety (EH&S) requirements,
- Comply with small and small disadvantaged business regulations;

- Assist in the negotiation of the contract and modifications and various task authorizations;
- Provide guidance and resolution of contractual issues;
- Prepare and issue program specific procurement procedures;
- Distribute and control purchase orders and receiving reports;
- Ensure that all procurement activities are conducted in accordance with corporate policies, procedures, government regulations and orders;
- Prepare and award purchase orders and purchase order revisions;
- Maintain all contract, subcontract, and purchase order files; and,
- Review subcontractor and vendor invoices.

#### 2.1.8 Executive Sponsor

The Executive Sponsor is a senior member of Weiss Associates and does not report, on either a project or company basis, to the Program Manager or the PM. The Executive Sponsor provides a project-independent reporting relationship for both the PQAM and the Project Health and Safety Manager (PHSM). This independent reporting relationship allows the PQAM and the PHSM to carry out their assigned duties without the prior approval of the Program Manager or PM. The Executive Sponsor will consult with the PQAM and the PHSM on issuance of project Stop Work Orders (SWOs). Other duties as appropriate include:

- Consult with the PQAM and the PHSM on the release of SWOs;
- Oversee the Annual System Audit;
- Select the audit team for the Annual System Audit; and,
- Review annual independent audit reports as may be conducted on the Project.

#### 2.1.9 Project Health and Safety Manager/Radiological Control Manager

The PHSM/RCM has the responsibility to consult with the Program Manager on H&S issues concerning environmental protection, fire protection, occupational H&S, industrial hygiene, radiation protection, protection from hazardous chemicals exposure and permitting activities. The PHSM advises the PM and has the organizational freedom and authority to require changes in work practices, identify problems and propose solutions and, if necessary, stop work activities that could pose a danger to personnel or the environment. The PHSM is supported by a SHSO and other H&S personnel. Other duties, as appropriate, include:

- Ensure regulatory and operational compliance with the requirements of the Occupational Health and Safety Administration (OSHA), the PHSP and DOE requirements;

- Prepare and update the PHSP;
- Ensure H&S training (e.g., tailgate safety meetings) and medical monitoring is conducted;
- Ensure field and facility safety inspections with resolution of any resulting corrective action is conducted;
- Coordinate safety and health physics responsibilities; and,
- Interface with DOE health physics staff.

#### *2.1.10 Project Quality Assurance Manager*

The PQAM reports to the Executive Sponsor and has a line of communication with the Program Manager. The PQAM is responsible for developing and maintaining the QAPP and for coordinating implementation with the PM. The PQAM is assisted by the Project Quality Assurance Specialist (PQAS) to manage day-to-day QA issues. Other duties, as appropriate, include:

- Review and concur with project plans and procedures for quality concerns;
- Perform project assessments (e.g., surveillance, audit, inspection) of project activities for compliance with the planning documents and procedures;
- Implement QA procedures;
- Provide QA indoctrination and training to project personnel and assist in procedure training;
- Report regularly to project management on the status of QA implementation;
- Identify the need for corrective action and initiating, recommending, and coordinating solutions for project quality problems;
- Disseminate applicable quality assurance information to the project staff;
- Concur with disposition of nonconformances; and,
- Coordinate and interface with external organizations on quality matters.

#### *2.1.11 Project Quality Assurance Specialist*

The PQAS reports to the PQAM and carries out the day-to-day QA activities on the Project. Other duties, as appropriate, include:

- Attend meetings to ensure that the staff is aware of and following the requirements of the QAPP;
- Review schedules and status of work;
- Identify and document completion of rework items;
- Track contract submittals;

- Develop, maintain, and enforce QC inspection system; and,
- Conduct QA surveillance of project and task level activities.

### *2.1.12 Project Chemist*

The Project Chemist (PC) reports to the PM and will interface with the PQAM for direction and support on analytical issues. The PC will also interface with the PTL and provide direction and support for the project sampling activities including sample collection, handling, storage, preservation, and shipment. Duties of the PC will include but not be limited to:

- Assisting the PQAM with the preparation of this QAPP and task-specific SAPs;
- Providing training to field personnel in the sample management techniques;
- Performing oversight of field personnel involved in sampling activities;
- Performing oversight of sample analysis by on-site and off-site laboratories;
- Assisting the PQAM in assuring preventive maintenance is conducted on facilities and instruments used for sampling and analysis; and,
- Performing oversight of data validation activities.

### *2.1.13 Occurrence Coordinator*

The Occurrence Coordinator reports to the Project Manager, is responsible for the classifying occurrences in accordance with the LEHR Occurrence Reporting Plan and assists the PM in the reporting process. The duties of the Occurrence Coordinator include:

- Reviewing Incident, Accident, Injury, and Illness Reports to determine if the event or condition is a reportable occurrence;
- Completing an Occurrence Log with information obtained from the aforementioned report;
- Determining the proper classification of reportable occurrences;
- Informing the PM that an occurrence is reportable;
- Assisting the PM, if requested, in reporting the occurrence to DOE; and,
- Assisting the PM in determining corrective actions and lessons learned.

### *2.1.14 Additional Key Project Personnel*

Additional key project personnel may be required for select project tasks dependent upon the type and complexity of the Project. The task-specific planning documents and SAP will clearly identify the project-specific personnel that are performing or involved in tasks which could affect the quality of environmental remedial activities.

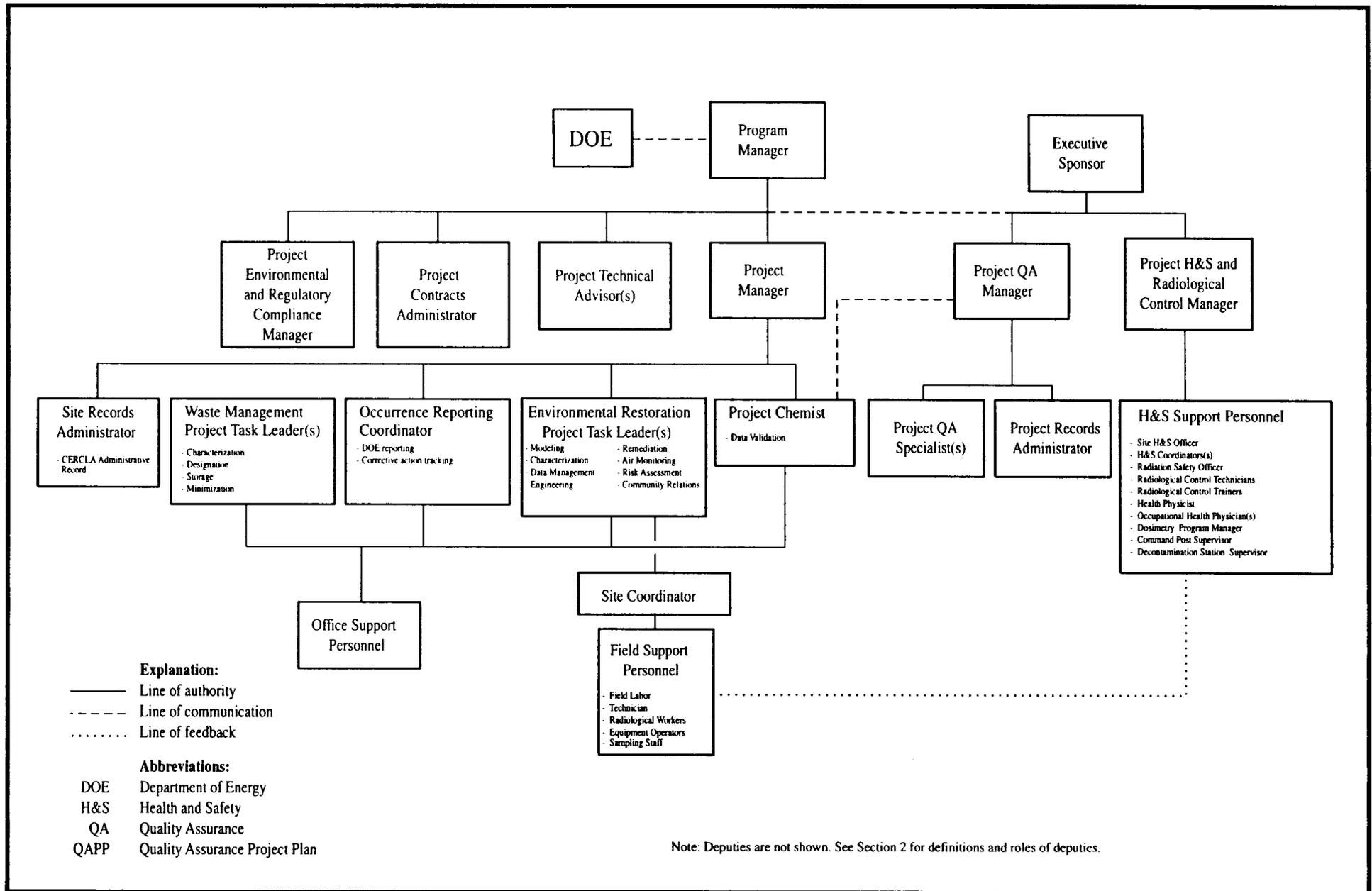


Figure 2-1. LEHR Site Project Organizational Chart

Weiss Associates

### 3. QUALITY CONTROL MANAGEMENT

Project planning activities include the preparation of the plans and procedures required to verify that activities affecting quality comply with the specified requirements and are accomplished under controlled conditions in a specified manner and sequence. Controlled conditions include controls for materials; equipment; processes and procedures; computer software; personnel; and associated supplies, utilities, and environments.

This section describes the controls to be implemented in the overall management of the Program to provide effective and economic QC direction for project tasks in a timely and cost-effective manner.

#### 3.1 Quality Assurance Project Plan

The QAPP provides procedures, practices, and objectives for meeting the quality expectations set forth by the DOE contract. Historically on the LEHR project, multiple quality assurance documents were issued and implemented for project tasks pertaining to LEHR ER/WM. This QAPP presents a unified approach for all project task activities to be conducted in support of the LEHR ER/WM for the prime contractor (WA), subcontractors, and product suppliers under DOE contract No. DE-AC03-96SF20686. Other historical QAPPs that may have been prepared and approved for use on the LEHR project, either by Prime contractors or subcontractors, are supplanted by this QAPP. This document (QAPP) is intended to be a stand-alone document that covers every necessary project QA element for anticipated project tasks.

This document presents the guiding principles to be followed by all subcontractors on this project. Subcontractors may have their own specific methods, procedures, and forms that can meet the intent of this document. In accordance to the graded approach and in the interest of project efficiencies, subcontractors are encouraged to submit requests for use of their methods, procedures, and forms for review by the PQAM. Subcontractors cannot proceed on the use of their specific methods, procedures, or forms without the written prior approval of the PQAM. Such approvals by the PQAM will not be considered a variance to this document and will be provided if this results in a reduction in processing document revisions, variances, and/or audit corrective actions. This approach will also reduce non-conformance with the details of this document.

Most tasks for the LEHR project will be adequately covered by the guiding principles contained in this document without the necessity of generating other quality-related documents, such as Work Plans, SAPs, Readiness Reviews, Inspections Procedures, and Task-Specific Quality Control Plans (TQCP). However, specific tasks may require Work Plans, SAPs, Readiness Reviews, and Inspections Procedures.

### 3.2 Task-Specific Quality Control Plan

Only a very limited number of major field tasks will require a TQCP, as noted in the DOE authorized Task Assignment and DOE approved Contractor Task Plan. The PQAM, in consultation with the PM and PTL will define the type of quality assurance documents and associated provisions applicable to each project task.

The QAPP is the project document designed to be the basis for the preparation of any TQCP in order to provide these plans in a cost- and schedule-effective manner. The QAPP is supplemented using SQPs and Standard Operating Procedures (SOPs), which together constitute the overall CQC Program. Each project task issued by the DOE to WA will be reviewed and evaluated for the specific technical processes and quality control requirements specified for the project task. Based upon the results of the evaluations the PQAM and the PTL will concur on the selection of SQPs and SOPs, which will apply to the project task and will determine whether any sections of the QAPP will require modifications to accommodate the project task activities. It is anticipated that most aspects of the QAPP will not require modification, as these sections are consistently performed as described within this document.

The project TQCP will be assembled by referencing the applicable sections of the QAPP, SQPs, and SOPs, which are proposed for the activities. Additional requirements or modifications to the QAPP will be included within the body of the TQCP, including a project specific organizational chart, if necessary. This TQCP will be submitted to the DOE for approval prior to implementation of project task activities only if a TQCP is authorized by the DOE Task Authorization and included within the DOE approved Contractor Task Work Plan. As discussed above, for most of the tasks on the LEHR project, a TQCP will not be required.

When required, a TQCP will be implemented and maintained at the project site. The PQAS for the task is responsible for verifying the implementation of the TQCP at the project site.

The QAPP and TQCP are controlled documents. The methods for the control of these documents are found in Section 4, "Document Control and Record Management" and will be implemented as described within SQPs 4.1, "Document Control", and 4.2, "Records Management."

### 3.3 Project Planning

It is the PM's responsibility to initiate the planning so that pre-work activities are accomplished in a timely manner and are adequate for the scope of work involved. The PM may delegate the project planning activities but must document any such delegation in writing or electronically. In addition to this document, overall project planning is addressed in the Project Schedule, Work Plan, PHSP, and project procedures, as may be required for the task. In planning project activities, protecting the public, the workers and the environment shall be a priority.

Project planning is conducted on various levels in the LEHR organization. The first aspect of project planning is to translate any new DOE task request into a Task Plan. The next level of planning depends on the nature and complexity of the task or activity being conducted. Certain activities require preparation of a Work Plan while others may be conducted without a Work Plan as

long as all program requirements are met. The following sections discuss the amount and type of preparation and documentation required at each level.

The objective of the planning operation is to identify the systematic sequence of operations and the overall methods to verify the quality of the work. Planning operations will address, as applicable, the following elements:

- Definition of project objectives and listing of the primary activities involved in the work breakdown structure;
- Identification of staff training and qualifications requirements applicable to project responsibilities;
- Identification of requirements (regulations, standards, etc.) applicable to project activities;
- Selective application of appropriate technical, regulatory, or programmatic requirements and procedural controls to items and activities;
- Data quality objectives (DQOs); and,
- Health, safety and environmental aspects of the Project.

### *3.3.1 Task Plans Submitted to DOE*

Task Plans are prepared in response to a request by DOE for work to be performed (i.e., Task Description). It is the responsibility of the Program Manager to prepare and provide Task Plan documents to DOE. At this level of project planning, the task scope and budget are defined using the Work Breakdown Structure (WBS) and the contract terms applicable to the activity being requested. It is necessary to ensure that all activities associated with the Project are included in the scope and accounted for in the budget. The following considerations are evaluated at the Task Plan preparation stage:

- Preparation of or revisions to required planning documents, such as program plans, management plans, and others;
- Project planning and integration of work with subcontractors;
- Preparation of reports required by the contract, regulations and DOE orders;
- Management of cost, schedule, and control systems for the Project;
- H&S support requirements;
- Environmental compliance requirements/programs;
- Self assessment requirements;
- Public relations management;
- Records management;
- Human resources;

- Training;
- Procurement;
- Quality assurance support;
- Performance metrics; and,
- Other, project specific requirements.

### 3.3.2 Pre-Phase Planning Guidance

SQP 3.4, "Preparatory Phase Planning Guidance," will be used for planning field-related projects. Per SQP 3.4 a Preparatory Phase Planning Guidance checklist will be completed before work is undertaken to ensure that all program requirements are met and that protection of the public, the worker and the environment are a priority in the work planning process.

### 3.3.3 Work Plans

Work Plan preparation is the combined responsibility of project management, project staff, H&S, radiation protection and QC personnel. The planning process is designed to establish the most effective method(s) of performing ER/WM and will be coordinated among participating organizations to minimize impacts to the overall work being performed at the LEHR Site.

Work Plans will be prepared for all projects that meet the following criteria:

- Project duration is more than 5 days, or
- Cost is equivalent to or exceeds \$10,000, or
- Project includes potential environmental impacts associated with radiological, chemical and/or biological hazards, or
- Project objective is to generate data to support regulatory or contractual requirements.

No Work Plans will be required for Storm Water Sampling activities which are performed under the UCD work process guidelines.

Projects that do not require a Work Plan according to the above-listed criteria should still be evaluated to ensure that they will meet the project objectives, comply with all program requirements and will be performed such that the public, the workers and the environment are adequately protected. To ensure that all program requirements have been addressed, the Pre-Phase Planning Guidance Form will be used to plan all projects, regardless of the need to prepare a Work Plan. The objective of the planning process is to identify the procedures applicable to the scheduled activities and will include consideration of the following elements:

- Definition of program or project scope and objectives, and listing of the primary requirements and activities involved in the work;

- Identification of the specific ER/WM data to be collected and analyzed;
- Identification of applicable technical, regulatory, or project task-specific quality standards, criteria, or objectives and acceptance criteria;
- Identification of personnel, equipment (including field and laboratory testing requirements) and other resources required to perform scheduled activities;
- Determination of assessment tools needed (e.g., project technical reviews, preparatory inspection, initial inspections, independent assessments, and technical/peer reviews, as applicable to each task);
- Identification of hazards and hazard control methods;
- Identification of roles and responsibilities, and verification that an evaluation of staff qualifications to ensure that competence is commensurate with the responsibilities has been performed;
- Identification of environmental protection requirements (including standards, regulations, monitoring requirements, and reporting requirements, as applicable) and methods to comply with these requirements;
- Identification of feedback mechanisms necessary for continuous improvement; and,
- Required records.

Work Plans will include the following information as applicable:

#### **3.3.3.1 Scope of Work**

The Work Plan will identify the scope of activities to be conducted. This section may include the objectives, background information, schedule and any other pertinent information to describe the work to be performed.

#### **3.3.3.2 Health and Safety Considerations**

The Work Plan will discuss H&S considerations, including radiological considerations associated with the Project. It will identify all hazards related to the activities and controls to be implemented to mitigate these hazards. Applicable requirements will be identified, such as regulations, DOE orders, and relevant standards. The PHSP and Health and Safety Procedures (HSPs) will be referenced as necessary.

#### **3.3.3.3 Waste Management Considerations**

For projects that will result in the generation of hazardous, biological or radioactive waste, the Work Plan will discuss waste management activities. The Work Plan will address the Project's compliance with the Radioactive Waste Management Basis and/or Waste Management Plan. At minimum the following items will be addressed:

- Waste to be generated and its disposal path will be identified. Waste types, quantities and life-cycles will be defined. Generation of waste with no

identified path to disposal will be evaluated and DOE HQ approval will be obtained prior to commencement of activities generating such waste.

- Waste Minimization opportunities will be identified and evaluated.
- Waste characterization, waste acceptance and waste certification procedures will be defined if different than those specified in Program SOPs.
- If waste treatment is proposed, a treatment facility will be identified, waste acceptance and certification procedures will be defined, and compliance with DOE Order 435.1 will be addressed.
- Waste packaging will be discussed if the existing SOPs do not adequately address it (e.g., need for vents for waste with potential for pressurizing).
- Relevant requirements will be identified and compliance with them addressed.

#### **3.3.3.4 Environmental Protection Considerations**

The Work Plan will identify any potentially significant environmental impacts resulting from the project activities and evaluate them as required by the National Environmental Policy Act. If these activities have already been evaluated in an existing project document, reference to this analysis will suffice as long as the scope of the Project is the same as that evaluated.

The Work Plan will also address environmental protection measures intended to ensure compliance with DOE Order 5400.5. Environmental monitoring requirements and methods will be defined.

#### **3.3.3.5 Sampling and Analysis Plans**

SAPs are discussed in detail below.

#### **3.3.3.6 Quality Assurance Considerations**

The Work Plan will discuss the quality assurance activities relevant to the Project.

### *3.3.4 Sampling and Analysis Plans*

#### **3.3.4.1 Sample and Analysis Planning**

Planning for sample collection, analysis and reporting is the responsibility of project management. Sampling and analysis planning will occur prior to collection of any samples. As applicable, the SAP will include a discussion of the following areas.

#### **3.3.4.2 Problem Definition/Background**

A detailed description of the problem from the DQO process and pertinent background information will be included in task-specific SAPs, as appropriate and described below.

A narrative describing the task and specific problems to be solved or decisions to be made will be included in this section of the SAP. The goal of the ER/WM activities will be clearly stated.

A description of the work site including an area map, location map, and site map, site history as it relates to the current work, and any unusual conditions will be included, as applicable. The text will include diagrams detailing areas to be sampled as relevant to the definition of the task goals. These sections will also contain a summary site geology/hydrogeology, if applicable, based on previous site activities. The discussion will include enough information about the problem, the past history, any previous work or data, the regulatory or legal context, and any relevant Applicable, Relevant and Appropriate Requirements (ARARs) to present a clear description of the task objectives.

#### **3.3.4.3 Task Description**

A detailed description of the task will be included in the task specific SAPs, as described below.

#### **3.3.4.4 Site and Task Background**

This section provides the description of the task to be performed in response to the preceding problem definition. A general description of the task sampling strategy will be discussed, including anticipated task start and completion dates. At a minimum, the section will include a brief discussion of:

- Expected measurements and anticipated approaches;
- Applicable requirements, standards, or specifications to meet Project technical, regulatory, or quality objectives;
- Special project requirements for items or services;
- Assessment to be used to evaluate Project compliance; and,
- Task schedule with milestones.

#### **3.3.4.5 Data Quality Objectives**

The SAP will describe the general scope of work and background information as it relates to the acquisition of geological, geophysical, hydrogeological, chemical and any other data. The text will explicitly describe the data that are needed to meet the objectives of the Project, how those data will be used, and discuss implementation of control mechanisms and standards that will be used to obtain data of sufficient quality to meet or exceed task objectives. The discussion of DQOs will follow the guidance, as applicable, contained in the EPA document, "Data Quality Objectives Process for Superfund, Interim Final Guidance" (EPA5440-R-93-071), and the requirements of this document are included by reference. The SAP will also describe in quantitative terms the sensitivity, precision, accuracy, and completeness goals for each major measurement parameter and for each matrix to be sampled. The SAP may need to define different types of sensitivity (e.g., quantitative, qualitative, screening) for each major measurement parameter. A qualitative discussion will be presented regarding representativeness and comparability. The establishment of DQOs will be considered for each task or activity that requires the preparation of a DOE or regulatory approved Work Plan. DQOs will not be utilized if not required and approved by the DOE, the PM, and the PQAM. DQOs for tasks not requiring a DOE or regulatory-approved Work Plan will not be utilized if not required as approved by the PM and the PQAM. If an approved Work Plan is not required by DOE or a regulatory requirement, DQOs will not be utilized if determined unnecessary by the PM or PQAM.

The section on DQOs will address the following topics as necessary to define the DQOs.

*3.3.4.5.1 Statement of the Problem*

Summarize the task that requires environmental data acquisition and identify the resources available to address the problem.

*3.3.4.5.2 Identification of Decisions*

Identify the decisions that require acquisition of environmental data to address the problem. Identify the intended uses of data projected to be acquired. Data uses will be prioritized.

*3.3.4.5.3 Identify Input to Decisions*

Identify the information needed to support the decision and specify the inputs requiring environmental measurements.

*3.3.4.5.4 Definition of Study Boundaries*

Specify the spatial and temporal aspects of the environmental media that the data must represent to support the decision.

*3.3.4.5.5 Development of Decision Rules*

Develop a logical statement that defines the conditions that would cause the decision-maker to choose among alternative actions.

*3.3.4.5.6 Specification of Limits on Decision Errors*

Specify the decision-maker's acceptable limits on decision errors, which are used to establish appropriate performance goals for limiting uncertainty in environmental data.

*3.3.4.5.7 Optimization of Investigation Design for Obtaining Data*

Identify the most resource-effective sampling and analysis design for generating data that are expected to satisfy task DQOs.

*3.3.4.5.8 Sampling Process Design*

Task-specific SAPs will provide reference to applicable requirements that are to be followed from project level requirements (i.e., task planning documents, SQPs, and SOPs) and any task-specific details that may differ from this predefined guidance. In addition, the SAP will provide project task-specific details of the experimental design to include the following:

- Sampling network design;
- Types of samples required;
- Sampling frequencies;
- Sample matrices; and,
- Measurement parameters of interest.

The rationale for the sampling design will be described for all sites where samples will be collected. Sample locations will be clearly identified on figures or other suitable means. Applicable measurement parameters shall include, but are not limited to, geological, geophysical, hydrogeological, and chemical parameters. If sampling locations are to be determined in the field based on observation (e.g., cone penetrometer, hydropunch, monitoring well), the criteria and guidelines to be used for this assessment will be specified. Similarly, the design for monitoring well installation to include filter packs and well screens will be defined.

#### **3.3.4.6 Sampling Methods Requirements**

Samples will be collected in accordance with approved plans and SOPs, which include qualitative and quantitative requirements for the specific collection methods to be utilized. These procedures will consider the mitigation of collection errors, which may affect the representativeness of the sample and impact the established DQOs for the task. Soil sampling procedures may include split spoon sampling, shallow hand auger sampling, grab sampling, and stockpile soil sampling. Water sampling procedures may include ground water sampling, surface water sampling, storm water sampling, and drum (waste) sampling. The SAPs will provide a detailed project task-specific discussion of the requirements and reference applicable procedures as they pertain to that task. Procedures for addressing failures in the sampling system are discussed in Sections 16 and 17 under Nonconformance Control and Corrective Actions and Change Control, respectively.

#### **3.3.4.7 Analytical Methods Summary**

Task-specific SAPs will provide reference to applicable requirements that are to be followed for analytical methods described in Section 9, Analytical Activities. SAPs will also provide any project-specific details that may differ from this pre-defined guidance and will include tabular summaries of analyses required for each project task. These tabular summaries should contain the number of samples with the number of QC splits, QA splits, field blanks, rinseate blanks, and estimates of trip blanks for each analytical method, as applicable.

#### **3.3.4.8 Investigation-Derived Waste**

The SAP will describe the provisions for the proper handling and disposal of wastes generated on-site.

#### **3.3.4.9 Quality Control**

The SAP will substantially reflect the specific procedures described in this document as they apply to three phases of control (see Section 13, Inspections) with specific reference to the execution of field operations related to sampling and analysis. Checklists that are developed for implementation of the three phases of control will be included.

### 3.3.5 Data Acquisition Requirements (Non-direct Measurement)

The need to assemble pertinent information previously developed by the Contractor or others will be determined. This is typically considered during the task planning stages. The PM will determine the scope of information needed for the Project. Acquired information may include:

- Applicable federal, state, and local regulations and rulings;
- Program/site status:
  - History/background,
  - Future plans, and
  - Requirements/schedule;
- Methodologies available for:
  - Field exploration, monitoring, testing, and sampling,
  - Laboratory testing,
  - Processing and volume reduction of radioactive/hazardous material,
  - Isolation and disposal of radioactive/hazardous material, and
  - Numerical analysis and design;
- Existing data generated for the specific region or site:
  - Demographical,
  - Geological (surface and subsurface),
  - Hydrological/meteorological (e.g., ground water distribution and usage),
  - Geochemical,
  - Geotechnical,
  - Facility development and practices (past, present, and future),
  - Type, volume, and extent of contamination, and
  - Physical layout of man-made facilities;
- Data generated on specific wastes, materials, or chemical compounds of interest:
  - Processing,
  - Physical,
  - Chemical,
  - Geochemical,
  - Radiological,
  - Mechanical,
  - Thermomechanical,
  - Toxicity/hazards and protection, and
  - Treatability;
- Previous or concurrent surveys, studies, analyses, and designs of a similar or parallel nature.

Sources for the above information may include:

- Government and private regulations, standards, guidelines, journals, periodicals, and data compilations;
- Textbooks and maps;
- Reports and manuals previously issued by the Contractor, DOE, EPA, or other organizations;
- Results of currently ongoing investigations by government and private agencies, corporations, and research facilities;
- Personal communications;
- Aerial photographs and satellite imagery; and,
- Procurement documents issued by the DOE.

Information collected will be documented to indicate its source. Documentation will, as appropriate, include author or individual contacted; source title; identification of periodical or journal; standard, guideline, or report number; identification of publisher or originating organization; page location; and date. Documentation must be sufficient to allow other individuals to easily obtain or verify the information.

Whenever possible, complete copies of articles, data compilations, maps, reports, and photographs will be included in the project files. If this is not feasible, copies of title pages and pertinent sections should be included with complete source documentation. Regulations, standards, guidelines and textbooks, which are generally not project-specific, may be obtained and kept in the Contractor or subcontractor library if they are of a unique nature.

Personal communications such as interviews, correspondence, or telephone conversations will be completely documented in the form of trip reports, meeting notes, memoranda, and telephone records and the resulting documentation included in the project files. Documentation will provide, as appropriate, the date and the name, organization, address, telephone number, and credentials of individuals contacted. A request should be made for formal written confirmation of critical data obtained verbally to serve as final documentation.

As necessary, an estimation of the quality/credibility of the information will be made. The collection of information must be consistent with the quality objectives of the Project. Formal DQOs may be established for a project. Particular attention should be given to information that is collected but not published from a peer-reviewed source, or collected under the controls of a documented quality assurance program. This may include, but is not limited to, personal interviews, internal reports and memoranda, or newspaper articles.

Any limitations or potential reservations for the accuracy or credibility of acquired information that could affect project quality should be clearly identified.

### 3.4 Quality Control Inspection System

The PQAS with assistance from the PQAM will create a quality control inspection system. The PQAS will perform the following:

1. Attend the inspection meetings and follow up on outstanding issues. Document remedy dates on copies of the readiness review and include in the weekly QC reports.
2. Conduct weekly reviews of all field work against the project documents, including, as appropriate, the Task Work Plan/SAP/Waste Management Plan (WMP) and program documents such as the QAPP/PHSP/SOPs and other associated HSPs and SQPs. Document observations in weekly QC reports, paying extra attention to field sampling (review sample collection logs, onsite sample receipt logs, beta/gamma data summaries, and COCs, as appropriate).
3. Write Nonconformance Reports (NCRs) when appropriate, follow up on corrective actions, and close out NCRs when corrective actions are verified.
4. Review daily field documentation packages to ensure that field activities are correctly documented. Sign off on any attached Receipt Inspection Reports.
5. Periodically check training matrix to ensure that the training requirements for workers are current.
6. If within this inspection system the PQAS identifies a recurring issue, a Quality Control Meeting will be conducted to discuss the remedy of the recurring issue.

### 3.5 Quality Control Meetings

Unless otherwise required by the DOE, the PQAS will conduct QC meetings when a problem is identified through the Quality Control Inspection System. The meetings will include appropriate personnel working on the task, such as the PTL, subcontractor superintendents, SHSO, SC, and field labor responsible for the work to be performed.

Meeting minutes and/or completed checklists will be maintained by the PQAS, as appropriate.

The following agenda provides examples of items to be discussed:

- Review outcome of any previous meetings.
- Review status of:
  - Work, inspections and tests performed, and
  - Rework/nonconformances and corrective actions identified and completed.
- Review schedule for future:
  - Completion of corrective actions,
  - Inspections.

- Tests to be performed,
- Off-site activity status,
- Documentation,
- Resolution of QC problems, and
- Procedures status and changes.

## 4. DOCUMENT CONTROL AND RECORDS MANAGEMENT

This section describes the methods and practices for the control of issuance, distribution, storage, and maintenance of quality-affecting documents and records, including those provided to the Contractor by subcontractors, off-site fabricators, laboratories, and vendors.

### 4.1 Controlled Documents

The preparation, review, approval, issuance, and revision of controlled documents will be controlled in a manner that will account for all copies of the document issued and establish that all work performed in accordance with those documents was in compliance with the latest, approved requirements.

The PQAM is responsible for the control and issuance of quality-affecting plans and procedures. Documents requiring controlled distribution include reference documents specifying quality requirements or prescribing activities affecting quality (e.g., project plans, SQPs, SOPs, specifications and drawings). All other documents (e.g., technical reports, single-use plans, correspondence, etc.) are controlled in accordance with administrative procedures.

Quality-affecting documents will be controlled to assure that correct and applicable documents are available at the location where the activity will be performed prior to commencing the work. This control system will include a document control log or drawing log which as a minimum includes the number and the title of the document, latest approved revision number, name of individual or organization the document was issued to, document control number, and status of superseded revisions.

Document control procedures will provide for the following, as appropriate:

- Description of the scope of the Document Control Program;
- Identification of documents to be controlled and their distribution;
- Identification of personnel, positions, or organizations responsible for the preparation, review, approval, and issuance of project documents and revisions;
- Review of documents and revisions for technical adequacy, inclusion of appropriate quality requirements, completeness, and correctness prior to approval and issuance (see Sections 10 and 12);
- Description of how obsolete or superseded documents are removed or replaced by applicable revisions at the work areas in a timely manner; and,
- Where documents that require verification are released prior to review and approval, they are so identified and controlled.

## 4.2 Review and Approval

Prior to issuance or use, project/task-planning documents will be formally reviewed and approved. This review will cover administrative as well as technical and quality issues. Approval will be denoted by a signature and date page in each document, which will include the PM, PQAM, and Program Manager, as a minimum.

## 4.3 Document Distribution

Project or task submittals will be distributed with document transmittal forms. Controlled documents (e.g., Work Plan, SAP) will be distributed via the use of a Document Receipt Acknowledgment form, or equivalent, which requires receipt acknowledgment by the individual receiving the controlled document or revisions. The Project Records Administrator (PRA) will issue transmittal numbers.

## 4.4 Correspondence Control and Action Items

Project task communications and their attachments will be maintained so that accurate, factual and complete records provide evidentiary documentation for professional and business-related activities. Communications that require actions should be followed-up with documentation substantiating the completion of the required actions.

## 4.5 Records

Quality records are those documents which provide direct documentary evidence of the quality of items, activities, services, and compliance with the contract or regulatory requirements, and which have been completed and submitted for acceptance and retention.

Administrative records are those documents which do not directly provide documentary evidence of the quality of items, activities or compliance with the contract or regulatory requirements.

## 4.6 Indexing and Filing of Records

The indexing and filing of records will be performed only by authorized personnel and maintained in a central filing system. Project record files will be organized by various project file categories and letter and color designations, as applicable. Project file categories will be developed and utilized. All of the file categories may not be applicable to specific tasks, consequently, categories will be added or deleted as appropriate to the Project. Working documents will be maintained at the project site but will not be required to be filed as quality records until such time that they satisfy the definition of quality records as described within the terms and definitions section of this document. A typical project record list is shown in Table 4-1.

LEHR project records shall be maintained by the PRA using the Records Inventory and Disposition Schedule/File Index (RIDS). Each PTL and/or the PQAM and the PM will ensure that project records are reviewed for legibility, completeness, and include adequate information regarding the activity being documented.

The PQAS is responsible for monitoring the control of records on each task. The PQAM is responsible for performing audits and surveillances of the record files to verify continued effectiveness of the system.

#### **4.7 Storage of Records**

Records will be maintained and stored in a manner which will preclude loss, damage, or any other detrimental conditions of the records. The filing system will provide for security from unauthorized entry to prevent loss of any records by theft or inadvertent mishandling. In general, record storage will be maintained within the Weiss Associates Emeryville facility. Field activity records may, at the option of the PM, be maintained at the project location provided that a file system similar to the records facility be implemented for the maintenance of these records. Upon completion of the task, a copy of the on-site file will be transferred to, and integrated with, the project records at the office of the Contractor. Procedures and practices for the control, handling, and storage of records are described within SQP 4.2, Records Management.

#### **4.8 Submittals**

The PM is responsible for the preparation, maintenance, and transmittal of the specified submittals for the Project.

Submittals will be prepared by the PM or PTL. Submittals to the Contractor from subcontractors or vendors will be reviewed and accepted prior to transmitting the submittals to the DOE. All applicable information will be reviewed and approved by the PM or PTL and PQAS prior to transmittal of the submittals.

#### **4.9 Resubmittals**

Unapproved submittals, or submittals with comments which require resubmittal for approval, will be processed in the same manner as the original submittals. The submittal number used for the original submittal will be identified after the resubmittal block and the resubmittal will receive the next sequential transmittal number.

#### **4.10 Quality Control Report**

A Quality Control Report (QCR), for tasks as directed by the PM or PQAM, will be prepared by the PQAS and submitted to the PM. This report will include inspection and/or testing performed,

location(s) of work, results of inspection/testing, location and description of deficiencies, deficiencies corrected, the date of the report, and comments. As applicable, the QCR may include:

- Items to inspect and inspection phases performed;
- Results of both on-site and off-site inspections;
- Rework or nonconformances identified;
- Rework or corrective actions completed;
- Field Activity Daily Logs (FADLs) (as attachment);
- Tailgate Safety Meeting minutes (as attachment);
- DOE direction or instructions;
- Calibration procedures for field instruments (if any);
- Types of field tests performed and test results;
- Work performed;
- Equipment/material received to be incorporated in the Project;
- Construction and plant equipment;
- Manifested materials removed from the project site; and,
- Superintendent remarks.

As appropriate, test reports, inspection reports, and other documentation agreed upon during the coordination and mutual understanding meeting will be included as attachments to the QCR.

#### **4.11 Non-Routine Occurrences (Corrective Action) Reports**

Non-routine occurrences are events impacting cost, quality, schedule of work, and quality of environmental analytical data. Written reports of all significant non-routine occurrence events for field and laboratory work will be sent in accordance with Section 16, Nonconformance Control and Corrective Actions; and SQPs 10.1, Nonconformance Control and 10.2, Corrective Action. These reports shall identify the problem, corrective action, and verbal/written instructions from the DOE to the Contractor personnel regarding sampling or reanalysis.

#### **4.12 Format of Transmittals, Records, and Documents**

The format of transmittals, records, procedures, reports, and documents may be either hard copy or electronic. The use of e-mail, facsimiles, web page postings and/or other formats may be utilized if in accordance with the objectives of this document and as may be prescribed in SQPs and SOPs developed for this project. Document control may be accomplished by use of hard copy transmittal, electronic transmittal, or some combination of the foregoing. Nothing in this document should be construed as limiting the format of the issuance, transference, control, and storage of project records and documents.

Table 4-1. Typical Records List

---

Bid Requests	Photographs and Negatives
Purchase Orders	Variance Logs
Bids and Proposals	Records of Laboratory Testing Program Development
Contracts and Task Orders	Laboratory Testing Data, Results, and Summaries
Project/Task Order Modifications	Sample Storage Inventories
Applicable Codes and Standards	Laboratory Quality Control Testing Data, Evaluations, and any Control Charts
Licenses and Permits	Results of Any Interlaboratory Testing Programs
Program/Task Order Requirements and Specifications	Data Reductions, Numerical Analyses, and Associated Checkprints
Quality Assurance Program Manuals	Computer Program Documentation and Verification
Quality Assurance Program Plan and Task Plans	Drawings, Tables, and Associated Checkprints
Task-Specific Work Instructions	Peer Review Reports and Other External Data Transmittals
Personnel Qualifications, Certifications, and Training Records	Samples (if retained for archive purposes)
Health and Safety Records (e.g., training, personnel monitoring, air monitoring, and accident reports)	Quality Assurance Records (e.g., audit plans, checklists, audit reports, audit responses, corrective action overdue notices, and audit closures)
Equipment Operations Manuals	Reference Materials (e.g., maps, papers, reports, and newspaper articles)
Equipment Calibration/Maintenance Records	
Laboratory Certifications and Results of Performance Evaluation Programs	
Field Activity Logs	
Field Investigation Data and Results (e.g., geologic field notebooks, instrument installations data, field collection forms, subsurface logs, test data sheets and tapes, request-for-analysis forms, and inspection reports).	

---

## 5. PERSONNEL TRAINING AND QUALIFICATION

Quality-related activities will be performed by personnel qualified on the basis of education, experience, and training. Personnel qualifications will be evaluated and documented by resumes, which include academic credentials, employment history, professional registrations, and certifications. General and task-specific training, as required, will be provided to Program and project supervisory personnel and documented on training records.

### 5.1 Project Personnel

A list of jobs with associated job descriptions for positions affecting data quality will be maintained. These descriptions shall provide the minimum qualifications in terms of education and experience, knowledge, and skills necessary for an individual to perform their job. During an annual performance review, the auditors will evaluate each person's qualifications with his/her job description. Objective evidence of an individual's qualifications can include academic credentials, personal resumes, certifications, qualifying analytical test results, and training records.

Project staff will primarily be composed of professional engineers, geologists, scientists, and quality assurance personnel. Prior to their participation in ER/WM activities, the qualifications of each individual will be evaluated and verified by the:

- Program Manager and PM, or their designee; and,
- PHSM, or his/her designee.

For site activity assignments, the qualification evaluation shall also ensure that the individual is physically capable of performing the procedure or Work Plan; has demonstrated capability to perform the specific function in accordance with the approved procedure or Work Plan; and, is familiar with technical aspects of the equipment and procedures.

To maximize personnel performance, several types of general and project-specific training will be provided. Training of personnel may be provided as classroom, required reading, and/or on-the-job and may be performed by any combination of those methods. Training will be documented and maintained on record.

General orientation and training in the requirements of this document will be required of all project supervisory personnel. Formal training sessions will be conducted and documented by the PQAM. The training program will address:

- quality assurance/control policies;
- regulatory requirements (as appropriate);

- basic quality control practices, including checks and balances inherent in the system;
- responsibilities of the technical staff; responsibilities of CQC personnel; and,
- performance of audits, inspections and surveillance.

Additional general training will be provided in informal "brown-bag" office seminars. The training program will be structured to emphasize correct performance of work and provide for the following:

- Achievement of initial proficiency;
- Maintenance of proficiency; and,
- Adapting to changes in technology, methods, or job responsibilities.

The PM will be responsible for providing his/her staff with the instructions necessary to perform quality-related activities. This training may include contractual and regulatory requirements, scope of work, specific quality assurance/quality control requirements, and applicable SQPs and SOPs. Experienced personnel will be available to supervise and instruct junior staff. The procedures for implementing personnel qualification and training are described in SQP 3.2 "Indoctrination and Training".

## 5.2 Laboratory Personnel

Subcontracted laboratory staff are composed primarily of professional scientists. Each laboratory will maintain job descriptions for positions affecting data quality. These descriptions shall provide the minimum qualifications in terms of education and experience, knowledge, and skills necessary for an analyst to perform their job. During an annual performance review, the laboratory supervisors will evaluate each analyst's qualifications with his/her job description. Objective evidence of an individual's qualifications can include academic credentials, personal resumes, certifications, qualifying analytical test results, and training records. Annual evaluation and renewal of an analyst's qualifications to perform specific technical and quality procedures will be documented.

General orientation and training in the requirements of the laboratory QA Project requirements, which affect laboratory personnel and operations, will be required of all laboratory supervisory personnel. The training program will address regulatory requirements (as appropriate), quality control practices (e.g., sample receipt, sample handling, COC requirements, etc.), applicable QAPP requirements, responsibilities of the laboratory Quality Control (QC) Manager, and responsibilities of laboratory staff.

Project specific training, as necessary, will be given to the laboratory supervisory personnel by the laboratory PMs. At the request of the managers, this may be done by other senior laboratory personnel. This training will include regulatory requirements, project analytical requirements, and specific quality assurance/quality control requirements. As necessary, project plans and procedures will be issued to the laboratory project and QC Manager for review, study, and implementation.

## 6. INSTRUCTIONS, PROCEDURES AND DRAWINGS

This section provides for the control of instructions, procedures, and drawings (e.g., equipment/systems operation manuals, methods to employ for installation/use of devices, engineering drawings for remedial design, and specifications packages for construction) applicable to project tasks.

### 6.1 Design and Constructability Reviews

When the design for project tasks is provided by others, the Contractor will review the design documents to determine if there are conflicts between the design documents and the task actions to be performed by the Contractor. As a minimum, these reviews will include the scope of work, design drawings and specifications.

The review of design documents may include value engineering concepts and constructability evaluation. When a conflict arises between the design documents and the task activities to be performed, the Contractor will immediately notify the DOE of the conflict in writing or through the use of a Field Work Variance (FWV) request providing any recommended solutions to resolve the conflict. Use of the FWV is defined in Section 17.

### 6.2 Procedures

#### 6.2.1 General

Procedures are defined as standard and industry accepted (e.g. American National Standards Institute [ANSI], American Society for Testing and Materials [ASTM], etc.) based on the scope, complexity and uniqueness of the activity described by the procedure. Standard procedures include SQPs and SOPs developed by the Contractor to describe how work is to be performed. Industry-accepted procedures include manufacturer instructions and industry standards, which will be used whenever practical, as these procedures have been proven to effectively produce acceptable results.

In the case where standards do not exist or they do not provide sufficient information SQPs or SOPs, as appropriate, will be developed to provide instructions on proceeding with an activity. The SQPs or SOPs developed will be reviewed and approved by the PM and PQAM prior to their use. A table of contents, which lists the revision status of each procedure, and approval signatures will form the basis for approval of those procedure revisions listed.

### 6.2.2 *Standard Quality Procedures*

SQPs have been developed which address activities frequently applied in the development and implementation of this document. SQPs are also developed to address requirements that may be unique to a program or project task.

The SQPs are developed to supplement or support the implementation of this document and may be implemented by reference or as attachments to these plans. Also, specific SQPs will be referenced in task planning documents as supporting documentation to accomplish task activities.

The project task-specific planning documents will include the appropriate SQPs and SOPs for performing the specified activities for each project task. The methods and associated responsibilities for the development, control, and implementation of SQPs will be implemented in accordance with SQP 5.1, Preparation, Review, and Approval of Plans and Procedures.

### 6.2.3 *Standard Operating Procedures*

In addition to the SQPs described in Section 6.2.2, SOPs will be developed to implement the technical and construction operational requirements of the Work Plans, this document and project task specifications. The SOPs will be developed, reviewed, and approved by technical personnel cognizant of the activities covered by each SOP.

In addition, all SOPs will be reviewed and approved by the PM and the PQAM. The SOPs are developed to supplement or support the implementation of this document and may be implemented by reference or as attachments to these plans. Also, specific SQPs will be referenced in task planning documents as supporting documentation to accomplish task activities.

### 6.2.4 *Health and Safety Procedures*

In addition to the SQPs and SOPs described in Sections 6.2.2 and 6.2.3, respectively, HSPs will be developed to implement the technical and construction operational requirements of the Work Plans in a safe manner and in accordance with the requirements of the PHSP, this document and project task specifications.

In addition, all HSPs will be reviewed and approved by the PHSM, PM, and the PQAM. The HSPs are developed to supplement or support the implementation of this document and may be implemented by reference or as attachments to these plans. Also, specific HSPs will be referenced in task planning documents as supporting documentation to accomplish task activities in a safe manner.

## 6.3 **As-Built Drawings and Specifications**

As-built drawings and specifications will be maintained by the PTL for each project task to reflect the actual conditions of the activities. These drawings will be marked-up (redlined) to show all changes to the original design. Supporting documentation such as FWVs will be included as an

attachment to the drawing/specification or by reference to indicate approval of the changes. Completed marked-up drawings/specifications will be returned to the original design organization to be incorporated into the final drawing/specification of the record to be turned over to the DOE, if requested.

## 7. PROCUREMENT QUALITY ASSURANCE ACTIVITIES

This section describes the requirements for the preparation, review, and approval of procurement documents and changes thereto to ensure that quality is maintained.

### 7.1 General

The procurement of items and services will be controlled so that:

- Appropriate technical and quality requirements are adequately specified to the supplier along with applicable acceptance criteria;
- Applicable EH&S requirements are specified to the supplier;
- Sufficient reviews and approvals are received prior to procurement to verify that project quality objectives are reflected in the procurement;
- The procurement process appropriately transmits quality assurance requirements to suppliers and subcontractors;
- Qualified suppliers and subcontractors are selected for use; and,
- Items and services conform to quality assurance, commercial, and technical procurement requirements.

### 7.2 Procurement Document Control

Procurement documents issued by the Contractor, including bid requests and contracts, will be prepared, reviewed, and approved in accordance with the Contractor corporate purchasing policies. The Program Manager, PM, PQAM, or qualified designee will review the procurement requisition or procurement documents for the inclusion of appropriate quality requirements prior to implementation of procurement services and/or items.

Procurement documents will state applicable requirements for technical performance, quality, acceptability, and documentation, as appropriate. Technical performance requirements may include:

- General requirements:
  - Scope of work,
  - Personnel qualifications, and
  - Necessary licenses or permits;
- Pertinent regulations and standards;
- Applicable EH&S requirements;

- Material composition and/or physical and chemical requirements:
  - Type,
  - Composition,
  - Grade,
  - Properties,
  - Size/volume,
  - Packaging,
  - Handling,
  - Shipping, and
  - Storage;
- Quantity required, milestones, holdpoints, and scheduling;
- Work procedures;
- Testing and calibration requirements:
  - Test/calibration method,
  - Frequency, and
  - Environmental conditions; and,
- Performance and acceptance criteria.

Technical requirements will either be directly included in the procurement documents or referenced to specific drawings, specifications, statements of work, procedures, or regulations (along with specific revision numbers and issue dates) that describe the items or services to be furnished.

### **7.3 Procurement Quality Assurance Documentation Revision**

Revision(s) to procurement documents which have been issued will be initiated using the same method as the original procurement and will be accomplished using the following considerations:

- Determination of any additional or modified design criteria;
- Appropriate requirements as identified in Section 7.2 are identified or modified; and,
- Analysis of exception(s) or changes(s) requested by the subcontractor or supplier and the effect the changes will have on the procurement activity.

### **7.4 Control of Purchased Items and Services**

In accordance with the requirements of the procurement documents, a field quality check will be performed prior to commencement of the subcontracted activities. The PQAS or technical personnel as assigned will perform the field quality check and document the results on the Receipt Inspection Report and document on the Field Activity Daily Log (FADL) that such report was

completed. The intention of this check is to determine that the subcontractor has fulfilled the procurement requirements necessary to begin their activities. The check will include the type, condition, and calibration of equipment, and that required training and qualification of personnel have been completed.

If deficiencies are noted during the performance of the field quality check, the subcontractor will be notified and corrective actions completed prior to their commencement of work.

When items are supplied which are considered quality-affecting, they will be subject to receipt inspection in accordance with procurement requirements by the CQC staff prior to release and use in the work.

## **7.5 Procurement Quality Assurance Source Evaluation and Selection**

Major subcontractors and suppliers of quality-related materials or services, including analytical laboratories, will be evaluated prior to use of their materials or services. The evaluation will include the following, as appropriate:

- **Historical Quality Performance Data.** The previous ability of a potential subcontractor to provide an item or service in a satisfactory manner will be evaluated. The experience of other purchases of similar items, or services provided by the prospective subcontractor, and any Contractor records of previous procurements can form the basis for the evaluation. The subcontractor's reputation and experience in the industry will also be considered.
- **Subcontractor Records.** A review of the subcontractor's current quality records will be evaluated.
- **Prequalification Determination.** A potential subcontractor's management capability, plant facilities, and technical or quality capabilities may be directly evaluated through a prequalification determination. Prequalification determinations will be implemented using a graded approach (i.e. acceptable, unacceptable) and will not normally be required for small or non-critical activities.

During the term of the purchase order, contract, and/or subcontract, the field activities of quality-affecting subcontractors or vendors will be monitored to verify the quality of the items and services being furnished. This will be accomplished through inspection and monitoring of field activities consistent with the extent of ongoing activities and the project schedule.

## 8. FIELD SAMPLING ACTIVITIES

This section describes the field operations associated with the environmental investigative activities to assure that sampling strategies are implemented consistent with the project planning documents, including, as applicable, the SAP. These activities may include site reconnaissance, surface and subsurface exploration, field surveys and testing, and collection of samples for subsequent analyses. The control of field activities will be primarily accomplished through the use of Standard Operating Procedures (SOPs), which describe proven data collection methods, and by using qualified personnel. Required revisions to this section necessary to meet the objectives of the field sampling will be presented in the task planning documents (Task Plans, Work Plans, SAPs, etc.) and approved by the PM and PQAM.

Before initiation of field activities the PM or PTL will review available maps, plans and drawings. The purpose of this review is to identify potential buried, surface or overhead hazards in the areas planned for investigation. Site access and security requirements will be obtained as required. A site walk will be conducted to evaluate site safety considerations (utility locations, H&S exclusion zones, etc.) and available access.

The primary objective of the sampling and monitoring programs developed for the Project will be to collect representative samples that will provide the analytical data necessary to evaluate the site conditions. This objective will be met by reducing the risk of all known potential sources of contamination or bias that may be introduced by the sampling equipment, ambient conditions, handling, and/or sample preservation techniques. The selection of sample locations during the routine operations will be strategically identified in order that samples collected will be representative of the matrix under consideration and meet the project and DQOs.

### 8.1 Quality Assurance/Quality Control Sample Types

To provide reliable field sampling procedures and materials, QA/QC samples will be collected or prepared for each media sampled, sample shipment, and each sampling event. These QA/QC samples, unless stipulated otherwise in the planning documents (Work Plans, SAPs, etc.) will include:

- Trip Blank—Samples consisting of two "clean" volatile organic analysis (VOA) vials filled with deionized/organic-free water and preserved. These vials are supplied by the laboratory to the field site and returned to the laboratory for storage and analysis along with the field samples, as may be required in the task planning documents. When required, trip blanks will be submitted to the contract laboratory for each shipment (cooler) of environmental samples for volatile organic compound (VOC) analyses. Trip blanks shall be analyzed for all VOC analyses specified for samples in the corresponding cooler, with the exception that if samples are to be analyzed for more than one VOC analysis,

the trip blank will be analyzed only by the method with the more comprehensive list of analytes. The trip blank data will demonstrate whether the samples were exposed to contamination during storage and transport to the laboratory. Trip blanks are submitted for VOC analysis, therefore the containers must contain no headspace. Trip blanks are typically required for VOC sampling of ground water, surface water and storm water.

- **Quality Control (QC) Samples (Field Duplicate, Matrix Spike and Matrix Spike Duplicate)**—Field Duplicate samples are blind duplicates that provide data to assess precision of the contract laboratory. Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples measure the accuracy and precision of the analytical methods. Field duplicates will be collected at a frequency of 10% of the field samples collected. Unless otherwise specified, MS/MSD samples will be collected and submitted to the laboratory at a frequency of 5% of field samples collected. Only samples submitted from the Project will be used for MS/MSD procedures. Trip blanks and rinseate samples will not knowingly be used for MS/MSD analyses. Therefore, one sample will be of sufficient quantity so that five tests may be performed. These include analysis of MS/MSD and if necessary, a reanalysis of MS/MSD. Quantity of the required QC samples will be identified within a table located in the task-specific SAP.
- **Quality Assurance (QA) Split Samples**—When primary samples are analyzed by a definitive and approved method, QA split samples will be collected at a frequency of 0-5% (depending on the type of project) of the total project samples. When primary samples are analyzed by a semi-quantitative or “screening” method, QA split samples will be collected at a frequency of at least 10% and will be analyzed by a definitive and approved method. All composite samples will be thoroughly mixed to homogenize the sample before removing the split sample. Samples collected for volatile analysis using 40 ml VOA vials will not be split, but an identical sample will be collected simultaneously from the same sample location as the first.
- **Rinseate Sample/Equipment Blank**—Samples consisting of reagent water collected from a final rinse of sampling equipment after the decontamination procedure has been performed. The purpose of rinseate samples is to determine whether the sampling equipment is causing cross contamination of samples. Following equipment decontamination, deionized/organic-free water will be used as a final rinse and collected in appropriate bottles. Rinseate samples will only be required if reusable sampling equipment is used.
- **Field Blank**—Samples consisting of source water used for decontamination of equipment. Field blanks will be collected at a frequency of one per source or lot of water being used for rinsing and submitted to the laboratory for all required analyses. Field blanks will only be performed for ground water sampling activities and will only be required if reusable sampling equipment is used.

## 8.2 Field Documentation

Field documentation will be complete, legible, scribed in ink and documented in enough detail that a qualified peer could reconstruct the work activity without the aide of the originator. Corrections to field documentation require a single line through the information to be corrected, the correction entered, and the initials and date of the originator of the correction included in the proximity of the correction. In no instance should the original entry be obliterated by scribble, white out, or other means intended to mask the original entry.

### 8.2.1 Sample Information Documentation

All information pertinent to the environmental samples, including specific field collection data, names of sampling personnel and laboratory observations will be recorded. Samples will be uniquely identified with numbers traceable to the sample source. Specific procedures for field documentation are included in Section 8.2 of this document, and in SOPs 1.1, 2.1, 17.1, and 17.2.

### 8.2.2 Preparation of Field Activity Log

Documentation of field events is typically completed on a FADL. The form is pre-printed to cue the user for the minimum information. Requisite information to be completed on this log includes serial and inclusive pagination, project number, activity title, personnel on site, originator's signature, changes to plans and any important phone calls. Specific data may be logged on other activity-specific forms and need not be copied on the FADL, but their use should be cross-referenced on the FADL.

### 8.2.3 Photographs

Photographs will be used to supplement written descriptions of field activities, such as sampling, if noted in the planning documents and SAP. Photographs will be documented to include the date of the photograph and subject.

## 8.3 Field Equipment, Containers, and Supplies

The task planning documents and SAP, if applicable, will contain a list of equipment and field supplies that are necessary to perform the task activities. This list may include, but is not limited to:

- Heavy equipment;
- Drilling equipment;
- Sampling equipment (e.g., split barrels, pumps, bailers);
- Sampling containers (e.g., brass sleeves, glass jars, polyethylene container);

- Decontamination supplies;
- Waste storage containers (e.g., Baker tanks, soil bins);
- Field screening equipment (e.g., photoionization detector, pH meters); and,
- Personal protective clothing.

The sampling equipment selected for use during a project will be constructed of materials that will not react with or contaminate the samples collected through its use. Unless otherwise specified, the sample containers used will be pre-cleaned according to EPA protocols. Where permitted and available, sampling equipment made of disposable materials may be used and discarded following use, if deemed cost-effective. This will minimize the decontamination of sampling equipment in the field as well as the number of equipment rinsewater samples necessary to verify cleanliness.

### *8.3.1 Sample Equipment Decontamination Procedures*

Decontamination of all sampling equipment used during a project will be performed before initial use and between each use at distinct sample locations. These procedures are necessary to prevent or minimize the cross contamination between sampling locations through the use of such sampling equipment. Sampling equipment decontamination procedures are described in SOP 6.1, Sampling Equipment and Well Material Decontamination.

## **8.4 Sampling Activities**

The methods and procedures to employ during task sampling activities will be developed by the PTLs or subcontractors for approval by the PM and the PQAM during the planning document preparation process. This document, SQPs, SOPs, HSPs and other relevant documents will be utilized to prepare for proposed sampling activities. Additional sampling activities covered by this document include waste management sampling and H&S sampling.

## **8.5 Sampling Handling Procedures**

Samples will be collected in accordance with approved plans and SOPs, which include qualitative and quantitative requirements for the specific collection methods to be utilized. These procedures will consider the mitigation of collection errors, which affect the representativeness of the sample and the established DQOs for the Project.

Samples will be collected in containers appropriately labeled to uniquely identify each sample. The sample label information will include sample type, date, time and sample number. Whenever possible labels will be placed on all sample containers prior to sample collection in accordance with SOP 17.1, Sample Labeling.

To uniquely identify and track each sample, a unique sample number will be affixed to the sample container in accordance with SOP 17.2, Sample Numbering. A duplicate sample number, identical to the sample number on the sample label, will be recorded in the field sample logbook along with all pertinent sample identification information.

Routinely, the selection of samples to be batched for extraction and the samples to be used for QC analysis purposes (i.e., matrix spikes and duplicates) in the laboratory will be designated by field personnel. This information will be communicated to the laboratory via the chain-of-custody (COC) form. However, the laboratory will be responsible for ensuring that QC analysis is performed for each batch of samples/extracts for each parameter.

### 8.5.1 Sample Preservation and Holding Times

Chemical preservatives will be used in samples where appropriate, and all samples will be placed on ice and cooled to approximately 4 degrees Celsius ( $^{\circ}\text{C}$ ) in ice chests for shipment. Upon receipt at the laboratory, the samples will be stored in controlled and locked refrigerators at  $4^{\circ}\text{C}$  until analyzed. The pH of acid or base preserved non-volatile aqueous samples and the temperature of the temperature blank will be checked upon sample delivery at the laboratory. VOA vials for sample analysis will not be opened until analysis begins. The laboratory will record the temperature and condition of the samples at the time of receipt on the COC form. For samples received with a nonconforming pH or with temperature outside the acceptable range ( $2^{\circ}\text{C}$  to  $8^{\circ}\text{C}$ ), the PTL and the PC will be notified of nonconformance discovery by the laboratory, and the PC will notify the PM. The PC and PM in concurrence with the DOE will decide on a project-specific basis whether the analysis should proceed, or if samples should be recollected and resubmitted for analysis. Regardless, laboratory personnel will adjust the sample to proper pH as soon as possible. Samples collected and delivered to a laboratory within four hours of collection will be exempted from the temperature requirement as long as the samples were handled in accordance with the specified procedures. Sample containers, preservatives and holding times of samples as noted in the task planning documents will be observed. Procedures on sample collection, preservation and holding time are provided in SOP 20.1.

### 8.5.2 Sample Collection Log

A sample collection log will be completed for each sample collected. Each sample collection log will contain, as appropriate, the following information:

- Project name and number;
- Date and time of the sampling event;
- Drilling and sampling methods;
- Sample number;
- Sample location;
- Boring number;

- Sample depth;
- Sample description;
- Unusual events; and,
- Signature or initials of the sampler.

The sample collection logs will be filed and maintained in the project files sequentially by field sample number by the sample coordinator. This documentation will provide an inventory of the samples collected and their sample locations during field activities and will allow monitoring of the timeliness and completeness of all sampling activities in the field. This documentation will also be used as an inventory checklist by which the shipment of all samples to the analytical laboratory may be verified.

### 8.5.3 *Sample Custody and Documentation Procedures*

An overriding consideration for data resulting from laboratory analyses is the ability to demonstrate that the samples were obtained from the locations stated and that they reached the laboratory without alteration. To ensure sample integrity, all sample containers and coolers will have custody seals in place. Evidence of collection, shipment, laboratory receipt and laboratory custody until disposal must be documented by use of a COC form. The COC form lists each sample and the individuals performing the sample collection, shipment and receipt. The COC will be implemented in accordance with SOP 1.1, Chain-of-Custody.

Upon sample receipt at the laboratory, the laboratory sample receipt custodian will inventory each shipment of samples before signing and dating the original COC form. The laboratory analytical coordinator will then make a note on the COC form of any discrepancy in the number of samples, temperature of samples or breakage of samples. The PTL and PC will be notified immediately of any problems identified with shipped samples. The PC will immediately notify the PM of any problems identified with shipped samples. The laboratory will initiate an internal COC form that will track procession of the sample within the various areas of the laboratory. Custody of the sample is transferred by the relinquishing signature of the sample custodian and the custody acceptance signature of the laboratory personnel. This procedure is followed each time the custody of a given sample changes hands. The laboratory will archive and maintain custody of the samples as required by the contract or until further notification from the PC, at which time the samples may be disposed. The completed original COC form will be supplied as part of the laboratory data report.

### 8.5.4 *Sample Shipping*

The handling and shipment of samples to the analytical laboratory will be performed according to the Department of Transportation (DOT) regulations and SOP 2.1, Sample Handling, Packaging and Shipping, so that damage, loss or unacceptable deterioration is prevented. The International Air Transportation Association (IATA) regulations will be adhered to when shipping samples using air courier services. Transportation methods will be selected to assure that the samples arrive at the laboratory in time to permit testing in accordance with established holding times

and project schedules. No samples will be accepted by the receiving laboratory without a properly prepared COC form and properly labeled and sealed shipping container(s). Packaging of sample containers will be based on the protection a sample will require during handling, shipping and storage. Protection will vary according to the sample type, sample media, and the amount of hazardous substances present, required testing, handling conditions, storage conditions and duration. It must also maintain the desired *in-situ* characteristics to the extent possible. Proper packaging will include consideration of:

- Type and composition of inner packing (e.g., plastic bags, metal cans, absorbent packing material and frozen gel for preservation);
- Type and composition of overpacks (e.g., metal or plastic ice chest, cardboard box, rock core box and undisturbed tube rack);
- Method of overpack sealing (e.g., custody tape);
- Marking and labeling of overpacks (e.g., laboratory address, any appropriate DOT Hazard Class Label(s) and handling instructions); and,
- Radioactive contamination survey of shipping containers for radiological samples.

## 9. ANALYTICAL ACTIVITIES

This section describes the specifications and controls that the laboratories are required to perform in support of the DOE-requested project tasks. Laboratory prequalifications are stipulated in the procurement requirements. The following sections are a description of analytical activities for the Project.

### 9.1 Laboratory Receipt and Entry of Samples

#### 9.1.1 Sample Custody and Control

The integrity and documentation of sample custody starts when cleaned sample containers are shipped to the field under custody. Samples shipped to laboratories from the field are received by the sample custodian. Upon receipt of samples in the laboratory, the integrity of the shipping container is checked by verifying that the custody seal is not broken. The internal cooler temperature will be measured by means of a temperature blank. Sample containers are inspected for breakage, leakage, damage and the contents of the shipping container are verified against the COC records. COC records are checked for accuracy and completeness, and receipt conditions will be documented on the COC. If the samples and documentation are acceptable, each sample container is assigned a unique laboratory identification number from the Laboratory Information Management Systems (LIMS) database. If the samples, documentation, or coolers are not acceptable, the Laboratory Project Manager (LPM) is informed verbally and with a completed laboratory NCR. The LPM will immediately notify the PC. The PC will immediately notify the PM and the PTL. After discrepancies have been resolved, a LIMS record is generated to document the following:

- Date of sample receipt;
- Sample accession number; and,
- Source of sample.

Each sample received will be assigned a unique laboratory sample accession number by the LIMS system at the time samples are logged in. One of the functions of the LIMS is to assist in tracking samples while they are in the custody of the laboratory. Other information recorded will include date and time of sampling, sample description, due dates and required analytical tests. Samples are batched in lots of 20 or less at the time of sample preparation or at the time of analysis if no preparation is required. When LIMS log-in has been completed, the samples are transferred to the appropriate refrigerators in the sample control area. In order to minimize the potential for cross-contamination of samples, separate refrigerators are used for samples suspected to contain high levels of organic compounds and for samples receiving analysis for volatile compounds. The sample refrigerators are kept at 2°C to 6°C and their temperatures are recorded with thermometers verified

against National Institute of Standards and Technology (NIST) thermometers. The refrigerators storing samples for volatile analysis are monitored for contamination with refrigerator blanks, which are analyzed weekly.

Samples are distributed to the laboratory from sample control by either a sample custodian or laboratory chemist. Internal chain of custody is initiated whenever a sample is removed from the sample control area. When samples are returned to the sample control refrigerators by laboratory personnel, internal chain of custody is completed.

## 9.2 Sample Storage

### 9.2.1 Pre-Analysis Storage

Personnel from the laboratory will receive and log in the samples. The samples are then placed into temporary storage until analyzed.

Samples are stored as prescribed in the approved Laboratory QA manual. Methods of storage are intended generally to:

- Retard biological action;
- Retard hydrolysis of chemical compounds and complexes;
- Reduce volatility of constituents; and,
- Reduce adsorption effects.

Preservation methods are generally limited to pH control, chemical addition, and refrigeration.

### 9.2.2 Post-Analysis Storage

Original water samples will be stored refrigerated at 2°C to 6°C for a minimum of two months after the final data are submitted. Original soil samples and all sample extracts/digestates will be stored at 2°C to 6°C for a minimum of six months after final data are submitted. Samples for metals analysis only and metals digestates may be stored at room temperature. Disposal of all samples and extracts/digestates will be in accordance with federal and state regulations.

## 9.3 Analytical Methods Requirements

The analytical methods requirements will be established prior to initiation of the task, as detailed in the task planning documents with approval required by the PM and PQAM. The planning documents will contain an overview of the preparation and instrumental procedures to be used for this task. Detailed descriptions of specific methods, with tables summarizing calibration procedures,

QC sample acceptance values and corrective action, and practical quantitation limits (PQL) will be contained in the planning documents.

#### 9.4 Quality Control Requirements

Relevant techniques associated with QC activities for individual protocols will be specified with the description of the particular work process. This may include project procedures, plans, and project-specific documents. In general, the QC requirements will be commensurate with the necessary level of rigor needed to provide the appropriate level of confidence in data quality.

#### 9.5 Laboratory Documentation

The laboratory shall have all SOPs formalized in writing and readily available for all staff. At a minimum, SOPs shall be written for the following areas to include all their associated procedures and methods:

- sample receipt/control,
- sample preparation/extraction,
- sample analysis,
- result calculation,
- database management,
- H&S and
- the QA/QC program.

In general, all steps of sample preparation/extraction, sample analysis, and result calculation shall be documented in laboratory notebooks. Alternatively, computer-generated forms may be used if each page contains the date printed and is sequentially numbered. Such forms shall be bound for long-term storage.

#### 9.6 Analytical Standards

The accuracy of sample target analyte quantitation is directly related to the accuracy of the standards used. To ensure the highest quality standard, primary reference standards used by the laboratory are obtained from the NIST, EPA Cooperative Research and Development Agreement vendors, or other reliable commercial sources. When standards are received at the laboratory, the date received, supplier, lot number, purity and concentration, and expiration date are recorded in a standards log book. Vendor certifications sent with the standards are also filed.

## 9.7 Laboratory Data Reduction/Verification/Reporting and Records Management

This section describes the approach to be used to reduce, verify, report and manage collected data. Accurate data reduction, validation and reporting protocol are necessary to interpret data and arrive at decisions. Standard methods are described in this section.

### 9.7.1 Data Reduction

The data reduction procedures given in the standard SW-846, ASTM, and other specified methods referenced in this plan will be followed where applicable. These procedures specify the methods used to obtain and reduce analytical data including calculations of method internal standard recoveries, surrogate recoveries, response factors, peak identification, calibration curves and sample results. If a deviation from these referenced methods is made, the laboratory will be required to document this change in the project case narrative section of the data package.

### 9.7.2 Data Verification

The verification of the project analytical data will be an ongoing process that will be performed by both the analytical laboratory generating the data and the PC. The initial step of the data verification process will be performed by the analytical laboratory. During this review, the calculations, QC sample data, spike recovery, instrument performance indicators and project specification will be thoroughly inspected through peer level review prior to its release to the LPM. Any problems or nonconformance issues encountered during the analysis will be noted in the project case narrative that precedes each data package. Where unexplainable variations appear, calculations will again be checked for errors and the sample collection and analytical procedures reviewed to identify any causes for the inconsistencies. All calculation errors will be corrected and anomalies in the sampling or analytical procedures documented and reported in the project analytical data package. The raw data are then QC reviewed for technical correctness by the LPM before final printing. After the data package has been completed, the transcription of the data is verified by the laboratory QA/QC Manager. The laboratory QA/QC Manager will also review the data for conformance to the project DQOs. The PC will be notified of any existing problems and will be updated as conditions dictate. The PC will immediately notify the PTL and the PM concerning problems and problem updates.

All data collected during the Project will be reviewed and flagged with the appropriate data qualifiers before reported. Detection limits will vary with sample type and the level of interferences associated with the sample matrix. If anomalous results are obtained, every effort will be made to identify any problems in the sample collection, sample preparation and/or analysis that could have contributed to the anomaly. If any problems have occurred, they will be reported and will include the results, and the appropriate qualifier, with an estimate of the impact the problem may have had on the data. If the sample results do not conform with the DQOs, the data will be thoroughly reviewed in order to identify any existing problems and the sample analysis will be repeated if deemed necessary.

Following the analytical laboratory data review, the sample data will be submitted to the PC, or his/her designee, who will ensure that review and comparison of all data with the project data requirements is conducted by qualified personnel.

### 9.7.3 Data Reporting

This section provides a detail of the requirements for each type of data reporting format, which may be provided by the laboratory. The type of report will be determined on a project-specific basis.

#### 9.7.3.1 Comprehensive Certificates of Analysis

The certificate of analysis will contain analytical results and basic QC information including MS/MSD, LCS, method blank results, and chain-of-custody and cooler receipt forms. Task-specific SAPs or procurement documents may include turnaround times for tasks, as appropriate.

#### 9.7.3.2 Format for Comprehensive Certificates of Analysis

Each comprehensive certificate of analysis will contain the following items:

- Original copies of cooler receipt forms documenting sample conditions upon arrival at the laboratory and COC forms for the samples included in the certificate;
- Results for each sample and analytical method as a detected concentration or as less than the PQL for each analyte with appropriate data qualifiers. All samples with out of control spike recoveries being attributed to matrix interference will be designated as such. Soil sample results will be reported on a dry weight basis with the percent moisture reported for each sample. Dilution factors and rationale for dilution, date of extraction, date of analysis, and analytical method will be reported for each analyte;
- Method blank results for all analytes and each analytical method whenever method detection limit (MDL) studies are updated but on no less than an annual basis. Sample results must be associated with a particular method blank. Any concentration above the MDL detected in the method blank should be reported;
- Surrogate spike recoveries and control limits for all applicable methods (organic analyses), with any out-of-control recoveries flagged;
- MS/MSD results for all analyses, with recoveries, relative percent differences (RPD), and control limits for each spiked analyte. Sample results must be associated with a particular project-specific MS/MSD set. If a MS/MSD set is reanalyzed because of out of control results and the reanalysis is also out of control, both results will be reported and the data flagged;
- Laboratory duplicate results with RPD and control limits for each analyte;
- Laboratory control samples (LCS) results with control limits. Sample results must be associated with a particular LCS;

- Initial and continuing calibration summaries and injection logs;
- A summary of all surrogate recoveries for organic analyses for each applicable method with the acceptable recovery range clearly indicated. This summary shall be performed for all samples for each analytical method involving surrogate spikes;
- A summary of all MS/MSD analyses for each applicable method indicating acceptable recovery ranges and QC acceptance criteria for RPD;
- A summary of all laboratory duplicates with QC acceptance criteria for RPD clearly indicated;
- A narrative section identifying all out of control conditions, corrective actions taken, and affected samples. A detailed discussion of all relevant quality control data will be included for out of control recoveries attributed to matrix effects; and,
- All data for analyses during the period covered by the comprehensive certificate of analysis shall be included as an appendix to the comprehensive report. This data shall be presented on numbered pages with an index or table of contents describing the contents of the appendix.

#### 9.7.4 Raw Data Packages

##### 9.7.4.1 Frequency and Timing of Submittals

Raw data packages will be sent to the DOE as prescribed in the procurement documents and/or Work Plans for the task or activity.

##### 9.7.4.2 Organic and Inorganic Analyses

The raw data package for organic/inorganic analyses will consist of a case narrative, chain-of-custody documentation, summary of results for environmental samples, summary of QA/QC results, and the raw data. Detailed descriptions of the requirements for each component of an organics/inorganics raw data package are provided in the following sections.

###### 9.7.4.2.1 Case Narrative

A case narrative will be written on laboratory letterhead and the release of data will be authorized by the LPM or his/her designee. The case narrative is to include the following items:

- the field sample identification (ID) with the corresponding laboratory ID,
- parameters analyzed for in each sample and the methodology used (EPA method numbers or other citation),
- a statement on the status of samples analyzed with respect to holding times (met or exceeded),
- a detailed description of all problems encountered,

- a discussion of possible reasons for out of control QA/QC criteria, and
- observations regarding any occurrences which may effect sample integrity or data quality.

#### 9.7.4.2.2 *Chain-of-Custody Documentation*

Legible copies of COC forms for each sample will be maintained in the data package. Cooler log-in sheets will be associated with the corresponding COC form. Any internal laboratory tracking document will be included.

#### 9.7.4.2.3 *Summary of Environmental Results*

For each environmental sample analysis, this summary will include the following items:

- field ID and corresponding laboratory ID,
- sample matrix,
- date of sample preparation (if applicable),
- date and time of analysis,
- identification of the instrument used for analysis,
- instrument specifications,
- GC column and detector specifications (if applicable),
- weight or volume of sample used for analysis/preparation,
- dilution or concentration factor used for sample preparation,
- percentage of moisture in the sample,
- MDL or sample quantitation limit,
- definitions of any data qualifiers used, and
- analytical results.

#### 9.7.4.3 **Summary of Quality Assurance/Quality Control Results**

The following QA/QC results will be presented in summary form. Details specified in Subsection 9.7.4.2.3, Summary of Environmental Results, will be included in the summary of QA/QC results. Acceptance limits for all categories of QC criteria will be provided with the data. All summaries will be presented on standard forms.

##### 9.7.4.3.1 *Instrument Calibration*

The order of reporting of calibrations for each analyte must follow the temporal order in which standards were analyzed.

#### 9.7.4.3.2 Initial Calibration

The source of calibration standards true values and found values of concentrations and percent recovery (%R) will be noted. In addition, the concentrations of the standards used for analysis and the date and time of analysis, the response factor, percent relative standard deviation (%RSD), and retention time for each analyte (as applicable, GC and gas chromatography/mass spectrometry [GC/MS] analyses) will be included in initial calibration summaries. Calibration curves will be acceptable documentation of satisfactory calibration. A statement should also be made regarding the samples or dates for which a single initial calibration applies. Initial calibration summaries will be submitted that may include %RSDs, calibration curves, or response factors, as appropriate.

#### 9.7.4.3.3 Continuing Calibration

The concentration and source of the calibration standard used for calibration and/or mid-level calibration check will be reported. The response factor, percent difference, and retention time for each analyte shall be reported (GC and GC/MS) as well as %R for each element analyzed. Calibration information will be linked to sample analyses by summary or by daily injection or analysis logs. Calibration curves will be acceptable documentation of satisfactory calibration.

#### 9.7.4.3.4 Method Blank Analyses

The concentrations of any analytes found in method blanks will be reported. The environmental samples and QA/QC analyses associated with each method blank will be stated. The date and time will also be reported.

#### 9.7.4.3.5 Interference Check Sample

The concentration and source of the interference check sample will be reported, as well as the %R for each element analyzed, and the date and time of analysis.

#### 9.7.4.3.6 Surrogate Standard Recovery

The name and concentration of each surrogate compound added will be detailed. The %R of each surrogate compound in the samples, method blanks, MS/MSD and other QA/QC analyses will be summarized with sample IDs such that the information can be linked to sample and QA/QC analyses.

#### 9.7.4.3.7 Precision and Accuracy

For MS/MSD analyses, the sample results, spiked sample results, %R and RPD with the associated control limits will be detailed. For laboratory duplicates, the original concentrations, RPD, and acceptable control limits for each analyte will be reported. All batch QC information shall be linked to the corresponding sample groups. For post digestion spikes, the concentration of the spiked sample, the sample results, the spiking solution added, %R and control limits will be detailed. Date and time for all analyses will be recorded.

#### *9.7.4.3.8 Retention Time Windows (GC, GC/MS)*

The retention time window for each analyte for both primary and confirmation analyses will be reported. Retention time windows will be updated per EPA SW-846, Update 1.

#### *9.7.4.3.9 Compound Identification (GC, GC/MS)*

The retention times and the concentrations for each analyte detected in environmental and QA/QC samples will be reported for both primary and confirmation analyses.

#### *9.7.4.3.10 Method Detection Limits*

Results of the most current MDL study will be provided in the raw data package. When MDL studies are updated a copy should be provided on no less than an annual basis.

#### *9.7.4.3.11 Injection Record*

Injection logs for all instruments used for analysis of project samples will be provided, indicating the date and time of analysis of project samples and the associated laboratory QA/QC samples (initial calibration, continuing calibration check, method blank, matrix spikes, etc.).

#### *9.7.4.3.12 Method of Standard Additions*

This summary will be included when Method of Standard Additions (MSA) analyses are required. The absorbance values and the corresponding concentration values, the final analyte concentrations, and correlation coefficients will be reported for all analyses. Date and time of analysis will be recorded for all analyses.

#### *9.7.4.3.13 Inductively Coupled Plasma Serial Dilution*

The initial and serial dilution results with percent difference will be reported.

#### *9.7.4.3.14 Inductively Coupled Plasma Linear Ranges*

For each instrument and wavelength used, the date on which the linear range was established, the integration time and the upper limit concentration will be reported.

#### *9.7.4.3.15 Inductively Coupled Plasma Inter-element Correction Factors*

For each instrument and wavelength used, the date on which correction factors were determined shall be detailed. Specific correction factors for Aluminum, Calcium, Iron, Magnesium and any other element and the analytes to which they are applied shall be detailed.

#### *9.7.4.3.16 Instrument Detection Limits*

Results of the most current instrument detection limit study shall be provided in the raw data package.

#### *9.7.4.3.17 Analysis Record*

Analysis logs for all instruments used for analysis of project samples shall be provided, indicating the date and time of analysis of project samples and the associated laboratory QA/QC samples (initial calibration, continuing calibration check, method blank, matrix spikes, etc.).

#### **9.7.4.4 Raw Data**

Raw data will be organized systematically on numbered pages. The data package will include legible copies of the raw data for environmental samples, instrument calibrations, QA/QC analyses, sample extraction and cleanup logs, and instrument analysis logs for each instrument used. Instrument analysis logs will be provided for all days on which analysis was performed. Measurement printouts and quantitation reports for each instrument used will also be submitted. Records of absorbance, titrimetric or other measurements for wet chemical analysis will be recorded. All raw data will be presented on standard forms and accompanied by the instrument output.

##### *9.7.4.4.1 Gas Chromatography Analyses*

This section of the data package shall include legible copies of the raw data for environmental samples (arranged in increasing order of field ID, primary and confirmation analyses), instrument calibrations, QA/QC analyses, sample extraction and cleanup logs, instrument analysis logs (injection record) for each instrument used, and GC/MS confirmation if applicable. The raw data for each analysis shall include chromatograms (preferably with target compound, internal standard, and surrogate compounds labeled by name) with a quantitation report and/or area print out.

##### *9.7.4.4.2 Gas Chromatography/Mass Spectrometry Analyses*

This section of the data package shall include legible copies of the raw data for environmental samples (arranged in increasing order of field ID), spectrometer tuning and mass calibration reports, initial and continuing instrument calibrations, QC analyses, sample extraction logs and instrument analysis logs (injection record) for each instrument used. The raw data for each analysis shall include chromatograms (preferably with target compound, internal standard and surrogate compounds labeled by name) and enhanced spectra of target compounds and/or tentatively identified compounds with the associated best matched spectra. Quantitation reports for all analyses shall be included in the data package.

#### *9.7.5 Laboratory Records Management*

##### **9.7.5.1 Calculations**

Data reduction calculations used for this project are typically included on the standard reporting forms developed by the laboratories and associated with each individual method or groups of methods. Calculations not present on standard reporting forms include computer-based data reduction programs. The laboratory is responsible for maintaining a list of these data reduction programs and for being able to demonstrate their validity. The complete calculation procedures used in computer-based data reduction programs (e.g., GC/MS and GC analyses) are based on the calculation procedures specified in each method.

Some instruments are configured to operate independently, without computer download of data. For these, the signal is recorded as a strip chart trace, numerical output on a printer strip, or direct reading from a digital or analog dial. In such cases, additional work is required by the analyst to reduce the data to a reportable format. The original signal must be multiplied by a calibration factor or compared with a standard curve. The aliquot result must be divided by the mass or volume of sample to produce a concentration-based final result. Most calculations are carried out on hand-held scientific calculators; simple programs (e.g., spreadsheets) are used for some. All of these data are recorded in a dedicated laboratory notebook or bench sheet for the particular determination. Results for single or multiple component tests are hand entered by the analyst in the assigned book.

Some laboratory tests, such as titrations or sensory evaluations, do not have instrument raw data. For these, the quantitative result or observation is recorded directly in a bound laboratory notebook or bench sheet by the assigned analyst. Calculations like those described above may be needed; these are recorded in the same laboratory notebook.

#### **9.7.5.2 Data Integrity and Treatment of Outliers**

All QC information will be recorded in the laboratory notebooks and printouts in the same format used for sample results. It is the analyst's responsibility to check the QC information against limits for the analysis. When an analysis of a QC sample (blank, spike, check standard, replicate, or similar sample) shows that the analysis of that batch of samples is not in control, the analyst will immediately bring the matter to the attention of the group leader. The group leader will, if necessary, consult with the laboratory QA/QC manager and/or the LPM to determine whether the analysis can proceed, if selected samples should be rerun, or specific corrective action needs to be taken before analyzing additional samples. Out-of-control analyses must be documented. The analyst or group leader will file a NCR with the laboratory QA/QC manager for laboratory analysis out-of-control events that require documentation. As appropriate, the TQCP or SAP will identify potential matrix interferences for laboratory analyses attributed to site characteristics. The associated methods for compensating for expected or unexpected interferences will be identified.

#### **9.7.5.3 Data Management**

The management of data takes place at varied levels within the full range of environmental services encompassing the scope of work associated with the Contract. Program procedures, plans and project-specific documents provide specific details of the individual positions responsible for data management, activities involved with data management and minimum requisite credentials associated with these tasks. In general, the qualifications of individuals associated with data management activities will be commensurate with level of expertise necessary to ensure the intended level of evaluation.

#### **9.7.5.4 Data Archive**

Records management, including data archive, is specified in Section 4 of this document. Industry-standard hardware and software may be used for the development, processing, retrieval and reporting of data stored on magnetic media. Contract laboratories shall maintain all data records associated with a project for a minimum of five years following submission of the certificates of analysis (laboratory reports). Contract laboratories shall also provide GC and GC/MS data on magnetic tapes upon request from the PQAM. As necessary, specific controls will be detailed in

project-specific documents that require archiving protocols beyond that as specified in Section 4 of this document.

#### 9.7.6 Data Validation

Independent of the laboratory review, full data validation will be performed on 10% of the investigation and confirmation samples using the guidance of the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (U.S. EPA, 1999) and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (U.S. EPA, 1988). Analytical results will be qualified as a result of the data validation process in accordance with the flagging convention included in Table 9-1.

#### 9.7.7 Data Review

The following reviews will be performed for all analytical sample data using the guidance of the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (U.S. EPA, 1999) and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (U.S. EPA, 1988).

- The organic data will be reviewed for holding times, blank analysis results, GC/MS tuning, calibrations, internal standard areas, LCS, MS/MSD and surrogate recovery; and,
- The inorganic data will be reviewed for holding times, blank analysis results, matrix spikes, sample duplicate, LCS, instrument initial and continuing calibration.

Analytical results will be qualified as a result of the data validation process in accordance with the flagging conventions listed in Table 9-1.

#### 9.7.8 Data Validation Report

The data validation report consists of three sections. The following describe each section.

##### 9.7.8.1 Data Validation Summary Report

The summary report is designed for data received from the laboratory. The report includes the analytical criteria that are reviewed for each analytical test method. The organic data are reviewed for holding times, calibrations, blanks (i.e., laboratory blanks and field blanks), surrogates, matrix spike, matrix spike duplicates, internal standards and laboratory control samples.

The inorganic data are reviewed for holding times, blanks, calibrations, matrix spike, matrix spike duplicate or laboratory duplicate, ICP interference check, ICP serial dilution, and laboratory control samples. Field duplicate samples are reviewed if the field duplicate samples are identified for the project samples. Any major or minor deficiencies noted during the data validation process is

noted in each category. If the data are required to be qualified due to any outlier in QC criteria, an explanation on how data are qualified is given in each category. The last part of the summary report includes the definitions of the data validation qualifiers that are assigned to the analytical data.

#### **9.7.8.2 Result Data Sheets**

In this section, a copy of all result data sheets for each sample and analytical test method is included. The validation qualifiers are recorded on the data sheet with a specific reason code.

#### **9.7.8.3 Reason Code List**

The reason code list includes a code number for each reason the analytical data are qualified.

### *9.7.9 Validation and Verification Methods*

The validation and verification of data takes place at varied levels within the full range of environmental services encompassing the scope of work associated with the contract. Program procedures, plans and project-specific documents provide specific details of the individual positions responsible for verification and validation activities involved with data management. In general, quality affecting records are reviewed at a level commensurate with the information being checked. Section 8 of this document provides a discussion of the requirements for field activities, to include completion of the chain of custody record, field documentation requirements, changes and corrections to field documentation. The verification of logs (e.g., subsurface logs) and tables is described in Section 10.8 of this document.

The laboratory system for ensuring valid data includes several levels of review. Each level commands specific action to prevent the unqualified release of erroneous data and to correct any problems discovered during the review process. All analytical data generated at the laboratory are extensively checked for accuracy and completeness. The data validation process consists of data generation, reduction and three levels of review, as described below.

The analyst who generates the analytical data has the prime responsibility for the correctness and completeness of the data. All data are generated and reduced following protocols specified in laboratory SOPs. Each analyst reviews the quality of his or her work based on an established set of guidelines. The analyst reviews the data package to ensure that:

- Sample preparation and analysis information is correct and complete;
- The appropriate SOPs have been followed;
- Analytical results are correct and complete;
- QC samples are within established control limits; blanks are acceptable;
- Special sample preparation and analytical requirements have been met; and,
- Documentation is complete (e.g., all anomalies in the preparation and analysis have been documented; out of control forms, if required, are complete; holding times are documented, etc.).

This initial review step, performed by the analyst is designated Level 1 review. The analyst then passes the data package to an independent reviewer who performs a Level 2 review.

Level 2 review is performed by a group leader or data review specialist whose function is to provide an independent review of the data package. This review is structured to assure that:

- Calibration data are scientifically sound, appropriate to the method, and completely documented;
- QC samples are within established guidelines;
- Qualitative identification of sample components is correct;
- Quantitative results are correct;
- Documentation is complete and correct (e.g., anomalies in the preparation and analysis have been documented; out-of-control forms, if required, are complete; holding times are documented, etc.);
- The data are ready for incorporation into the final report; and,
- The data package is complete and ready for data archive.

Before the report is released to the DOE, the LPM reviews the report and chain of custody to ensure that the data meets the overall objectives of the Project. This review is labeled Level 3 review. The supporting documentation includes, at a minimum:

- Laboratory name and address;
- Sample information (including unique sample identification, sample collection date and time, date of sample receipt and date(s) of sample preparation and analysis);
- Analytical results reported with an appropriate number of significant figures;
- Reporting limits reflecting dilutions, interferences and correction for dry weight as applicable;
- Method references;
- Appropriate QC results (correlation with sample batch traceability and documentation); and,
- Data qualifiers with appropriate references and narrative on the quality of results.

Each step of this review process involves evaluation of data quality based on both the results of the QC data and the professional judgment of those conducting the review. This application of technical knowledge and experience to the evaluation of the data is essential in ensuring that data are consistently of high quality.

#### **9.7.9.1 Procedures for Handling Unacceptable Data**

It is the analyst's responsibility to check the QC information against the project-specific limits for the analysis. When an analysis of a QC sample (blank, spike, check standard, replicate, or

similar sample) shows that the analysis of that batch of samples is not in control, the analyst will immediately bring the matter to the attention of the group leader. The group leader will, if necessary, consult with the Laboratory QA/QC Manager and/or the LPM to determine whether the analysis can proceed, if selected samples should be rerun, or specific corrective action needs to be taken before analyzing additional samples. Out-of-control analyses must be documented. The analyst or group leader will file an "Anomaly Report" with the Laboratory QA/QC Manager for laboratory analysis out-of-control events that require documentation. The PC or his/her designee will be notified as soon as feasibly possible of any out-of-control events resulting in unacceptable data.

## 9.8 Reconciliation with Data Quality Objectives

The laboratory QA/QC Manager is responsible for review of the data before the report is released to the DOE for conformance to the project DQOs. The PTL and PC will be notified of any existing problems and will be updated as conditions dictate. The PC will immediately notify the PQAM and PM of any problems or problem updates.

All data collected during this project will be reviewed and flagged with the appropriate data qualifiers before being reported. In instances where the compound/analyte concentration in the analyzed sample is below the limit of quantitation, a "less than" value will be reported for the sample. Quantitation limits will vary with sample type and the level of interferences associated with the sample matrix. If anomalous results are obtained, efforts will be made to identify any problems in the sample collection, sample preparation and/or analysis that could have contributed to the anomaly. If any problems have occurred, they will be reported to the PC and will include the results with an estimate of the impact the problem may have on the data. If the sample results do not conform with the DQOs, the data will be thoroughly reviewed in order to identify any existing problems, and the sample analysis will be repeated if deemed necessary.

Following the analytical laboratory data review, the sample data will be submitted to the PC who will ensure that review and comparison of all data with the project data requirements is conducted by qualified personnel.

## 9.9 Analytical/Statistical Control Parameters

To assure that data obtained is sufficiently accurate and consistent with the DQOs, the following procedures will be used for assessing the quality of the measurement data:

- Accuracy and precision is the agreement between a measurement and the true value, and the degree of variability in the agreement, respectively. To determine the precision of the method and/or laboratory analyst, a routine program of replicate analyses is performed. The results of the replicate analyses are used to calculate the RPD, which is the governing QC parameter for precision.
- To determine the accuracy of an analytical method and/or the laboratory analyst, a periodic program of sample spiking, using a clean laboratory control matrix, is

conducted. The results of sample spiking are used to calculate the QC parameter for accuracy evaluation, the %R.

$$\%R = \frac{|S_1 - S_2|}{T_1} \times 100\%$$

where:

$S_1$  = Observed spiked sample concentration

$S_2$  = Sample concentration

$T_1$  = True concentration of the spike.

- Accuracy and precision of data collected in the investigation will depend on the measurement standards used and their meticulous, competent use by qualified personnel.
- Completeness is the adequacy in quantity of valid measurements to prevent misinterpretation and to answer important questions. For this project, the data completeness objective is 90%.
- Representativeness is the extent to which discrete measurements accurately describe the greater picture they are intended to represent. For this project, good representativeness will be achieved through careful, informed selection of sampling sites, drilling sites, drilling depths, and analytical parameters; and through the proper collection and handling of samples to avoid interferences and to minimize contamination and loss.
- Comparability is the extent to which comparisons among different measurements of the same quantity or quality will yield valid conclusions. For this project, comparability among measurements will be achieved through the use of standard procedures, standard field data sheets and uniform concentration units.
- Quantitation limits are the extent to which the equipment, laboratory or field, or analytical process can provide accurate, minimum data measurements of a reliable quality for specific constituents in replicate field samples. It is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the value is above zero. The actual quantitation limit for a given analysis will vary depending on instrument sensitivity and matrix effects.
- The QA objectives for laboratory QC data are designed to screen out data of unacceptable precision or accuracy and to provide data that will meet the data quality goals for this project.
- Traceability is the extent to which data can be substantiated by hard-copy documentation. Traceability documentation exists in two essential forms: one that links quantitation to authoritative standards and a second that explicitly describes the history of each sample from collection to analysis.

The fundamental mechanisms that will be employed to achieve these quality goals can be categorized as prevention, assessment and correction. These include:

- Prevention of defects in the quality through planning and design, documented instructions and procedures, and careful selection of skilled, qualified personnel;
- Quality assessment through a program of regular audits and inspections to supplement continual informal review; and,
- Permanent correction of conditions adverse to quality through a closed-loop corrective action system.

## 9.10 Surveillance, Audits, and Corrective Actions

Laboratories performing under this program may be required to have a prequalification (or periodic) systems audit performed depending on the scope of services to be provided, past performance, or other factors indicating a need to evaluate quality in this manner. Subsequently, the laboratories will respond to and address any project or technical concerns resulting from the audits. A follow-up audit may be performed to verify resolution of findings and observations as well as review the corrective measures taken. Laboratories found deficient will not be used on a project until the deficiencies are corrected and the laboratory accepted. Laboratories previously qualified for the types of testing to be performed on the Project will not require prequalification provided that prequalification has been within the past year and the work performed has been acceptable.

Implementation of effective audit and corrective action procedures will assure that the Project is being performed with good quality objectives. Audits will minimize problems that may result from improper laboratory equipment or procedures that do not follow the contract specifications. Corrective action will address nonconformances that occur and determine the root cause of the violation so that it does not occur again. Laboratories shall provide copies of audit reports, including audit activities, findings and corrective actions to the PQAM upon request.

### 9.10.1 Performance Evaluation Samples

Laboratory performance audits will consist primarily of blind performance evaluation (PE) samples submitted to the laboratory. Contract laboratories will routinely analyze both single-blind and double-blind PE samples for the DOE projects, on a quarterly or semi-annual basis. Data from the blind PE sample will be reviewed and maintained in laboratory files. These data will be made available to EPA Region 9 upon request.

### 9.10.2 Corrective Actions

The need for corrective action occurs when a circumstance arises that has a negative impact on the quality of the analytical data generated during sample analysis. For corrective action to be initiated, awareness of a problem must exist. In most instances, the individual performing laboratory analyses are in the best position to recognize problems that will affect data quality. Keen awareness

on their part can frequently detect minor instrument changes, drifts or malfunctions, which can then be corrected, thus preventing a major breakdown in the QC system in place. If major problems arise, they are in the best position to recommend the proper corrective action and initiate it immediately, thus minimizing data loss. Therefore, the laboratory personnel will have a prime responsibility for recognizing a nonconformance and the need for documenting the corrective action. Each nonconformance shall be documented by the personnel identifying or originating it. Documentation in these NCRs shall include:

- Identification of the individual(s) identifying or originating the nonconformance;
- Description of the nonconformance;
- Any required approval signatures;
- Method(s) for correcting the nonconformance (corrective action) or description of the variance granted; and,
- Schedule for completing corrective action.

All project samples affected will be listed on the NCR. When a corrective action is taken by any of the operations or analytical laboratory personnel, they will be responsible for notifying the LPM. The LPM will contact the PC for resolution. Copies of NCRs will be provided to the PC.

Ultimately, the personnel performing and checking the sampling and analysis procedures and results must participate in decisions to take corrective actions. To reach the proper decision, each individual must understand the program and project-specific analytical objectives and data quality required to meet these objectives. If a situation arises requiring corrective action, the following closed-loop corrective action system will be used:

1. Define the problem;
2. Assign responsibility for investigating the problem;
3. Investigate and determine the cause of the problem;
4. Determine corrective action course to eliminate the problem;
5. Assign responsibility for implementing the corrective action;
6. Determine the effectiveness of the corrective action and implement the correction;
7. Verify that the corrective action has eliminated the problem; and,
8. If not completely successful, return to Step 1.

Table 9-1. Data Validation Qualifier Flagging Conventions

Flag	Description
U	The analyte was analyzed for, but not detected above the reporting sample quantification limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected above the reported sample quantification limit. However, the reported quantification limit is approximate and may or may not represent the actual limit of quantification necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
c	Calibration failure; poor or unstable response.
d	Matrix duplicate imprecision or MS/MSD imprecision.
f	Field replicate or duplicate imprecision.
h	Holding time violation.
i	Internal standard failure.
l	Laboratory control sample recovery failure.
m	Matrix spike/matrix spike duplicate recovery failure.
n	Interference check sample recovery failure.
q	Below CRQL/CRDL or above calibration range.
s	Surrogate spike recovery failure (GC organics and GC/MS organics only).
v	Detected concentrations >25% difference between 2 GC columns (pesticides).
z	Method blank contamination.

## 10. DESIGN CONTROL

This section describes the controls to be implemented during design activities and applies to each stage of development from conceptual design to final design. The term "design" used throughout this section refers to specifications, drawings, design criteria and component performance requirements for items and engineered environmental systems, which are used in the performance of remedial actions.

### 10.1 General

Remedial design activities will be defined, controlled and verified to provide confidence that design processes are carried out on a timely basis and that design input information is correctly translated into final design documents. These activities include:

- Providing that design objectives are specified and technical inputs are obtained on a timely basis;
- Assuring that design inputs are correctly translated into design output documents;
- Identifying and controlling internal and external design interfaces;
- Performing design verifications of design output documents by persons other than those who designed the item to provide independent verification that they satisfy the design objectives and are technically correct; and,
- Assuring that design changes, including field changes, are governed by controls that are commensurate with those applied to the original design.

Design analysis includes the initial step of data reduction as well as broad level systems analyses (such as performance assessments), which integrate design inputs and analyses of individual parameters.

### 10.2 Design Inputs

Design inputs will be collected during the sampling strategies development phase through data collection and reduction activities. The PTL will ensure that approved design inputs, such as design bases, quality requirements, performance requirements and regulatory requirements are properly documented and communicated to participating design organizations.

Documents which include design inputs will be reviewed, approved and controlled in accordance with procedures which provide sufficient controls to assure that current information is updated and used in design analysis activities. Independent technical reviews of design inputs will be performed prior to authorizing the input to be used in design activities.

Prior to initiating preliminary design the following will be determined and documented, as applicable:

- Overall design objectives;
- The goals of structures, systems, components or facilities; and,
- The range of operating conditions.

### 10.3 Design Analyses

Design analysis includes the initial step of data reduction as well as broad level system analyses (such as, performance assessments), which integrate design inputs and analysis of individual parameters. The PTL will see that personnel/organizations selected to perform design activities have been issued the current design input information necessary for the design to proceed in a planned, controlled and documented manner. Additionally, design organization(s) assisting in design activities will implement the requirements established within this section including the Contractor-approved procedures.

Design analysis documentation will be prepared in sufficient detail regarding that a person technically qualified in the subject can review and understand the analysis, and verify the adequacy of the results without recourse to the originator. Documentation of design analysis will include, as appropriate:

- Definition of the objective(s) of the analyses;
- Definition of design inputs and their references;
- Results of literature searches or other background data;
- Identification of assumptions and indication of those that must be verified as the design proceeds;
- Identification of computer calculation, including computer type, computer code (e.g., name), revision identification, inputs, outputs, evidence of or reference to computer code verification and the bases (or reference thereto) supporting application of the computer code to the specific physical problem; and,
- Review and approval by the PTL.

#### 10.3.1 Design Calculations

Design analysis activities include numerical tasks which may involve the processing of acquired data, the evaluation of anticipated or actual performance and the prediction of future

behavior. These activities are performed using calculations which may range from simple hand calculations to complex computer studies. Design calculations and revisions will be documented and the resulting documentation formally checked prior to utilizing the result in design activities as a design input. Preliminary results of calculations may be used in design activities, however they must be identified as assumed values. These assumed values must be tracked through the system so that finalized calculations are used once available.

#### 10.3.1.1 Calculation Content and Documentation

- Calculations will be identified by project number, and will be issued under the cover of a calculation lead sheet. Each calculation lead sheet will indicate the title, number of sheets, the originator, date, the checker and the date that the checking was completed.
- Design input data will be clearly identified including appropriate sources and criteria. Project related documents such as drawings, design criteria and other calculations will include official titles, identifiers and revision indicators used on those project documents for cross-reference.
- Applicable codes and standards should be identified by title including date of issue and revision or addenda number.
- Formulae and procedures will be identified by source (textbook, etc.) or logically derived.
- Assumptions made as part of the input conditions or as intermediate steps in the calculations will be clearly labeled as such. A brief statement on the rationale for the assumption should also be included.
- Intermediate and final results will be identified by drawing a box around the results or by other suitable methods, which will clearly identify the results.
- Content requirements above determined to be Not Applicable, will be identified as N/A and the responsible Technical Lead will justify the N/A by providing a rationale of why the area is not applicable.

#### 10.3.1.2 Signature Requirements

The cover sheet for each individual calculation will identify the originator. Prior to issue or incorporation into a design document, the calculation will be checked and approved by the PTL. The checker will initial and date the cover sheet of the calculation and each subsequent continuation page. The PTL will sign and date the cover sheet as the approval authority.

### 10.4 Computer Codes

Computer programs (codes) used for project computations and/or design will be documented to establish their ability to perform the functions to which they are applied and to permit a qualified individual to follow the procedure by which output is obtained. In general, computer codes used in preliminary through final design are classified into two categories:

- Commercial Codes; and,
- Proprietary Codes.

Commercial codes are programs which are commercially available and recognized throughout industry as having had sufficient history of use to establish their validity. Proprietary codes are developed by the Contractor for use on projects and are not commercially available or distributed throughout industry. An example of proprietary codes may be database management systems for use in manipulating analytical data and printing reports. The resulting documentation will vary as a consequence of the type of code utilized and the following factors:

- History and general acceptability of a given software package;
- Compatibility of the hardware-software combination;
- Theoretical limitations of the mathematics or physical phenomenon simulated by the software;
- Complexity of the software package in relation to its use;
- Project specificity of the software and its use;
- Computer codes may be utilized for design analysis and engineering study reports without individual verification of the code for each application provided;
- The computer code is a commercial program;
- The computer code has been verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed; and,
- The encoded mathematical model has been shown to produce a valid solution to the physical problem associated with the particular application.

#### *10.4.1 Software Development*

Design applications which require the development of proprietary codes will be identified at the start of the design activities by engineering personnel. The PTL will evaluate the need to perform software development activities and when determined necessary will approve the development activity including assigning qualified personnel to complete the software development process. Project personnel assigned development activities will develop a software requirements and design specification, software verification plan, computer code abstract, application user's manual, problem or function definition and coding information.

##### **10.4.1.1 Software Requirements and Design Specification**

Personnel responsible for software design, contemplating development, or revision of a computer code will first submit a Software Requirements Specification. The specification will clearly and precisely describe each of the essential requirements (functions, performances, design constraints and attributes) of the software and external interfaces of the proposed code or revision to

existing codes. Each requirement should be defined such that its achievement is capable of being objectively verified by a prescribed method, for example: inspection, demonstration, analysis or test.

This specification will be submitted to the PM for comments and final approval. The cover sheet of the specification will include the title of the code, the originator's name and the approval of the PM, prior to implementing the specification.

#### **10.4.1.2 Software Verification Plan**

The software verification plan will be submitted for approval by the PM after final approval is received for the software requirements and design specification. The plan will describe the methods (e.g., inspection, demonstration, analysis or test) which will be used to verify that:

- The requirements of the software requirements and design specification have been satisfied by the program; and,
- Major components of the software, including databases and internal interfaces, have been adequately implemented in the program.

#### **10.4.1.3 Computer Code Abstract**

The computer code abstract provides to the potential user a summary of the capabilities of a code and the requirements for implementation. The abstract should be concise, and convey sufficient information to permit readers to assess the applicability of the code to their needs and the effort required to make it operational.

#### **10.4.1.4 Application User's Manual**

The application user's manual is directed to the computer code user. It should be sufficiently detailed to permit effective use of the code and concise enough to serve as a referral document for preparation of input data and interpretation of results. This manual will also include test problems which allow the user to determine if the code is installed properly and/or if it is performing properly.

#### **10.4.1.5 Problem or Function Definition**

The problem or function definition should convey a thorough understanding of the theoretical and mathematical foundations used in the code. Reference should be made to technical textbooks or other open literature where appropriate. The definition should also include the problems solved, the mathematical model employed and should document the computational algorithms and numerical techniques implemented in the program.

### **10.5 Design Verification**

The PTL is responsible for implementation of the requirements for design verification, independent technical reviews and peer reviews. Design verification for the level of design activity accomplished, will be performed prior to release for publication, procurement, manufacture, construction or to another organization for use in other design activities except in those cases where this timing cannot be met, such as when insufficient data exists. In those cases, the unverified portion(s) of the design will be identified and controlled. In all cases the design verification will be

completed prior to relying upon the component, system, or structure to perform its function. Design verification will be accomplished utilizing one or more of the following methods:

1. Design reviews which will verify the following as a minimum:
  - Design inputs were correctly selected;
  - Assumptions necessary to perform the design activity are described and assumptions are identified for subsequent verifications when the detailed design activities are completed;
  - An appropriate design method was used;
  - Design output is reasonable compared to design inputs;
  - The necessary design input and verification requirements for interfacing organizations are specified in the design documents or in supporting procedures; and,
  - Constructability and value engineering change proposal review.
2. Calculations or analyses using alternate methods to verify the results of the original calculation or analysis.
3. Qualification Tests to verify the adequacy of design, with the following issues being addressed:
  - The tests to be accomplished are clearly identified and documented;
  - Testing demonstrates adequacy of performance under conditions that simulate the most adverse design conditions;
  - When testing is intended to verify only specific design features, the other features of the design are verified by other means;
  - Test results are documented and evaluated by the design organization and reviewed by the PQAM;
  - When qualification testing indicates that modifications to the item are necessary to obtain acceptable performance, the modification is documented and the item modified and retested or otherwise verified to assure satisfactory performance; and,
  - When tests are performed on models or mockups, scaling laws are established, verified and subject to error analysis.

### *10.5.1 Personnel Qualifications*

Design verification will be performed by an individual or group other than those who performed the original design. Individuals or groups are selected based on background, education, experience and capability. A file of personnel resumes is maintained by the Project Records Administrator and is considered a sufficient basis for selection. Design verification may be performed by the originator's supervisor provided the supervisor did not specify a singular design

approach or rule out certain design considerations and did not establish the design inputs used in the design, or provided the supervisor is the only individual in the organization competent to perform the verification. In this case the need will be documented, justified by the PTL and approved by the PQAM in advance of the performance of the verification. cursory supervisory reviews do not satisfy the intent of design verification. Personnel assigned verification responsibilities will be knowledgeable in the principles, techniques and requirements of the activity being performed.

## 10.6 Independent Technical and Peer Reviews

Engineering study reports and documents that support design information and design activities will be subjected to independent technical or peer reviews, as appropriate. The PTL will ensure that these documents have been reviewed by qualified personnel prior to their use being specified in the design activities. The requirements for these reviews are identified in Section 12.

## 10.7 Drawings

The PTL will assign qualified personnel who have equivalent qualifications and technical expertise in the subject matter to check design-generated drawings to assure they meet the requirements of the design specification, and if acceptable, acceptance will be documented on the drawings. Indication of final drawing and revision approval will be through signing and dating of the drawing(s) by the PTL. Professional engineering or registered geologist stamps may be applied, as necessary. Approval indicates that the drawing and revision has met the quality, technical and contractual requirements and has been checked by a technically qualified, independent reviewer. The checking process will verify the following as a minimum:

- Sufficient detail for intended use;
- Relatable to design input;
- Complete depiction of items or locations;
- Technical information is consistent with design outputs, plan(s) or report content; and,
- Drawing format is consistent with the Contractor or contract format requirements.

If a design-generated drawing is revised, the entire checking process will be repeated for the revised areas only. Under no circumstances will revisions be implemented without the formal checking procedure being repeated, as necessary. Revisions will be noted on the drawing original with a revision number and a brief note describing the revision.

Sketches used in the design to depict details of design output drawings will be checked to the extent necessary to determine that the detail adequately represents the drawing information. When these drawings are used in plans or reports, these documents will follow the same format as was required for drawings.

## 10.8 Logs and Tables

Final subsurface logs will be verified and approved by the lead technical individual or assigned Registered Geologist responsible for that portion of the design. The checking of logs will verify that changes from the original field logs to the final logs are consistent with the results of any laboratory testing or other analyses. The final log sheets will be initialed and dated by the approver indicating the verification of information and approval for design use.

Tables containing information, data or the results of analyses will also be checked by the originator. These tables will be checked against the source of the data as a transpositional check by the originator.

## 10.9 Design Changes

The PTL is responsible for design changes, field changes and modifications to operating facilities. "Use-as-is or repair" decisions are justified by, and subject to, design control measures equivalent to those applied to the original design. Justification will include confidence that the design analysis for the item is still valid. Where a significant design change is necessary because of an incorrect design, the design process and verification procedures will be reviewed, evaluated and modified as necessary. Changes to final design will be reviewed and approved by the originating design organization or group, or an approved alternate designated by the PTL.

## 10.10 Instructions to Field Personnel

Design output (e.g., Specifications and Drawings) will be reviewed by CQC personnel to identify special design requirements or constraints which would affect the remediation effort. These special design considerations will be discussed during the Preparatory Phase inspection as they relate to the Items to Inspect (see Section 13).

## 10.11 Item Identification and Control

Identification and control of items and data used or collected in accomplishing LEHR project objectives will be conducted to assure that they are traceable, correct, and acceptable for use. Examples of items requiring identification and control include samples; hazardous waste, field and laboratory data; and, computer programs in use.

Physical identification for items shall be used to the maximum extent possible, but if not practical, other means such as procedural control, tagging or segregation will be employed. Quality-affecting materials used in the field during the LEHR project, including material removed, will be identified from the initial receipt/removal through installation/waste packaging.

Items will be maintained in accordance with requirements established in the procurement documents, drawings, or other pertinent documents to prevent damage or loss and to minimize deterioration.

Items with limited shelf life that are brought for use at the project site will be sufficiently identified to trace the item to a certificate of conformance and labeled with the expiration date. When labeling of items is impractical due to configuration or size, records traceable to the item will include this information and the item(s) will be stored on shelves, in bins or areas which are identified as limited life item storage. Items associated with supplies, parts or reagents for use at, and by, laboratories will be in accordance with the laboratory Quality Assurance Plan as approved, and in use, by the laboratory.

## 11. REPORT PREPARATION

This section describes the methods and requirements for the preparation, review and approval of Project reports. The report type (e.g., Technical Reports, Technical Memorandum, Construction Reports, Engineering Reports, etc.) will be determined by the work to be performed, contractual and regulatory requirements, and the end use of the document.

For each report the PM or PTL will:

- Determine the content of the report based on the project task scope of work, DOE, and regulatory requirements;
- Determine the report format;
- Assign qualified personnel to prepare the various items required for the report;
- Distribute information pertinent to their preparation activities and update this information as required;
- Coordinate with the various groups who may be working on the report; and,
- Assign qualified personnel to review the prepared report.

### 11.1 Report Format

Unless specific report formats are requested by the DOE, or required by regulation, technical reports will, in general, contain the following items in the order presented:

- Table of Contents—Should specify the first page number of the List of Tables, List of Figures, List of Appendices, each section of the report text, and the List of References.
- List of Figures—Should sequentially identify the figures referred to in the text by report figure number or drawing number, and title.
- List of Tables—Should sequentially identify by number and title the tables referred to in the text.
- List of Appendices—Should identify each appendix by a letter designation and title.
- Executive Summary—Should present a brief synopsis of work purpose, activities, results, conclusions, and recommendations for high-level management use.
- Report Text—Should consist of an introduction, the body of the text, and a section that summarizes the project task work and report and cites conclusions

and recommendations. The body of the text must be formulated based on the scope of work, design, contractual requirements and intent of the report.

- The introduction should identify and describe the purpose for which the work was undertaken. It should briefly discuss activities pertinent to the report subject. These may include:
  - field work;
  - consultations with the DOE, regulatory agencies, and others;
  - laboratory testing; collection of data from other sources;
  - analyses and resulting conclusions; and
  - the formulation of recommendations.
- The body of the report should describe the work activities and accomplishments in clear and concise detail. The Contractor and subcontractor work relating to the report subject should be discussed. The findings of any field explorations and testing, literature searches, external consultations and observations should be included. Any laboratory-testing program should be described and its results discussed. The procedures employed and designs formulated should be indicated. The results of work performed should be discussed in detail and must be traceable to the Project task and design records.
- The final section of the text should summarize the purpose of the work and the Contractor's undertakings toward meeting that purpose. It should emphasize the results of the work and any conclusions or recommendations reached.
- List of References—Should include the references cited in the report text, tables and figures, whether they be external data, publications or correspondence. The references should include the author's name, title of the publication, publisher and date, if the reference is a publication. If the reference is correspondence, the subject, date, names of the parties contacted and the type of correspondence should be included.
- Figures—Will be identified with a report figure number and/or a unique drawing number and a title. Figures may be included as a separate section following the List of References or within each section of the text. As with tables, figures will be “self-standing” (see Tables below).
- Tables—Tables are generally included as a separate section following the Figures, but may be included within each section of the text. Each table should have a title and a number. The information listed in the table will be clearly labeled. Particular care will be taken to include necessary references, symbols, and reporting units so that a table is “self-standing” (i.e., it does not depend on the text for explanation).
- Appendices—Should include supplementary information pertinent to the report subject. Often the information contained in an appendix is technical in nature and is included in the report to provide details of topics discussed in the text. Each appendix will be identified by a letter of the alphabet. Pages within the

appendix will be in logical sequence, but need not be numbered unless a sequence cannot be reasonably maintained without page numbers.

It is emphasized that the above format is a generalized outline to be followed in report preparation. Other formats are acceptable (e.g., letter reports). In any case, the report will provide sufficient information to allow other organizations to duplicate the work performed and to serve as a complete base for further development or operational use.

## 11.2 Submittal

The PM or PTL will determine the DOE's and/or regulatory agency requirements for report submittal, including the number of copies required and to whom the report copies should be transmitted. Reports may be issued as "draft" "draft final" or "final" presentations of the work. Draft reports submitted under this Program will be considered "drafts" only in the sense that they have not been reviewed and approved by the DOE and/or regulatory agencies. In all respects, draft reports will be complete, in proper format, and generally free of grammatical and typographical errors. Draft reports will have completed an internal independent technical review or peer review prior to being submitted or issued, unless otherwise requested by the Contracting Officer.

Draft reports will be designated with an alpha revision for document control purposes. Typically, the version sent for internal review is "Revision A"; the version sent for DOE review is "Revision B"; and the version sent for regulatory agency review is "Revision C." Reports will not be signed until issued as "final." Final documents will be designated "Revision 0." Any subsequent revisions to documents considered final will be designated with sequential revision numbers.

Reports will be accompanied by a submittal transmittal which states the report title and distribution list. The transmittal form will be signed by the PM, PTL, PQAM and/or others as appropriate, indicating approval for release.

## 12. REVIEW OF WORK ACTIVITIES

Both technical review and formal peer review, as necessary, will be performed to assist in controlling the end products of project activities. Technical reviews will be conducted for work instructions and the various project task reports prior to being issued to the DOE. Peer reviews, based on the scope and needs of individual project tasks, will be identified and scheduled.

### 12.1 Technical Review

A technical review is an in-depth analysis and evaluation of documents, activities, material or data for applicability, correctness, technical adequacy, completeness, appropriateness of interpretation and assurance that established requirements are satisfied. This type of review will be independently performed by qualified members of the project or task group other than the personnel who prepared the original report or instruction. Independent reviewers may be selected from within the Contractor or the Contractor subcontractors, or they may be outside consultants retained in a review capacity. cursory supervisory reviews do not satisfy the intent of technical reviews.

The review of plans, procedures and reports is the responsibility of the PTL. This individual will identify the documents to be reviewed, select qualified personnel to perform the reviews, participate in the review of specific documents as indicated below and verify that the review process is completed prior to document release.

Technical and environmental remedial action reports will be reviewed by the PTL and independent technical reviewers selected by the PM. The PTL will forward the document(s) to be reviewed to the selected reviewers and will maintain the Document Review Tracking Form (DRTF) (see SOP 41.1) for documentation of the review and comment closure.

Technical reviews will, as appropriate, consider the following:

- Requirement Satisfaction—Is the objective of the report defined? Does the document satisfy the scope of work, task requirements and pertinent regulatory requirements?
- Technical Correctness—Is the content of the document technically defensible? Are conclusions properly supported by correctly interpreted data? Are all figures, tables and computations presented in the document correct?
- Executive Summary—Does it state the purpose of the document? Is it informative? Does it describe the scope of work and summarize pertinent results and conclusions?
- Introduction—Does it clearly describe the problem(s) addressed by the document, state the objectives and scope of the document, present pertinent background information, and acknowledge significant help?

- **Methods**—Were appropriate techniques used or recommended for the work? New, nonstandard methods should be described in the document text.
- **Assumptions**—Are they clearly stated and justified?
- **Body of Manuscript (Text)**—Is it organized and presented in a logical sequence that contains the basic information, interpretation of that information, and results or conclusions of the interpretations?
- **Figures and Tables**—Do they clearly present basic information? Figures and tables should be interpreted and referred to in the text, but should be understandable without the text. Have they been prepared, checked, and approved?
- **Conclusions or Results**—Do they summarize the principal findings of the backup work? Do they answer each of the objectives described in the introduction? Are they technically defensible? No information should be given that was not discussed in the body of the document.
- **References**—Are all references cited in the text, tables, and figures included in a list of references? Are references cited correctly? Were pertinent references omitted in preparing the document?

## 12.2 Peer Review

Peer reviews are documented reviews performed by qualified personnel who are independent of the original work, but have the expertise to perform the work. Peer reviews are in-depth critical reviews and evaluations of documents, material or data that require interpretation or judgment to verify or validate results of conclusions. Peer reviews are also used in instances when conclusions, material, or data contained in the report go beyond reasonably available technology, or when technical criteria and requirements do not exist or are being developed. While verification and technical review provide examination and confirmation of largely definitive work, peer review provides evaluations and assessment of interpretations, judgments, and decisions made.

The Program/Project Manager will determine during the planning stage of a project task if peer review will be required, the points in the work when the review will be performed and the independent individual(s) who will perform the review. The need for peer review will be based on the level of technology required for the project task. Peer reviews should be considered when the following conditions exist:

- Technical complexity of the work approaches state of the art technology; or,
- Technical criteria and requirements do not exist or are being developed.

Peer reviews generally will be performed prior to the initiation of project task work which will be affected by the peer review process and/or prior to issuing the draft report to the DOE. The PTL will forward the document(s) to be reviewed to the selected reviewers and will use the DRTF for documentation of the review and comment closure.

After receipt of the peer review comment(s), the author(s) of the document will review all comment(s) and conduct any additional research or computation necessary to provide disposition of the comments. Proposed comment disposition(s) will be reviewed with the PM and peer reviewers and their concurrence obtained prior to incorporation into the document. The document will then be revised and submitted for internal approval. All peer review records will be maintained in the project files.

### **12.3 Review Documentation**

As described in SOP 41.1, "Document Review Procedures", review documentation will include the completed DRTF, RPM comments and contractor responses to RPM comments.

## 13. INSPECTIONS

This section provides the criteria for the performance of inspections on this project. The inspection system is based upon the three-phase system of control to cover both on-site and off-site work, and includes the preparatory phase, initial phase and follow-up inspection phase. The need for, and content of, a readiness review is also presented. Inspections are only conducted for project tasks if required by a DOE-approved Task Plan as noted in the Work Plan (if required), for LEHR site construction activities, or as may be stipulated by the PM or the PQAM in task planning documents to ensure the quality of the work performed. Inspection activities typically cover field activities that require planned inspections to assess that the quality of work meets project standards as applied using the graded approach.

### 13.1 Items to Inspect

Items to Inspect will consist of activities, documentation, materials and/or equipment which may require inspection prior to and/or during performance of a task which is separate and distinct from other activities or tasks, and which requires separate control activities. Items to Inspect will be defined and identified by the PTL for each project task using the Items to Inspect Checklist (see SQP 7.1, "Quality Inspections and Inspection Records").

Inspections are not typically required for small or non-critical tasks. The inspection procedures detailed in this section are intended to provide guidance for independent inspections. However, personnel on the LEHR project are also encouraged to inspect their own work to ensure that the degree of quality necessary for the LEHR project is maintained.

### 13.2 Inspection Scheduling

Inspection activities will be conducted for ongoing project activities. The PQAS is responsible for the coordination of inspection(s) relevant to the ongoing project activities.

Inspections will be performed, as specified, and will be consistent with project scheduled activities. The PQAS will identify inspection needs on an activity basis and will either assign qualified personnel to perform the required inspection(s) or perform the inspection themselves. The procedures for implementing inspections and maintaining inspection records are described in SQP 7.1 "Quality Inspections and Inspection Records".

### 13.3 Personnel Qualifications

Personnel assigned to perform inspections will be sufficiently independent of the activity being inspected and will not perform inspections of their own work. The PQAS will be responsible for the assignment of inspection personnel and for assuring inspection personnel are appropriately qualified and, when applicable, certified to perform the inspection activity(s). In general, personnel qualified to perform an activity will also be qualified to inspect an activity.

### 13.4 Preparatory Phase

Preparatory Phase inspections will be conducted for each Item to Inspect to establish and document that all required preliminary activities necessary to start a task have been accomplished, all submittals for the task are complete, materials and equipment required are available and are in conformance and all required testing has been made or will be accessible for testing during the work. The PQAS or designated representative, site superintendent, field staff and subcontractors involved in the task will participate in the Preparatory Phase Inspection as appropriate to the work to be performed.

As appropriate, the following will be accomplished during the Preparatory Phase Inspection:

- Verify all necessary authorizations have been received and notifications have been made;
- Review specification requirements and project task drawings;
- Verify all appropriate drawings and submittals for materials and equipment have been submitted and approved;
- Review and verify plans are available to provide required testing;
- Verify all required preliminary work has been completed;
- Verify all required materials and equipment are on hand or available and sample work has been verified to determine work conforms to the specified requirements;
- Verify the PHSP, Hazard Analysis and required Material Safety Data Sheets (MSDS) conform to the specified requirements;
- Verify all hazards have been analyzed and controls identified;
- Verify that all environmental protection requirements have been identified and addressed;
- Discuss sampling methods, remediation processes and/or construction methods; and,
- Assure that the PHSP, Work Plan and other planning documents are approved and available at the location where the work is to be performed.

The results of Preparatory Phase inspections will be documented on the Items to Inspect Checklist. Readiness Reviews, when required, may substitute for, or be incorporated with, the Preparatory Phase Inspection. The procedures for implementing materials receipt are described in SQP 7.2 "Receipt Inspection".

### 13.5 Initial Phase

As specified in the planning documents or by the PQAS, an Initial Phase Inspection may be performed at the beginning of task activities. A representative sample of the work to be performed will be observed to verify the work is in compliance with the specified requirements. Concurrence with the workmanship and inspection criteria for the feature of work will be established in the Initial Phase Inspection. The PQAS or designated representative, site superintendent, applicable crew member foreman and subcontractors involved in the activity will be present as appropriate to the work being performed.

As a minimum, the following attributes will be addressed during an Initial Phase Inspection:

- Establish quality of workmanship and inspection levels;
- Review checklist for Preparatory Phase Inspection and confirm compliance;
- Resolve conflicts; and,
- Verify work conforms to the PHSP and Hazard Analysis.

Initial Phase Inspections will be documented on an Items to Inspect Checklist.

### 13.6 Follow-up Phase

As specified in the planning documents or by the PQAS, Follow-up Inspections may be performed on a periodic basis when work on specific tasks are ongoing. More frequent Follow-up Inspections may be required commensurate with the extent of activities being performed. The Follow-up Inspections will continue until the task is completed. Follow-up Inspections will be documented on an Items to Inspect Checklist.

Follow-up Inspections will include, as applicable:

- Verifying work complies with the specification requirements;
- Verifying quality of workmanship is maintained;
- Verifying required tests are made; and,
- Verifying nonconforming conditions are identified and any corrective actions are corrected.

### 13.7 Readiness Review Inspections

Readiness Review Inspections will be conducted upon the request of the DOE in the following cases:

- Prior to the start of major scheduled or planned work (usually associated with a documented Work Plan); and,
- Prior to reinitiating work following the closure of a SWO.

The purpose of the Readiness Review Inspection is to assure that appropriate steps have been taken to conduct field activities in a safe, efficient, and timely manner that complies with the PHSP, the QAPP and all other related controlling documents and regulations. This is not intended as a technical review of the work, but rather to verify that:

- Work prerequisites have been satisfied (e.g., subcontract status, permits, required notifications to government agencies, etc.);
- Hazards associated with the work have been analyzed and controls have been identified;
- Environmental protection requirements and associated compliance methods have been identified;
- Detailed technical and quality procedures have been reviewed for adequacy and appropriateness;
- Personnel have been suitably trained and qualified; and,
- The proper equipment, material, and resources are available.

The DOE may participate and provide comments in the Readiness Review process. A detailed procedure for use of Readiness Review Inspections is described in SQP 3.3, Readiness Review Inspections. Readiness Review Inspections differ from preparatory phase inspections due to DOE notification and/or involvement in the Readiness Review Inspection process.

#### 13.7.1 New Task

The PTL is responsible for scheduling Readiness Reviews. The Readiness Review will be scheduled so that there is sufficient time between the review and start of field work to respond to any issues or concerns coming out of the review. The DOE will be notified of planned Readiness Review Inspections.

The PTL, SHSO, Radiation Control Officer, PQAS, PC, and the Field Coordinator associated with the work being initiated will participate in the reviews.

The PTL or designee conducts the review. In general, the depth and detail of information presented will be commensurate with the scope of the Project. At a minimum, the following topics will be addressed:

- Personnel training requirements have been met;
- Project or task scope/objectives;
- Investigations or activities scope;
- Proposed activities description;
- Identified risks/hazards or concerns and mitigative/control measures;
- Environmental protection requirements and implementation methods;
- Identification of uncertainties that may have a potential adverse affect on the Project;
- Required documentation (including software), QAPP, HSP, Work Plan and/or SOPs;
- Special equipment or calibration needs;
- Other topics as appropriate; and,
- Necessary materials/equipment documentation (e.g., calibration certifications, cost of compliance, etc.) is acceptable.

Following the review the PQAS will document in writing that activities can proceed as planned, or any issues or concerns that must be addressed before field work can start have been addressed.

### *13.7.2 Resumption of Work*

If the review is required due to the resumption of work due to a nonconformance or SWO, a modified review will be conducted which focuses on the adequate completion of corrective action or remedial action. A review of the root cause analysis to prevent recurrence will be conducted.

## 14. CALIBRATION AND MAINTENANCE OF MEASURING AND TEST EQUIPMENT

This section describes the responsibilities and methods for the control, calibration and preventative maintenance of measurement and test equipment (M&TE), used in activities affecting quality, to assure their proper operation. In the case of commercial devices such as rulers, tape measures, levels and similar devices, calibration controls will not be required. The contents of this section refer only to calibration and use of measuring and test equipment (not laboratory equipment).

### 14.1 Control of Measuring and Test Equipment

The PTL is responsible for the overall field and on-site laboratory calibration and preventative maintenance program. Although the PTL retains this responsibility, she/he is not the sole domain of this responsibility. The LPM, field superintendent and field and laboratory personnel are individually responsible for the system's effective implementation and continued improvement.

M&TE that requires calibration and is used for field screening activities will require the same level of calibration and documentation as other M&TE. However, procedures developed and approved for field screening activities will reflect the level of accuracy needed to perform the desired task.

### 14.2 Calibration Control

Field M&TE will be calibrated prior to being used for Project activities and at prescribed intervals thereafter. During M&TE usage, operational checks of the equipment will be performed to verify the equipment's continued accuracy and operational function. Calibrations of M&TE will be performed by trained and qualified personnel, approved external agencies or by the equipment manufacturer.

Calibration(s) will be performed in accordance with approved procedures or manufacturer's recommendations using appropriate standards which have known valid relationships to nationally recognized standards (e.g., National Institute of Standards and Technology [NIST]) or accepted values of natural physical or chemical constraints. If no national standard exists, the basis for calibration will be documented and approved by the PTL and the PQAM. The following types of calibrations and checks will be performed by qualified field and laboratory personnel:

- Periodic calibrations, which are performed at prescribed intervals established for the M&TE to assure that the equipment is operating within its designed range and accuracy. These are usually performed by outside agencies or the M&TE

manufacturer. A calibration certificate will be provided documenting the operational and functional acceptance of the M&TE.

- Specific calibrations, which are performed for specific measurements or tests and varies from instrument to instrument and from procedure to procedure. Specific calibrations are performed prior to the start of work and are reestablished at prescribed intervals that have been predetermined and are instrument- and procedure-specific.
- Calibration checks, which are performed to provide a quick, accurate and consistent method of checking the specific calibration's correctness. This is accomplished by establishing a known acceptable/repeatable response during the specific calibration and periodically checking that response during the M&TE usage.

### 14.3 Calibration Procedure

Written and approved procedures will be used for calibration of M&TE. Calibration procedures that have been previously established and approved by the M&TE manufacturer or a nationally recognized authority (i.e., ASTM, EPA) will be used.

### 14.4 Equipment Identification

M&TE that is used for project activities and that require calibration will be uniquely identified by the manufacturer's serial number or suitable assigned number. Whenever possible, the M&TE identification number will be permanently marked on the equipment with a stamp, vibra-tool or other suitable means. It will be located in a readily visible area that will not infringe on the equipment function or performance, preferably on the outside casing (top, bottom or side). If this should prove to be impractical, an identification label will be affixed with the identification number clearly visible. This label will be replaced as needed to provide clear identification of the M&TE.

### 14.5 Calibration Frequency

M&TE will be calibrated at prescribed intervals and prior to initial use. The frequency of periodic calibrations will be based on manufacturer's recommendations, national standards of practice, equipment type and characteristics, and past experience. A calibration label will be attached to M&TE requiring periodic calibration. This label will provide, at a minimum, the M&TE identification number, date of current calibration and due date of the next required calibration. M&TE that does not permit the attachment of labels will have records and appropriate calibration documentation readily available for reference.

In the event that the next calibration due date is missed, the M&TE will be removed from service and tagged as "out-of-service" to prevent inadvertent use until it has been appropriately recalibrated.

Specific calibrations will be performed prior to initial use. Once the M&TE calibration is completed, a reference value or response will be established and checked periodically during equipment usage to verify calibration accuracy (calibration check).

For some equipment, periodic calibration may not be required by manufacturers or by standard practices. In such cases, the M&TE will still receive specific calibrations prior to initial use.

Scheduled calibrations of M&TE do not relieve the user of the responsibility for selecting the appropriate and properly functioning equipment.

## **14.6 Reference Standards and Equipment**

Calibration reference standards and equipment will have known relationships to the NIST or other nationally recognized standards. If a national standard does not exist, the basis for calibration will be fully documented and approved.

Physical and chemical standards will have certifications traceable to NIST, EPA or other recognized agencies. Standards that are repackaged or split will also have traceable lot or batch numbers transferred onto the new container.

It is the responsibility of the user to select, verify and use the correct standard in accordance with an approved procedure or established practice.

## **14.7 Calibration Failure**

Each individual user of M&TE is responsible for checking the calibration status of equipment to be used and confirming the acceptable calibration status prior to use. Equipment for which the periodic calibration period has expired, equipment that fails calibration or equipment that becomes inoperable during use will be removed from service and tagged as out-of-service.

Out-of-service M&TE will be segregated from operational M&TE when practical. The specific reason for removal from service and the date of removal will also be stated on the out-of-service tag. The M&TE will then be repaired and/or recalibrated by the appropriate vendor or manufacturer as deemed appropriate. M&TE that cannot be repaired will be replaced, as necessary, to provide support to the Project.

Results of activities performed using equipment that has failed recalibration will be evaluated by the PTL and PQAM. If the activity results are adversely affected, the results of the evaluation will be documented as a nonconformance and appropriate personnel notified.

## **14.8 Calibration Documentation**

Specific calibration records will be prepared and documented for each calibrated M&TE used. Calibration data will be recorded on the applicable data collection log for field screening

activities. For nonscreening activities, the calibration will be documented on the Test Equipment List and Calibration Log form. The PTL will be responsible for reviewing the calibration data for appropriateness, accuracy, readability and completeness. The procedures for implementing calibration and maintenance of measuring and testing are described in SQP 8.1 "Calibration and Maintenance of Measuring and Test Equipment".

## 15. TEST CONTROL

This section describes the controls to be implemented for the performance of tests required to verify the acceptability of the environmental remedial action for the project task. The testing includes material and geotechnical tests, and, where required, the determination of the extent of contamination or verification of clean criteria analytical tests.

### 15.1 Testing Laboratories

Testing laboratories to be utilized will be accredited by an acceptable accreditation program.

Laboratories performing sampling and chemical analysis of contaminated media will be certified in accordance with California requirements prior to performing analysis.

### 15.2 Testing Procedures

Tests performed for project tasks will be controlled using documents approved by the Contractor which specify the requirements and criteria for preparation, performance, acceptance and documentation of the testing activities. Test performance and analysis of test results/data collected will be reviewed and approved by qualified personnel.

The PQAS will verify that the required tests to be performed by a qualified laboratory are within the capability of the laboratory and the procurement documents correctly specify the test requirements, acceptance criteria, data and reporting requirements for the tests.

Test results will be reported by the organization performing the tests. The project task PQAS will review the results for conformance to the testing procedures and acceptance criteria prior to submitting the results to qualified technical personnel for approval of the results for use in activities.

As a minimum, the test procedures will include test objectives and provisions to establish that all prerequisites for a test have been met and that adequate instrumentation is available, calibrated and used; and that suitable environmental conditions are maintained. Test procedures will, as applicable, include the following:

- Instructions and prerequisites to perform the test;
- Completeness and accuracy of data;
- Use of test equipment;
- Calibration requirements;
- Hold or witness points;

- Environmental conditions;
- Test personnel qualifications;
- Referenced standards, procedures or methods; and
- Acceptance criteria.

### 15.3 Test Personnel Qualifications

Personnel performing sampling and testing activities required by the project task will be trained, and where required, certified for performing and accepting the results of tests performed by them.

### 15.4 Geotechnical and Material Testing

Geotechnical and material testing will be performed by an approved materials testing laboratory. The laboratory will be responsible for the testing of sub-site preparation, earth work, soils and rock, concrete, bituminous paving and other physical testing defined in each project task specification.

The PQAS is responsible for monitoring the laboratory operations to verify as appropriate:

- All required tests are performed;
- Location of tests are as specified;
- Frequency of tests is as required by the purchase order specification or design documents, as applicable;
- Testing personnel qualifications are documented and are as specified by the test procedure, project, or project task requirements;
- Calibration of test equipment has been performed and calibration certification is available;
- Test results are documented and approved by qualified personnel;
- Acceptance criteria for the specified test(s) are met; and,
- Documentation is legible, complete and consistent with the test procedure or purchase order specification.

## 15.5 Tests

The geotechnical and material tests to be performed for each project task will be listed on a Test Plan and Log. The test log will be developed using the specified requirements for each project task. As a minimum, the Test Plan and Log will include:

- Test name;
- Procedure (ASTM, American Association of State Highway and Transportation Officials, etc.);
- Frequency;
- Specification paragraph number; and
- Responsible organization/personnel.

## 15.6 Standard Operating Procedure

SOPs for specific quality control tests such as concrete testing, soils testing, etc. will be developed as needed by the PTL and maintained by the PQAM.

## 15.7 Analytical Testing

Analytical testing for project tasks will be in accordance with this document unless otherwise specified in the planning documents or SAP. Sampling and analysis will be performed using current EPA procedures and quality control methods unless otherwise specified in the planning documents or SAP.

The PQAS is responsible for monitoring the control of analytical testing activities at the project site.

The responsibilities include, but are not limited to:

- Chemical quality control;
- Reviewing SAP and procedures;
- Verifying sample identification;
- Preparing/reviewing chain of custody documentation;
- Verifying data quality objectives;
- Verifying that transfer, reduction, evaluation and verification of test results comply with requirements;
- Reviewing test results and related documentation for compliance with analytical requirements; and,
- Reporting results in QC Reports or field log.

## 15.8 Test Documentation

The results of the geotechnical, material and analytical tests will be documented using the laboratory-approved test reports or Contract Laboratory Program (CLP) data package requirements, as applicable. The test reports will include, as appropriate:

- Applicable contract requirements, test methods and analytical procedures used;
- Results of tests;
- A statement certifying the tests conform to the established test method requirements; and,
- Signature of authorized representative of testing laboratory.

The PQAS will review the test report(s) and submit the results with any supplemental documentation to the PTL or PM and enter a summary of the results on the QC Report or field log.

## 15.9 Test Failures

Test results which indicate unacceptable results will be brought to the attention of the PQAM for resolution prior to proceeding with the activity.

## 16. NONCONFORMANCE CONTROL AND CORRECTIVE ACTIONS

This section describes the responsibilities and methods for all personnel to promote and ensure continuous improvement of items and work processes, thereby enhancing the effectiveness of the program or project tasks and resultant quality. Items, processes and services that do not meet established requirements during the environmental remedial activities will be identified, controlled and corrected as specified within written procedures. Correction will be focused at determining the cause of the deficiency and instituting actions to correct the deficiency and prevent recurrence.

### 16.1 Nonconformance Report

NCRs are used to identify noncompliances and deficiencies found during the normal course of activities and during inspections. Such physical deficiencies could be associated with installed equipment, construction elements, samples or data. A NCR will be generated when a deficiency is encountered during a specific project task which cannot be immediately corrected during the operations or which is of a repetitive nature. The processing of nonconformances will be implemented in accordance with SQP 10.1 "Nonconformance Control."

A nonconformance is defined as a deficiency or deviation in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate. The originator of a NCR will describe the nonconformance and the requirements deviated from on the form provided for that purpose and will notify the PQAM.

### 16.2 Responsibilities

The PQAM will maintain a NCR log which provides the NCR number, a brief description of the nonconforming condition, date of issue, responsible organization or individual, date of anticipated corrective action and date closed.

Nonconformances determined to be valid will be issued to the responsible organization/group for disposition. Dispositions to nonconformances will require the responsible organization/group to identify the root cause, corrective action, action to preclude recurrence and the date when all corrective actions will be completed.

Each nonconformance will be reviewed by the PQAM or PQAS and a determination made as to its validity or if the condition reported is a repetitive condition adverse to the quality of project tasks. NCRs will remain on open status until the corrective actions have been implemented and verified as acceptable by the PQAM.

Deficiencies identified by DOE personnel will also be controlled and tracked through the NCR system.

### 16.3 Corrective Action Requests

Corrective Action Requests (CARs) are used to identify, document and provide actions to correct conditions or trends which are determined to be significantly adverse to quality (i.e., procedural or programmatic violations) and to provide methods to prevent their recurrence. The procedures for implementing the CAR process are described in SQP 10.2 "Corrective Action" and provide for the following:

- Determination of root cause of the condition;
- Actions to preclude recurrence; and,
- Verification of the actions taken.

The conditions for which a CAR may be required include, but are not limited to:

- Failure of the procedural system to produce the results desired in project deliverables;
- Identification of repetitive conditions for which previous corrective actions have been ineffective; or,
- Significant deficiencies found during the review or validation of data.

### 16.4 Stop Work Authority

The project task PQAS has the authority to stop or control further processing of activities that in the opinion of the PQAS are uncontrolled or nonconforming and, which if not corrected, could affect the quality of the overall project or jeopardize the accomplishment of project goals or quality objectives.

The following criteria are a guideline for determining whether to issue a SWO:

- Continuing an operation will directly affect the required work integrity or required documentation and would result in significant rework; and/or,
- Continuing an operation will jeopardize design integrity, the nonconformance will cause design discontinuities to other items or activities, or compromise the essential features, which are important to safety and waste isolation.

Stop work actions will be coordinated through the PM. Stop work actions will only be implemented when conditions exist which cannot be resolved through the nonconformance system or normal task activity processes. Conditions which threaten safety, health, the public or the environment will be brought to the attention of the PHSM for action, unless the conditions pose an immediate danger, in which case the work will be stopped immediately by the PQAS, PTL, site

superintendent or individual responsible for the work being performed. The procedures for implementing the Stop Work authorities are described in SQP 10.3 "SWO."

## 16.5 Problem Prevention and Continuous Improvement

A principal objective of this document is to provide a set of systems and requirements to ensure that project goals, objectives and customer expectations are met. In keeping with a stated business principal that "problem prevention is more cost effective than problem correction", this document is also designed to prevent conditions that may hinder the successful completion of the LEHR project in a cost effective manner and to continually improve performance as project experience is gained.

This objective is achieved through a process approach to project tasks, including the use of an integrated set of management systems (including this document) to guide and analyze the performance of the project team. The process ensures that the LEHR project continues to identify potential problems and make changes which continually improve quality results, when combined with the following three project objectives:

- Hire technically knowledgeable, skillful and qualified people to perform the work;
- Provide training that imparts necessary administrative, ES&H, quality assurance, conduct of operations and maintenance management information; and,
- Change the system, if performance so warrants.

To ensure effective corrective action of identified significant quality problems the PM, with assistance from the PQAM (and PHSM, if applicable), will perform a root-cause analysis and/or lessons-learned analysis when deemed necessary commensurate with the scope and severity of the problem. The procedures for implementing the determination of DOE satisfaction and quality improvement are described in SQP 3.1 "Client Satisfaction Survey" and SQP 5.1 "Preparation, Revision and Approval of Plans and Procedures", respectively.

## 17. CHANGE CONTROL

This section addresses the process to be implemented on a project task for changes from the Work Plan, procedures, SAP or specified requirements.

### 17.1 Field Work Variance

Changes may be required when events occur or presumed information must be altered based on actual conditions discovered during the remediation process. Changes may also be precipitated by feedback from workers. Changes that do not impact total Task Assignment cost or schedule will be documented on the FWV/Modification (FWV/M) Form and submitted to the DOE for informational purposes without the need for DOE approval.

If the change affects the Task Assignment total cost and schedule, the FWV/M form shall identify that a Task Plan revision is required. The PM will then follow clause H.008, ordering procedures in the DOE contract. The FWV/M Form will be completed by the PTL or his/her designee and approved by the PM. The FWV/M form will include, as a minimum, the following information:

- Description of present work requirements;
- Description of proposed change;
- Technical justification;
- Document(s) requiring change; and,
- Cost/schedule impacts.

The completed FWV/M form will be reviewed by the PM to verify all quality requirements are maintained. Field modifications will be documented on the FWV/M form except for the cost/schedule impacts section.

The effect of the change on the Project should be evaluated by the PM and, when necessary, the DOE. Approval by the Contracting Officer must be provided for changes affecting the total Task Assignment cost estimate and schedule prior to the implementation of the change. Any requested change or deviation to contract requirements will not be implemented until approval is received from the DOE.

The procedures for implementation of the FWV/M process are described in SQP 11.1 "Field Work Variance/Modification".

## 18. AUDITS AND SURVEILLANCE

This section establishes the methods and responsibilities for planning, scheduling, and performing audits, surveillances and management assessments. Planned and scheduled audits will be performed to verify compliance with all aspects of this document, SAP and Work Plan(s), as applicable, and measure program performance against program goals.

### 18.1 Audits

Performance and system audits will be implemented in accordance with approved procedures. These audits will be performed to evaluate different levels of project quality activities as described below.

- Performance Audits are direct observations of specific project activities to determine if these activities are being implemented in accordance with a specified requirement(s) or procedure(s).
- System Audits evaluate an entire project or project quality system by determining if appropriate objectives were developed, collected, executed, documented through to their final validation, reporting and storage. The objective of system audits is to evaluate the overall effectiveness and implementation of the established quality management system.

### 18.2 Audit Objectives

The objective of performance/system audits is to:

- Determine that the approved project planning documents are being effectively implemented;
- Verify (by examining and evaluating objective evidence) whether the project elements, items, processes, work areas or records, as appropriate, conform to specified requirements;
- Verify ongoing activities by direct observation;
- Assess the effectiveness of controls and verification activities;
- Report audit findings to appropriate levels of management for initiating corrective actions;
- Verify through follow-up activities that the corrective action(s) has been planned, initiated, and completed; and,

- Address technical considerations that verify the quality of the items, remediation processes, data, services and activities, as well as programmatic compliance.

### 18.3 Audit Schedule

The Executive Sponsor or designee will be responsible for the performance of an independent annual system audit (“management assessment”) of the contract QA implementation. The PQAM or designee will perform audits of individual tasks to the extent necessary to verify continued compliance to the requirements of this document. Both internal and external audits will be conducted in a manner which provides adequate coverage and coordination with QA activities. Audits will be scheduled at a frequency commensurate with the extent of activity of the element, previously identified deficiencies of the element, and the importance of the element. The PQAM, in consultation with the PM, will determine the frequency and necessity of project task audits. Tasks not active at the time of the audit may not undergo an audit. Audits will only be conducted at out-of-state locations if authorized in the DOE Task Assignment.

### 18.4 Auditor Qualifications

The PQAM will be responsible for assuring qualified and trained personnel are selected to perform auditing activities. Personnel selected for quality auditing assignments will have experience or training commensurate with the scope, complexity, or special nature of the activities to be audited. Auditors will have, or be given, appropriate training or orientation to develop their competence for performing required audits.

### 18.5 Audit Teams

The PQAM or Executive Sponsor will be responsible for designating an Audit Team for each audit to be conducted. Audit Teams will consist of an Audit Team Leader (ATL) and select qualified auditors cognizant of the types of activities to be audited or the audit may be performed solely by the ATL.

Audits will be performed in accordance with pre-established written procedures or checklists as early in the life of the activity as practical and will continue at intervals consistent with the schedule for accomplishing the activity. Objective evidence such as documents and records will be examined to the depth necessary to determine if this document, applicable Work Plan(s), and supporting procedures are being effectively and properly implemented.

Audit results will be documented by auditing personnel, analyzed by the ATL and reported to the PM or PTL for review, assessment, and appropriate action. Significant conditions requiring corrective action will be promptly reported to the PM along with a recommended corrective action, as appropriate.

## 18.6 Audit Reporting

The ATL will informally review the audit findings and observations with project staff or subcontractors being audited. The ATL, upon completion of the audit and with the aid of the audit team members, will prepare and issue an audit report which provides the following information as a minimum:

- Unique audit number;
- Description of the audit scope;
- Audit personnel (indicating ATL);
- Persons contacted during the audit activities;
- Audit date(s);
- Summary of audit results;
- Suggested opportunities for improvement, as applicable, in the form of observations and comments; and,
- Description of each reported audit finding in sufficient detail to enable corrective action to be performed.

## 18.7 Audit Response

Management of the audited activity will investigate audit findings; determine the root cause of the condition identified in the finding and schedule corrective action for the finding, including measures to prevent recurrence; evaluate the impact of the finding on completed work and notify the PQAM in a written response of the action taken or planned.

A tracking system for audit findings will be established to help assure that all findings are appropriately addressed and to trend audit findings for significant conditions adverse to quality. Follow-up action, including re-audit of deficient areas, may be taken to verify whether corrective action is accomplished as scheduled.

The procedures for implementing audits are described in SQP 12.1, "Quality Audits".

## 18.8 Management Assessment

Management will assess the integrated quality management system's performance and effectiveness and measure the performance against a minimum set of metrics defined in SQP 12.2, "Management Assessment". The thrust of the management assessment is to identify, correct and prevent management problems that hinder the achievement of project objectives or compromise protection of the public, the workers or the environment.

Management assessments will be conducted by the Program or Project Manager (routine assessments) and the Executive Sponsor (annual assessment) above or outside the project task organization responsible for the implementation of this document.

Routine assessments will be performed by the Program/Project Manager utilizing a combination of formal and informal evaluation activities as described below:

1. Formal assessments are conducted by use of the following methods as a minimum:
  - Review of quality control reports;
  - Review of, and response to, performance or system audit reports;
  - Review of, and response to, performance or system audits by the DOE; and,
  - Review and approval of project reports to the DOE or regulatory agencies.
2. Informal evaluations are conducted by use of the following methods as a minimum:
  - Review of responses to NCRs;
  - Review of responses to CARs;
  - Review of program performance versus minimum goals; and,
  - Conducting project status meetings and site visits.

Annual system assessments are performed by the Executive Sponsor or designee and are conducted to evaluate the following:

- Effectiveness of the quality management system controls that are established to achieve and ensure quality; and,
- Adequacy of resources and personnel to achieve and ensure quality.

Annual assessments are performed through a review of project quality-related activities and control mechanisms. This assessment will include reviews of internal audit reports and CARs, both of which will include a review of specified corrective actions, additionally discussions with both employees and the DOE Contracting Officer regarding the adequacy of Program implementation will be conducted, and areas suggested for improvement identified.

Corrective action(s) will be implemented as agreed upon between the Executive Sponsor and project management such that recommendations contained within the annual assessment are implemented and monitored for effectiveness.

### *18.8.1 Assessments and Response Actions*

Project-specific plans (i.e., Work Plans, Preparatory Inspection Checklist, Readiness Reviews or SAPs) will specify the frequency and schedule for quality assessment activities (e.g., audits, surveillances) planned for a specific project tasks.

SQP 12.2, "Management Assessment", provides the programmatic details for protocols by which management assessment activities will be conducted. Any modifications to these protocols will be defined in project task specific plans.

## 18.9 Surveillances

Surveillances of project task activities will be conducted by the PQAM or designated representative. Surveillances may be scheduled or unscheduled monitoring activities to verify that the items or activities for each project task conform to the specified requirements.

Surveillances may or may not be documented. However, when nonconforming items or activities are identified during surveillances, they will be reported in a surveillance report to the PTL or PM or on an NCR or CAR as appropriate to the nonconforming conditions. Surveillances will only be conducted at out-of-state locations if authorized in the DOE Task Assignment.

The procedures for implementing surveillances are described in SQP 12.3, "Quality Surveillances".

## **APPENDIX A**

### **ACRONYMS**

## ACRONYMS

AR/COC	Analysis Request/Chain of Custody Record
ARARs	Applicable, Relevant and Appropriate Requirements
ASTM	American Society of Testing and Materials
ATL	Audit Team Leader
CAR	Corrective Action Requests
CLP	EPA Contract Laboratory Program
COC	Chain of Custody
CQC	Contractor Quality Control
CQCP	Contractor Quality Control Plan
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DQO	Data Quality Objective
EH&S	Environmental Health and Safety
EPA	U.S. Environmental Protection Agency
FADL	Field Activity Daily Log
FWV	Field Work Variance
FWV/M	Field Work Variance/Modification
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
H&S	Health and Safety
HSP	Health and Safety Procedure
IATA	International Air Transportation Association
ICP	Inductively Coupled Plasma
ID	Identification
ISO	International Standards Organization
LCS	Laboratory Control Standard
LEHR	Laboratory for Energy-Related Health Research
LIMS	Laboratory Information Management System
LPM	Laboratory Project Manager

M&TE	Measurement and Test Equipment
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSA	Method of Standard Additions
NCR	Nonconformance Report
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety and Health Administration
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability and Sensitivity
PC	Project Chemist
PCPM	Project Contracts and Procurement Manager
PE	Performance Evaluation
PHSM	Project Health and Safety Manager
PHSP	Project Health and Safety Plan
PM	Project Manager
PQAM	Project Quality Assurance Manager
PQAS	Project Quality Assurance Specialist
PQL	Practical Quantitation Limit
PRCM	Project Radiological Control Manager
PTL	Project Task Leader
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
QCR	Quality Control Report
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation
RIDS	Records Inventory and Disposition Schedule/File Index
RPD	Relative Percent Differences
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
SOV	Soil Organic Vapor
SQP	Standard Quality Procedure
SRM	Standard Reference Materials

---

SWO(s)	Stop Work Order(s)
UCD	University of California, Davis, California
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
WA	Weiss Associates

## **APPENDIX B**

### **TERMS AND DEFINITIONS**

## TERMS AND DEFINITIONS

*Acceptance Criteria*—Specified limits placed on characteristics of an item, process, or service defined in codes, standards or other requirement documents.

*Activities that Affect Quality*—Activities that, if not performed properly, could compromise the validity of information or data reported, which could result in an unacceptable risk to the environment, health, or safety of the public or the workers involved, or could have a detrimental effect on the achievement of the project objectives.

*Assessment*—An all-inclusive term used to denote any of the following: audit, performance evaluation, management systems review, peer review, or surveillance performed by or for management.

*Audit*—A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

*Audit Team*—One or more persons who are responsible for audit performance and reporting. The team may consist of, or is headed by, an individual designated as the Audit Team Leader.

*Audit Team Leader*—The individual responsible who organizes and directs the audit, coordinates the preparation and issuance of the Audit Report, and evaluates the responses.

*Conditions Adverse to Quality*—An all inclusive term used in reference to any of the following: failure to meet performance objectives, malfunctions, deficiencies, defective items, and nonconformance. A significant condition adverse to quality is one which, if uncorrected, could have a serious effect on safety or operability.

*Contractor Task Plan*—The term used to denote the document prepared by the Contractor in response to a DOE Task Assignment request for the conducting a task, or group of tasks, in support of ER/WM activities at the LEHR project site.

*Contractor Quality Control Plan (CQCP)*—A generic term for CQC plans that are sub-tier to the QAPP. The CQCPs are written to support Work Plans or similar documents or to describe how internal organizations implement their QC responsibilities. An orderly assembly of detailed and specific procedures which delineates how project task order activities are conducted for a specific task.

*Controlled Documents*—Documents which have been assigned a unique identifier and issued to a specific person, discipline, or facility. These documents are maintained current by accounting for their initial issue and revisions.

*Corrective Action*—Measures taken to rectify conditions adverse to quality and, where necessary, to preclude repetition.

*Document*—Any written or pictorial information describing, defining, specifying, reporting, or certifying activities, requirements, procedures or results. A document is not considered to be a QA record until it satisfies the definition of a QA record.

*DOE Task Assignment*—The term used to denote a request by the DOE for the completion a task, or group of tasks, in support of ER/WM activities at the LEHR project site.

*External Audit*—An audit of those portions of another organization's QA program not under the direct control or within the organizational structure of the auditing organization.

*Field Work Variance*—Documented authorization from the Contracting Officer to depart from specified requirements.

*Finding*—A document statement of fact concerning a noncompliance or deviation from established requirements.

*Health and Safety Procedure*—A written document that details the health and safety requirements to accompany an operation, analysis, or action whose mechanisms are thoroughly prescribed and that is commonly accepted as the method for performing certain routine or repetitive tasks in a safe manner.

*Independent (Personnel)*—A condition characterizing an individual or group of individuals qualified to analyze, review, inspect, test, audit, or otherwise evaluate data and work results because:

- He/she/they had no direct responsibility for, or involvement in, performing the activity or work; and,
- He/she/they is/are not accountable for the activity or work result.

*Indoctrination*—To provide initial information to personnel which will familiarize them with the general criteria of the project, applicable QC Project elements and job responsibilities.

*Inspection*—Examination or measurement to verify whether an item or activity conforms to a specified requirements.

*Inspector*—A person who performs inspection activities to verify conformance to specific requirements.

*Internal Audit*—An audit of those portions of an organization's QA/QC program retained under its direct control and within its organizational structure.

*Item*—An all-inclusive term used in place of any of the following: appurtenance, facility, sample, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, system, unit, documented concepts, or data.

*Item to Inspect*—An item that requires a level of inspection as required to meet the cost, schedule, or quality objectives of the Project.

*Nonconformance*—A deficiency in characteristic documentation or procedure which renders the quality of an item unacceptable or indeterminate with respect to project criteria. Examples of nonconformances include, but are not limited to test failures, physical defects, incorrect or inadequate documentation, data losses, or deviation from prescribed processing, inspection, or procedure.

*Objective Evidence*—Any documented statement of fact, other information, or record, either quantitative or qualitative, pertaining to the quality of an item or activity that is based on observations, measurements or tests that can be verified.

*Observation*—A statement of fact regarding the potential for a noncompliance which could lead to a more serious problem if not identified and/or corrected, but which does not constitute a lack of compliance with established requirements.

*Procedure*—A document that specifies or describes how an activity is to be performed.

*Procurement Document*—Purchase requisitions, purchase orders, drawings, contracts, specifications, or instructions used to define requirements for purchase.

*Program Manager*—The Contractor organizational manager having direct responsibility for administration and direction of the DOE Contract.

*Project Quality Assurance Manager*—The person having direct project responsibility for ensuring that the quality of the LEHR project complies with the requirements of the QAPP.

*Project Quality Assurance Specialist*—Persons reporting to the PQAM for the purpose of quality control that have been judged by the PQAM as having sufficient training and qualifications for conducting QA/QC for those areas of the LEHR project as directed by the PQAM.

*Project Task*—A subset of the work to be conducted in support of ER/WM for the LEHR site.

*Project Task Leader*—Persons that are responsible for individual tasks on the LEHR project and that report to the Project Manager.

*Quality Assurance Project Plan*—A document that describes the management system for planning, performing, and assessing work to ensure that the results demonstrate stated quality, technical, and performance objectives. The Quality Assurance Project Plan (QAPP) will describe the organizational structure, QC policies and procedures, functional responsibilities, levels of accountability and authority, and necessary interfaces for organizations performing activities in support of the project management office.

*Qualification (Personnel)*—The characteristics or abilities gained through education, training, and/or experience, as measured against established requirements, such as standards, tests and/or evaluation that qualify a person to perform a required function.

*Quality*—The degree to which an item or process meets or exceeds the user's requirements and expectations.

*Quality Assurance*—All of those planned and systematic actions necessary to provide confidence that a structure, system, or component will perform satisfactorily in service. When the product is a report of a significant study or investigation, Quality Assurance (QA) also comprises those planned and systematic actions necessary to provide adequate confidence in the validity and integrity of the reported data, methods, and procedures and in the protection, retrievability, and replicability of the data. The quality management system includes a multidisciplinary system of management controls backed by quality verification and overview activities that demonstrate completeness and appropriateness of achieved quality.

*Quality Assurance Documents*—Those documents which establish the Contractor requirements and methods to implement DOE activities. These documents are identified as the Work Plan, Sampling and Analysis Plan, Contractor Quality Control Plan, Standard Quality Procedures, Standard Operating Procedures, Project Health and Safety Plan, Health and Safety Procedures, and Field Work Variances.

*Quality Assurance Procedures*—Quality assurance procedures are procedures developed to ensure the quality assurance objectives of task activities is met by application of pre-approved project procedures. These procedures are limited to SQPs and SOPs. HSPs are subject to a review process that includes the PQAM but are not generally classed as Quality Assurance Procedures.

*Quality Control Program*—The overall program established by an organization to implement the requirements of the contract document. The program assigns responsibilities and authorities, defines policies and requirements, and provides for the performance and assessment of work. The QC program is described in the QAPP.

*Quality Control Record*—A completed document that furnishes evidence of the quality of items and/or activities affecting quality.

*Quality Control*—The quality control (QC) actions that control the attributes of a material, sample, process, component, system, or facility in accordance with predetermined quality requirements. The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process. These actions necessary to control and verify the features and characteristics of a material, process, product or service to specified requirements.

*Preparatory Inspection*—A systematic, documented review of the readiness for startup or continued extended use of a facility, process or activity. Preparatory inspections are typically conducted before proceeding beyond project milestones and prior to institution of a major phase of work activities.

*Readiness Review Inspection*- An inspection as required for tasks and activities as defined in the QAPP with notification and involvement of the DOE.

*Receiving*—Taking delivery of an item at a designated location.

*Repair*—The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement.

*Rework*—The process by which an item is made to conform to original requirements by completion or correction.

*Senior Management*—The top organizational manager for each participant (e.g., the Program Manager, etc.).

*Significant Condition Adverse to Quality*—A condition that, if left uncorrected, could have a serious effect on safety or operability. This term includes environmental and project compliance.

*Standard Operating Procedure*—A written document that details an operation, analysis, or action whose mechanisms are thoroughly prescribed and that is commonly accepted as the method for performing certain routine or repetitive tasks.

*Standard Quality Procedure*—A set of implementing procedures which establish the responsibilities and describe the methods of performing quality-affecting activities in response to the QAPP and CQCP requirements.

*Stop Work Order*—The order issued to the management of a Contractor Department or Contractor Supplier to stop further processing, delivery, installation, or operation until proper disposition of a nonconformance, deficiency or unsatisfactory condition has occurred.

*Supplier*—Any individual or organization that furnishes items or services in accordance with a procurement document. An all-inclusive term used in place of any of the following: vendor, seller, contractor, subcontractor, fabricator, consultant and their subtier levels.

*Surveillance*—The act of monitoring or observing to verify whether an item or activity conforms to specified requirements.

*Technical Specialist*—One or more persons who are assigned to the audit team due to the specialized or technical aspects of the areas to be audited. Technical Specialists are selected based on their special abilities, specialized technical training, and/or prior experience in the specialized or technical aspects of the area to be audited.

*Training*—To impart specific information with regard to job functions which will achieve initial proficiency, maintain proficiency and adapt to changes in technology, methods or job functions.

*Uncontrolled Document*—A document which is issued current but which is not maintained current with revisions. Uncontrolled documents may initially be numbered and issued to individuals but will not be maintained as controlled or current.

*Use-As-Is*—A disposition permitted for a nonconforming item when it can be established that the item is satisfactory for its intended use.

## **APPENDIX C**

### **LISTING OF STANDARD QUALITY PROCEDURES AND PROPOSED STANDARD OPERATING PROCEDURES**

## LISTING OF STANDARD QUALITY PROCEDURES

<u>SQP No.</u>	<u>Title</u>
SQP 1.1	Contractor Quality Control Program
SQP 3.1	Client Satisfaction Survey
SQP 3.2	Indoctrination and Training
SQP 3.3	Readiness Review Inspection
SQP 4.1	Document Control
SQP 4.2	Records Management
SQP 5.1	Preparation, Revision and Approval of Plans and Procedures
SQP 7.1	Quality Inspections and Inspection Records
SQP 7.2	Receipt Inspection
SQP 8.1	Calibration and Maintenance of Measuring and Test Equipment
SQP 10.1	Nonconformance Control
SQP 10.2	Corrective Action
SQP 10.3	Stop Work Order
SQP 11.1	Field Work Variance/Modification
SQP 12.1	Quality Audits
SQP 12.2	Management Assessment
SQP 12.3	Quality Surveillances

Note: SQPs may be revised, added, or deleted in accordance with the provisions of the Quality Assurance Project Plan. An updated list of SQPs will be maintained as a controlled document and will be available to the project team for use on the LEHR project. SQPs are not numbered sequentially. Therefore, a missing number in the above list does not signify that a SQP is missing.

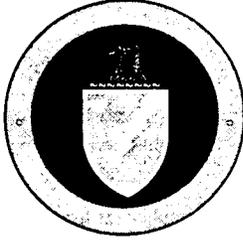
## LISTING OF PROPOSED STANDARD OPERATING PROCEDURES

<u>SOP No.</u>	<u>Title</u>
SOP 1.1	Chain-of-Custody
SOP 2.1	Sample Handling, Packaging and Shipping
SOP 3.1	Surface and Shallow Subsurface Soil Sampling
SOP 3.2	Subsurface Soil Sampling While Drilling
SOP 5.1	Water Level Measurements in Monitoring Wells
SOP 5.2	Non-aqueous Phase Liquid Measurement in Monitoring Wells
SOP 6.1	Sampling Equipment and Well Material Decontamination
SOP 6.2	Drilling and Heavy Equipment Decontamination
SOP 6.3	Radiological Decontamination Procedures
SOP 7.1	Surface and Subsurface Geophysics
SOP 8.1	Monitoring Well Installation
SOP 8.2	Monitoring Well Development
SOP 8.3	Borehole and Well Abandonment
SOP 9.1	Ground Water Sampling
SOP 10.1	Soil Organic Vapor Sampling
SOP 10.2	Cone Penetration Testing and Hydropunch® Ground Water Sampling
SOP 11.1	Aquifer Testing
SOP 12.1	Soil Stockpiling
SOP 13.1	Indoor Air Quality Sampling Using Summa® Canisters
SOP 14.1	Hollow Stem Auger Drilling
SOP 14.2	Mud Rotary Drilling
SOP 14.3	Air Rotary Drilling
SOP 14.4	Dual Tube Percussion Drilling
SOP 17.1	Sample Labeling
SOP 17.2	Sample Numbering
SOP 18.1	Field QC Sampling
SOP 19.1	On-Site Sample Storage

---

SOP 21.1	Data Validation
SOP 23.1	Land Surveying
SOP 24.1	Radiological Areas and Postings
SOP 25.1	Radiological Surveys and Instrumentation
SOP 25.2	Radiological Survey Forms
SOP 29.1	Drum Crusher Operation and Servicing
SOP 30.1	Taskmaster Heavy Duty Solids Disintegrator (Shredder) Operation and Servicing
SOP 31.1	Lead Characterization, Packaging and Shipping
SOP 32.1	Contamination Control
SOP 34.1	Waste Processing and Packaging
SOP 34.2	Low-Level Radioactive Waste Storage
SOP 34.3	Waste Shipment
SOP 34.4	Clean Waste Handling
SOP 35.1	Waste Certification
SOP 38.1	Check-In and Orientation for Radiological Workers, General Employees or Members of the Public
SOP 38.2	External Dosimetry Issuance
SOP 39.1	LEHR Site Inspection
SOP 40.1	Ambient Radiation Monitoring Program Inspection and Reporting
SOP 41.1	LEHR Document Review Procedures

Note: The above list represents proposed SOPs that may be issued for the LEHR project as required by project tasks. SOPs may be revised, added, or deleted in accordance with the provisions of the Quality Assurance Project Plan. An updated list of SOPs will be maintained as a controlled document and will be available to the project team for use on the LEHR project. SOPs will be reviewed for applicability, and updated as necessary, during the planning phase of each project task using the guidance presented in the QAPP. SOPs are not numbered sequentially. Therefore, a missing number in the above list does not signify that a SOP is missing. Only select SOPs are referenced in this document.



# **U.S. Department of Energy**

Oakland Operations Office, Oakland, California

---

---

## **FINAL STANDARD QUALITY PROCEDURES**

For the

**DOE AREAS AT THE LABORATORY FOR  
ENERGY-RELATED HEALTH RESEARCH  
UNIVERSITY OF CALIFORNIA, DAVIS**

*Prepared for:*

**United States Department of Energy**  
Oakland Operations Office  
1301 Clay Street  
Oakland, California 94612-5208

*Prepared by:*

**Weiss Associates**  
5801 Christie Avenue, Suite 600  
Emeryville, California 94608-1827

DOE Oakland Operations Contract DE-AC03-96SF20686

---

---

# FINAL STANDARD QUALITY PROCEDURES

For the:

DOE AREAS AT THE LABORATORY FOR  
ENERGY-RELATED HEALTH RESEARCH  
UNIVERSITY OF CALIFORNIA, DAVIS

*Prepared for:*

**United States Department of Energy**  
Oakland Operations Office  
1301 Clay Street  
Oakland, California 94612-5208

*Prepared by:*

**Weiss Associates**  
5801 Christie Avenue, Suite 600  
Emeryville, California 94608-1827

DOE Oakland Operations Contract DE-AC03-96SF20686

Issued To: \_\_\_\_\_ Date: \_\_\_\_\_

Copy No.: \_\_\_\_\_  Controlled  Uncontrolled

Approvals Page

FINAL STANDARD QUALITY PROCEDURES

for the:

DOE AREAS AT THE LABORATORY FOR  
ENERGY-RELATED HEALTH RESEARCH  
UNIVERSITY OF CALIFORNIA, DAVIS

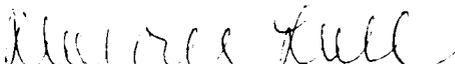
*Prepared for:*

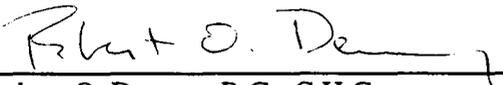
**United States Department of Energy**  
Oakland Operations Office  
1301 Clay Street  
Oakland, California 94612-5208

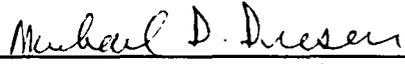
*Prepared by:*

**Weiss Associates**  
5801 Christie Avenue, Suite 600  
Emeryville, California 94608-1827

June 27, 2000

Approved by:  Date: 7/31/00  
Dolores Loll  
Project Quality Assurance Manager  
Weiss Associates

Approved by:  Date: 8/1/00  
Robert O. Devany, R.G., C.H.G.  
Project Manager  
Weiss Associates

Approved by:  Date: 8-2-00  
Michael D. Dresen, R.G., C.H.G.  
Program Manager  
Weiss Associates

## TABLE OF CONTENTS AND LOG OF REVISIONS

### STANDARD QUALITY PROCEDURES

<u>SQP No.</u>	<u>Title</u>	<u>Rev.</u>	<u>Date</u>
SQP 1.1	Contractor Quality Control Program	0	1/98
SQP 3.1	Client Satisfaction Survey	0	1/98
SQP 3.2	Indoctrination and Training	0	1/98
SQP 3.3	Readiness Review Inspection	0	1/98
SQP 3.4	Preparatory Phase Planning Guidance	0	4/00
SQP 4.1	Document Control	0	1/98
SQP 4.2	Records Management	0	1/98
SQP 5.1	Preparation, Revision and Approval of Plans and Procedures	0	1/98
SQP 7.1	Quality Inspections and Inspection Records	0	1/98
SQP 7.2	Receipt Inspection	1	12/99
SQP 8.1	Calibration and Maintenance of Measuring and Test Equipment	0	1/98
SQP 10.1	Nonconformance Control	0	1/98
SQP 10.2	Corrective Action	0	1/98
SQP 10.3	Stop Work Order	0	1/98
SQP 11.1	Field Work Variance/Modification	2	3/00
SQP 12.1	Quality Audits	0	1/98
SQP 12.2	Management Assessment	1	3/00
SQP 12.3	Quality Surveillances	0	1/98

### FORMS FOR STANDARD QUALITY PROCEDURES

<u>SQP No.</u>	<u>Form No.</u>	<u>Form Title</u>	<u>Rev.</u>	<u>Date of Rev.</u>
SQP 1.1	None			
SQP 3.1	SQP3_1A	Client Satisfaction Survey Form	0	1/98
	SQP3_1B	Quality Management Client Survey Form	0	1/98
	SQP3_1C	Quality Management Client Follow-up Questions Form	0	1/98
SQP 3.2	SQP3_2A	Training Matrix Form	0	1/98
	SQP3_2C	Training Attendance Record	0	1/98
	SQP3_2D	Required Reading Checklist	0	1/98

<u>SQP No.</u>	<u>Form No.</u>	<u>Form Title</u>	<u>Rev.</u>	<u>Date of Rev.</u>
SQP 3.3		[see forms in SQP 7.1]		
SQP 3.4	SQP3_4A	Preparatory Phase Planning Flowchart	0	4/00
	SQP3_4B	Pre-Phase Planning Guidance Form	0	4/00
SQP 4.1	SQP4_1A	Document Control Log	0	1/98
	SQP4_1B	Document Transmittal Form	0	1/98
SQP 4.2	SQP4_2A	Record/File Check-out Sheet	0	1/98
SQP 5.1	SQP5_1A	Document Change Request	0	1/98
	SQP5_1B	Quality Improvement Request	0	1/98
SQP 7.1	SQP7_1A	Items to Inspect Checklist	0	1/98
	SQP7_1B	Contractor Quality Control Report	0	1/98
SQP 7.2	SQP7_2A	Receipt Inspection Report	1	12/99
	SQP7_2B	Conditional Release Tracking Log	1	12/99
SQP 8.1	SQP8_1A	Test Equipment List and Calibration Log	0	1/98
SQP 10.1	SQP10_1A	Nonconformance Report/Corrective Action	0	1/98
	SQP10_1B	Nonconformance Report/Corrective Action Log	0	1/98
SQP 10.2	SQP10_2A	[see forms in SQP 10.1]		
SQP 10.3	SQP10_3A	Stop Work Order	0	1/98
	SQP10_3B	Stop Work Order Log	0	1/98
SQP 11.1	SQP11_1A	Field Work Variance/Modification	2	3/00
	SQP11_1B	Field Work Variance Modification Procedure Flowchart	2	3/00
	SQP11_1C	Field Work Variance/Modification Tracking Log	2	3/00
SQP 12.1	SQP12_1A	Audit Plan	0	1/98
	SQP12_1B	Audit Report Format and Content	0	1/98
	SQP12_1C	Quality Audit Finding Report	0	1/98
SQP 12.2	None			
SQP 12.3	SQP12_3A	Quality Assurance Project Surveillance Report	0	1/98

Note: SQPs and associated forms may be revised, added, or deleted in accordance with the provisions of the Quality Assurance Project Plan. SQPs and associated forms are not numbered sequentially. Therefore, a missing number in the above list does not signify that a SQP or associated form is missing.

---

# CONTRACTOR QUALITY CONTROL PROGRAM

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) describes the Quality Assurance Project Plan (QAPP) developed to implement the quality requirements applicable to activities authorized by the Department of Energy (DOE) for work pertaining to the LEHR Environmental Restoration Project. These SQPs were prepared on behalf of the DOE by Weiss Associates in cooperation with IT Corporation and EMS for the express use on the LEHR Environmental Restoration Project. These SQPs are for use by each contractor performing work on the LEHR project and are intended to be used in lieu of any other contractor corporate policies pertaining to LEHR project work requiring application of the SQPs. These SQPs are intended to replace all SQPs previously used on the LEHR Environmental Restoration Project and will be employed for future LEHR project tasks unless revisions are implemented at a future date. The QAPP is applicable to quality affecting activities provided to the LEHR Project by Contractors and Subcontractors performing activities related to the DOE Contract.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan (QAPP)*

2.2 *SQP 4.1 - Document Control*

### 3.0 DEFINITIONS

None.

### 4.0 PROCEDURE

#### 4.1 *Responsibilities*

4.1.1 The Program Manager is responsible for the overall implementation of the QAPP. The Program Manager should establish and cultivate principles and practices that integrate quality requirements into the daily work and provide individuals performing the work with proper information, tools, support and encouragement to properly perform their assigned work.

4.1.2 The Project Manager (PM) is responsible for assisting the Program Manager to assure that the overall goals and objectives for the project and project tasks are clearly stated and communicated to participating personnel. The Project Manager will provide direct oversight and coordination of Project operations in order to assure that they are suitably controlled, including acting on the behalf of the Program Manager in his/her absence.

4.1.3 The Project Quality Assurance Manager (PQAM) is responsible for preparing the QAPP and applicable SQPs and Standard Operating Procedures (SOPs) which describe the implementation of the requirements of the QAPP for QA activities. He/She will prepare or coordinate the preparation or revision of the QAPP, and provide oversight and assistance in the implementation of the QAPP. Further, this individual will be the primary spokesperson on matters related to the Quality Assurance for the LEHR Environmental Restoration Project.

## **4.2 Program Basis**

4.2.1 The QAPP was developed utilizing selected concepts from the best or accepted industry quality management practices and requirements from applicable national and international standards. These practices and requirements are based upon U.S. DOE Order 5700.6c "Quality Assurance" and QAMS 005/80 (EPA, December 29, 1980) "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans."

4.2.2 The implementing procedures presented in the QAPP, SQPs, and SOPs, are designed to implement the quality requirements contained in the QAPP applicable to the project activities. Specifically excluded from the QAPP are procedures for safety, security, and project administration.

## **4.3 Program Organization**

4.3.1 SQPs and SOPs are developed to implement the requirements of the QAPP by Quality Control and Technical/Construction Personnel, as applicable. The SQPs and SOPs will be reviewed and approved by responsible management prior to their implementation.

4.3.2 Quality affecting SOPs prepared to perform project activities are prepared and revised by Technical/Construction Personnel under the direction of the Project Task Leaders (PTLs) and are reviewed and approved by the Program Manager, Project Manager, PQAM and, as applicable, the Project Health and Safety Manager/Radiological Control Manager.

4.3.3 The current revision of SQPs and SOPs required to implement the project activities are maintained in the project and site files, and are available from the Project or Site Records Administrator.

4.3.4 The task-specific QA plan will be prepared by the PTL and task Project Quality Assurance Specialist (PQAS) through a selection of the applicable quality criteria necessary to accomplish the scope of work, and will be approved by the PQAM. The selection and documentation of the quality criteria will be provided within an individual task-specific work plan. The Readiness Review (SQP 3.3) or the Preparatory Phase Inspection (SQP 7.1) for specific tasks will, in general, reference the applicable sections of the QAPP and SQPs/SOPs appropriate to the activities. Additional task

specific requirements will be included within each Readiness Review or Preparatory Phase Inspection by the inclusion of text which either adds additional requirements or modifies existing requirements. This method will enhance the project office ability to provide a quick turnaround of individual project tasks as existing information which was previously approved will be used as the baseline for conducting the work of individual tasks. This will also provide consistency across the various project tasks, and allow a reduction in the overall time and cost required to implement work on tasks. Whenever practical, subcontractors will be integrated into the provisions of the SQPs and SOPs to avoid keeping concurrent multiple sets of standard procedures.

## **5.0 RECORDS**

None.

## **6.0 ATTACHMENTS**

None.

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

---

# CLIENT SATISFACTION SURVEY

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities associated with the performance of project self-assessments for activities implemented during the performance of work.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan (QAPP)*

2.2 *SQP 4.2 - Records Management*

### 3.0 DEFINITIONS

#### 3.1 *Client Satisfaction Survey*

A survey performed by contractor upper management with a client to assess their satisfaction with the contractor's work performance and implementation of contract requirements. An effective total quality management tool used to evaluate a client's satisfaction with work performed.

### 4.0 PROCEDURE

#### 4.1 *General*

4.1.1 This procedure establishes the process for identifying, assessing, and improving work practices. This effort will focus on improvement of work processes being used to achieve project objectives. A client satisfaction survey as conducted by the Program Manager will be utilized to review and evaluate specific criteria to determine the level of execution and recommend improvements in the implementation of project requirements and project management.

#### 4.2 *Responsibilities*

4.2.1 The Program Manager has the overall responsibility for the development and implementation of the client satisfaction survey. He/She will delegate the authority, resources and personnel for the team to perform their assigned task. He/She is responsible for the performance of Client Satisfaction Surveys for the project on a periodic basis.

4.2.2 The Program Manager is responsible for monitoring the project activities concerning quality issues as raised during the client satisfaction survey process and for providing direction and assistance on improvement suggestions affecting the quality program.

4.2.3 The Project QA Manager (PQAM) is responsible for approving revisions or substitutions of the SQP forms.

### **4.3 Client Satisfaction Survey**

4.3.1 The greatest measure of project success may rest with Client Satisfaction. This is of such importance that the Program Manager will direct this activity using the Client Satisfaction Survey form (Attachment 6.1), the Quality Management Client Survey form (Attachment 6.2), and/or the Quality Management Follow-up Questions form (Attachment 6.3). The survey should be performed on no less than an annual basis well before project completion to allow adequate time to evaluate and respond to client concerns. Appropriate client needs are to be identified prior to performing the survey to assure the information received is consistent with survey objectives. At the contract/program level, the appropriate client would be the appropriate DOE Contracting Officer. For assessing activities specific to individual tasks, the assigned Contracting Officers Representative for the project would be the appropriate client. The Program Manager will determine which Client Satisfaction Survey form(s) will be used and the client representatives that will be polled.

4.3.2 The Project Manager will be informed of the survey results, and copies of the survey will be sent to the PQAM, and the project files. When results warrant, a management meeting will be held to correct deficient activities.

## **5.0 RECORDS**

Records generated as a result of implementing this SQP will be controlled and maintained in the project record files in accordance with SQP 4.2.

## **6.0 ATTACHMENTS**

**6.1** *Client Satisfaction Survey Form*

**6.2** *Quality Management Client Survey Form*

**6.3** *Quality Management Client Follow-up Questions Form*

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **CLIENT SATISFACTION SURVEY FORM**

Dear

Service is our product; Quality is our goal. Please indicate how you feel about the services billed this period. We greatly value your feedback.

1 2 3 4 5 6 7 8 9 10  
Unhappy Extremely Happy

Comments:

*Michael D. Dresen*

Michael D. Dresen

**Weiss Associates' Mission:**

*"WA is an innovative, thoughtful, service-driven team dedicated to achieving our client's environmental goals."*

## **ATTACHMENT 6.2**

### **QUALITY MANAGEMENT CLIENT SURVEY FORM**



## **ATTACHMENT 6.3**

### **QUALITY MANAGEMENT CLIENT FOLLOW-UP QUESTIONS FORM**

## WEISS ASSOCIATES 1997 QUALITY MANAGEMENT CLIENT FOLLOW-UP QUESTIONS

---

Name:

Date:

Company:

---

**\* = Required Question**

1. What are the three primary characteristics you look for in an environmental consultant?\*
2. Do you feel Weiss Associates (WA) matches the characteristics identified in question one? Why or why not?\*
3. On a scale of 1 to 10, 10 being the highest, how do you perceive our overall performance compared to other consultants?\*
4. Generally speaking, what are other consultants doing better than WA?
5. What are WA's strengths?\*
6. What are WA's weaknesses?
7. What can we do to improve our services and better meet your needs?

8. Is our work cost competitive?\*

9. How would you rate our communication:\*

- On technical issues:
- On budget/cost:
- Overall:

10. Over the past year do you feel WA's reputation has gotten better, worse or stayed the same?\*

11. WA has several service areas. Would you please comment on whether you have used WA in this area, would use WA if the need arose, or did not know we provided this service.

SERVICE	HAVE USED	WOULD USE	DID NOT KNOW
Site Characterization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineering and Remediation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk Assessment and Modeling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental Management Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forensic Support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air Programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovative Technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Other comments/questions/issues:

---

# INDOCTRINATION AND TRAINING

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for the indoctrination and training of personnel who will perform quality-affecting activities on the Contract.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan*

2.2 *SQP 4.2 - Records Management*

### 3.0 DEFINITIONS

#### 3.1 *Indoctrination*

To provide initial information to personnel which will familiarize them with the general criteria of the project/task activities, applicable quality criteria and job responsibilities.

#### 3.2 *Qualification (Personnel)*

The characteristics or abilities gained through education, training, and/or experience, as measured against established requirements, such as standards, tests and/or evaluation that qualify a person to perform a required function.

#### 3.3 *Training*

To impart specific information with regard to job functions which will achieve initial proficiency, maintain proficiency and adapt to changes in technology, methods or job functions.

### 4.0 PROCEDURE

#### 4.1 *General Requirements*

4.1.1 Scheduling of all training activities will be on an as-needed basis. Training will be conducted to assure personnel receive initial training and periodic refresher training when required.

4.1.2 Personnel will be indoctrinated, as a minimum, to the applicable quality plans and procedures, project/task objectives and goals, and applicable technical plans which identify technical criteria prior to performing work on a task. It is the responsibility of the Project Manager or Project Task Leader (PTL) to assure that personnel assigned to task activities attend a QA indoctrination which is conducted by the Project Quality Assurance Manager/Project QA Specialist (PQAM/PQAS).

## **4.2 Training**

4.2.1 Training of personnel performing quality affecting activities will be conducted in accordance with the training requirements established within training matrices (Attachment 6.1) for each job position on assigned task.

4.2.2 The Project Manager or PTL and PQAM/PQAS will develop training matrices which will include the planning documents and procedures. The training matrices will identify by job classification the training requirements for the plans and procedures. Other required training (e.g., operator, equipment etc.) will also be identified.

4.2.3 Training will be performed using any of the following methods or a combination of the methods listed below:

- Training provided by a Manufacturer or Supplier;
- Classroom instruction;
- On-the-job with demonstration of capabilities on actual equipment; or,
- Required reading assignments.

4.2.4 Training instructors will be designated by the Project Manager or PTL based on operation and/or experience with the particular subject. He/she will have the option of using vendor representatives or a combination of vendor and project/task personnel for instructors, as appropriate.

## **4.3 Project Task Requirements**

4.3.1 The PTL is responsible for ensuring that site personnel are properly indoctrinated and trained in the implementation of project task plans and procedures prior to their involvement in project task activities.

4.3.2 Attendance of indoctrination and training will be documented on a Training Attendance Record (Attachment 6.3), and/or Required Reading Checklist (Attachment 6.4), as applicable.

## **4.4 Equipment Training**

4.4.1 Personnel will be trained and qualified in the operation, maintenance, repair, and calibration of equipment, instruments, and tools prior to their utilization.

4.4.2 The instructor will provide training by reviewing with trainees the operation procedure or operation and maintenance manuals of the equipment manufacturer.

4.4.3 The trainee will demonstrate for the instructor the proper operation and maintenance of equipment through utilization of that equipment, or

4.4.4 The trainee will demonstrate for the instructor on an authentic mock-up the safe operation and maintenance where this is more practical.

4.4.5 If equipment manufacturers or suppliers can provide acceptable training in the operation and servicing of their equipment, those services will be utilized.

## **5.0 RECORDS**

Records generated as a result of this SQP will be controlled and maintained in the project record files in accordance with SQP 4.2.

## **6.0 ATTACHMENTS**

*6.1 Training Matrix Form*

*6.2 Training Attendance Record*

*6.3 Required Reading Checklist*

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **TRAINING MATRIX FORM**

**PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX**

Task Leader Approval: \_\_\_\_\_ Date: \_\_\_\_\_

Program Quality Assurance Manager Approval: \_\_\_\_\_ Date: \_\_\_\_\_

Employee Name: \_\_\_\_\_ LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_ Date: \_\_\_\_\_

Document Section	Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
------------------	----------------	-----------------	-----------------	---------------------------	---	---------------------------------------	----------------------	------------------------------------	--------------------------------	-------------------------	-------------------	--------------------	-----------------------	--------------------------------------	-----------------------

**QAPP QUALITY ASSURANCE PROJECT PLAN**

Sect. 1	Introduction		X	X	X	X	X	X	X	X	X	X	X	X	X
Sect. 2	Organization and Responsibilities		X	X	X	X	X	X	X	X	X	X	X	X	X
Sect. 3	Quality Control Management		X	X	X	X	X	X	X	X	X	X	X	X	X
Sect. 4	Document Control and Records Management		X	X	X	X	X	X	X	X	X	X	X	X	X
Sect. 5	Personnel Training and Qualification		X	X	X	X	X	X	X	X	X	X	X	X	X
Sect. 6	Instruction, Procedures, and Drawings						X	X							
Sect. 7	Procurement Quality Assurance Activities		X	X		X									
Sect. 8	Field Sampling Activities			X			X			X		X			

PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX

Employee Name: \_\_\_\_\_

LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_

Date: \_\_\_\_\_

Document Section	Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
Sect. 9 Analytical Activities			X				X					X			
Sect. 10 Design Control							X								
Sect. 11 Report Preparation Review of Work		X	X	X	X	X	X	X	X		X	X	X		
Sect. 12 Activities		X	X	X	X	X	X	X	X	X	X	X	X	X	
Sect. 13 Inspections		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sect. 14 Calibration and Maintenance of Measuring and Test Equipment							X			X					
Sect. 15 Test Control							X					X			
Sect. 16 Nonconformance Control and Corrective Actions		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sect. 17 Change Control		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sect. 18 Audits and Surveillance		X	X	X	X	X	X	X	X	X	X	X	X	X	X

PROGRAM OFFICE PERSONNEL QUALIFICATION ASSURANCE DEPARTMENT TRAINING MATRIX

Employee Name: \_\_\_\_\_ LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_ Date: \_\_\_\_\_

Document Section	Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
------------------	----------------	-----------------	-----------------	---------------------------	---	---------------------------------------	----------------------	------------------------------------	--------------------------------	-------------------------	-------------------	--------------------	-----------------------	--------------------------------------	-----------------------

**SQPs STANDARD QUALITY PROCEDURES**

SQP-1.1	Contractor Quality Control Program	X										X	X		
SQP-3.1	Client Satisfaction Survey	X	X	X			X				X				
SQP-3.2	Indoctrination and Training						X	X							
SQP-3.3	Readiness Review						X								
SQP-4.1	Document Control						X		X						
SQP-4.2	Records Management						X		X						
SQP-5.1	Preparation, Revision and Approval of Plans and Procedures		X				X	X	X			X			
SQP-7.1	Quality Inspections and Inspection Records						X					X			
SQP-7.2	Receipt Inspection						X			X		X			

PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX

Employee Name: \_\_\_\_\_

LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_

Date: \_\_\_\_\_

Document Section	Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
Calibration and Maintenance of Measuring and Test Equipment							X			X					
Nonconformance Control		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Corrective Action		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stop Work Order		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Field Work															
Variance/Request for Information		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Quality Audits		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Management Assessment		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Quality Surveillance		X	X	X	X	X	X	X	X	X	X	X	X	X	X

**PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX**

Employee Name: \_\_\_\_\_

LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_

Date: \_\_\_\_\_

Document Section	Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel

**SOPs STANDARD OPERATING PROCEDURES**

SOP 1.1	Chain of Custody														
SOP 2.1	Sampling Handling, Packaging and Shipping														
SOP 3.1	Surface and Shallow Subsurface Soil Sampling														
SOP 3.2	Subsurface Soil Sampling While Drilling														
SOP 5.1	Water Level Measurements in Monitoring Wells														
SOP 5.2	Nonaqueous Phase Liquid Measurements in Monitoring Wells														

**PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX**

Employee Name: \_\_\_\_\_

LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_

Date: \_\_\_\_\_

Document Section	Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
SOP 6.1	Sampling Equipment and Well Material Decontamination														
SOP 6.2	Drilling and Heavy Equipment Decontamination														
SOP 6.3	Radiological Decontamination Procedures														
SOP 7.1	Surface and Subsurface Geophysics														
SOP 8.1	Monitoring Well Installation														
SOP 8.2	Monitoring Well Development														
SOP 8.3	Borehole and Well Abandonment														
SOP 9.1	Groundwater Sampling														
SOP 10.1	Soil Organic Vapor Sampling														

PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX

Employee Name: \_\_\_\_\_

LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_

Date: \_\_\_\_\_

Document Section		Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
SOP 10.2	Cone Penetration Testing and Hydropunch Groundwater Sampling															
SOP 11.1	Aquifer Testing															
SOP 12.1	Soil Stockpiling															
SOP 13.1	Indoor Air Quality Sampling Using Summa Canisters															
SOP 14.1	Hollow Stem Auger Drilling															
SOP 14.2	Mud Rotary Drilling															
SOP 14.3	Air Rotary Drilling															
SOP 14.4	Dual Tube Percussion Drilling															
SOP 17.1	Sample Labeling															
SOP 17.2	Sample Numbering															
SOP 18.1	Field QC Sampling															

**PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX**

Employee Name: \_\_\_\_\_

LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_

Date: \_\_\_\_\_

Document Section	Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
SOP 19.1	On-Site Sample Storage														
SOP 23.1	Land Surveying														
SOP 24.1	Radiological Areas and Postings														
SOP 25.1	Radiological Surveys and Instrumentation														
SOP 25.2	Radiological Survey Forms														
SOP 27.1	Containment Tent Operations/Glovebags														
SOP 29.1	Drum Crusher Operation and Servicing														
SOP 30.1	Taskmaster Heavy Duty Solids Disintegrator (Shredder) Operation and Servicing														

PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX

Employee Name: \_\_\_\_\_

LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_

Date: \_\_\_\_\_

Document Section	Lead	Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
SOP 31.1	Characterization, Packaging and Shipping															
SOP 32.1	Contamination Control															
SOP 34.1	Waste Processing and Packaging															
	Low-Level Radioactive Waste Storage															
SOP 34.2	Waste Shipment															
SOP 34.3	Clean Waste Handling															
SOP 34.4	Waste Certification															
SOP 35.1	Check-In and Orientation for Contractors and Visitors															
SOP 38.1	Personnel and Visitor's Issuance															
SOP 38.2																

PROGRAM OFFICE PERSONNEL QUALITY ASSURANCE DEPARTMENT TRAINING MATRIX

Employee Name: \_\_\_\_\_

LEHR Position: \_\_\_\_\_

Completion Reviewed by Task Leader: \_\_\_\_\_

Date: \_\_\_\_\_

Document Section		Signature/Date	Program Manager	Project Manager	Project Technical Advisor	Project contracts & Procurement Manager	Project Regulatory Compliance Manager	Project Task Leaders	Technical Office Support Personnel	Admin Office Support Personnel	Field Support Personnel	Executive Sponsor	Project QA Manager	Project QA Specialist	Project H&S and Rad. Control Manager	H&S Support Personnel
SOP 39.1	Waste Management Program Inspection															
SOP 40.1	Ambient Radiation Monitoring Program															
SOP 41.1	Data Validation															

## **ATTACHMENT 6.2**

### **TRAINING ATTENDANCE RECORD**



## **ATTACHMENT 6.3**

### **REQUIRED READING CHECKLIST**



---

# READINESS REVIEW INSPECTION

---

## STANDARD OPERATING PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for the performance and documentation of Readiness Review Inspection for activities performed during project tasks to ensure compliance with project requirements. The Readiness Review Inspection is designed to demonstrate that it is safe to start or resume a project field task at the LEHR site. The inspections are not intended to be tools of line management to confirm readiness. Rather, the inspections provide an independent verification of readiness to start or restart an activity at the LEHR site. This inspection is very similar to the Preparatory Phase Inspection (SQP 7.1) and differs primarily in DOE notification and/or involvement in the Readiness Review Inspection.

### 2.0 REFERENCES

- 2.1 *Quality Assurance Project Plan (QAPP)*
- 2.2 *SQP 4.2 - Records Management*
- 2.3 *SQP 7.1 - Quality Inspections and Inspection Records*
- 2.4 *SQP 10.1 - Nonconformance Control*

### 3.0 DEFINITIONS

#### 3.1 *Inspection*

Examination or measurement to verify whether an item or activity conforms to specified requirements.

### 4.0 PROCEDURE

#### 4.1 *Qualification of Inspectors*

4.1.1 Personnel performing inspection activities will have the necessary expertise in the area to be inspected, but will be sufficiently independent of the activity performed.

4.1.2 Prior to performance of inspection activities, personnel designated for that responsibility will review and be thoroughly familiar with the procedures, regulations, etc., governing the activities to be inspected.

## **4.2 Field Inspection Plans and Reports**

4.2.1 Project activities requiring inspection (i.e., Preparatory Phase, Initial Phase and Follow-up Phase) will have an Items to Inspect Checklist (see SQP 7.1) or similar work product (or checklist) prepared for that activity. Inspection(s) will be performed for activities which are identified for major tasks and will be performed consistent with ongoing project activities. As deemed applicable by the Project Manager and the PQAM, a Preparatory Phase Inspection Checklist for each task shall be prepared by the Project Task Leader.

4.2.2 The Items to Inspect checklist will identify the items and activities to be inspected. If hold points are required, the definable Items to Inspect checklist will identify them and indicate required notifications and sign-offs. The Project Manager and PQAM will limit the number of Items to Inspect to ensure that undue inspection activities are not spent on smaller tasks.

4.2.3 If a Nonconformance Report (SQP 10.1) is required for activities being inspected, a reference will be provided on the Contractor QC Report (see SQP 7.1).

4.2.4 The Contractor QC Reports will be issued identifying inspections performed. The report will be completed by the Project QA Specialist (PQAS) and will address each inspection performed during the course of the daily activities.

4.2.5 Items or activities not conforming to inspection acceptance criteria will be resolved and, when determined necessary, documented on a Nonconformance Report. Contractor QC Reports will be logged and sequentially numbered by project task. Each Contractor QC Report will be signed by the PQAS certifying that the activities listed within the report have been completed in accordance with the project planning documents to the best of his/her knowledge.

## **5.0 RECORDS**

Records generated as a result of this SQP will be controlled and maintained in the project record files in accordance with SQP 4.2.

## **6.0 ATTACHMENTS**

None.

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

---

# PREPARATORY PHASE PLANNING GUIDANCE

---

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for planning of all field-related activities to ensure compliance with project requirements. The Preparatory Phase Planning Guidance is designed to facilitate the project/task planning process and solicit input from the relevant facets of the organization.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan (QAPP)*

2.2 *SQP 4.2 - Records Management*

### 3.0 DEFINITIONS

#### 3.1 *Planning*

Planning means the identification of the systematic sequence of operations and the overall methods to achieve the requisite quality of work.

### 4.0 RESPONSIBILITIES

#### 4.1 *Project Manager*

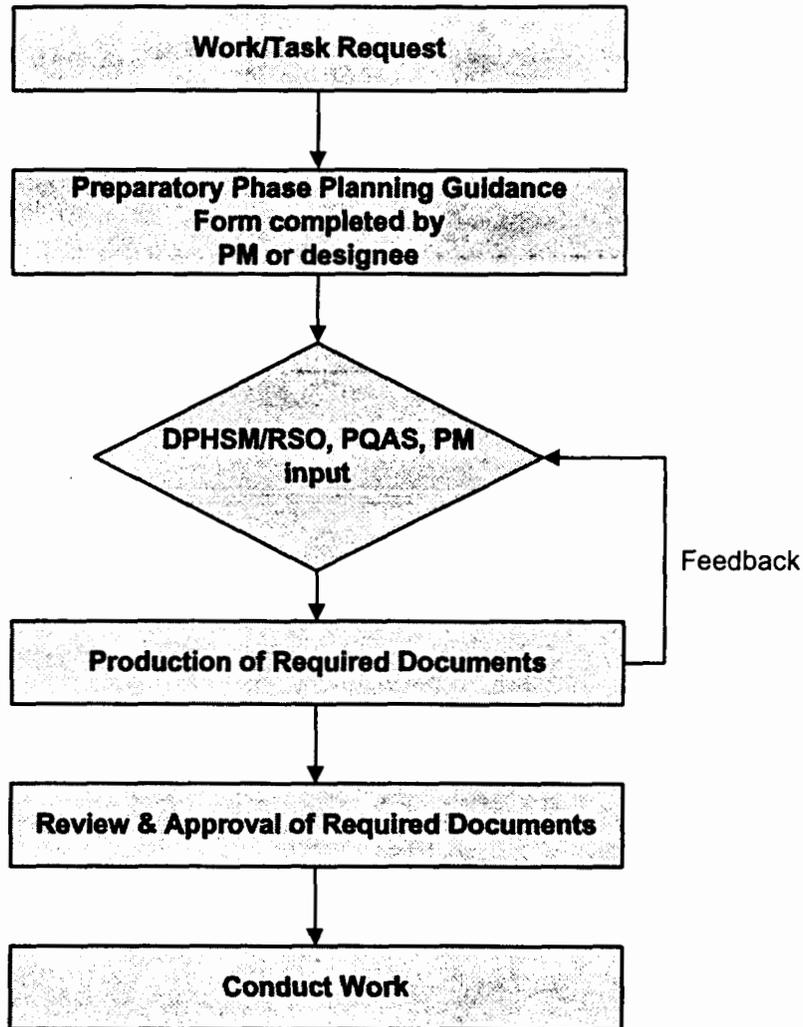
It is the Project Manager's (PM's) responsibility to initiate the planning so that pre-work activities are accomplished in a timely manner and are adequate for the scope of work involved.

#### 4.2 *Project Delegation*

The PM may delegate the project planning activities. Any delegations must be documented. The PM is responsible for ensuring the person to whom the work is delegated has qualifications commensurate with the responsibilities being assigned.

## **ATTACHMENT 8.1**

### **PREPARATORY PHASE PLANNING FLOWCHART**



## **ATTACHMENT 8.2**

### **PRE-PHASE PLANNING GUIDANCE FORM**

Attachment 8-2. Pre-phase Planning Guidance Form

**Instructions**

**Project Scope and Management:** Provide task information, scope and dates. Describe how each item will be addressed. If an item is not applicable, indicate why.

**Project Documents and Personnel Training:** Use the following legend. (i.e., if item is applicable and covered by existing document, enter S)

**\*Legend**  
**NA** = Not Applicable. Provide an explanation.  
**A** = Applicable. Enter S, R or N (see below) Describe action to be taken.  
**S** = Existing document is satisfactory.  
**R** = Document exists, but requires revisions to cover proposed activities.  
**N** = New document needed.  
**?** = Do not know, need assistance in making the determination - indicate who should provide guidance (e.g., ?, PHSM/RCM).

**Approvals and Distribution:**  
 Once completed and signed by the originator and approved by the PM, the form should be circulated expeditiously (e.g., e-mail) to reviewers and the CC list. Comments from those on CC list should be returned to the originator within two (2) business days.  
 Approval by default will result if no comments are received.

**Approval, Review and Distribution**

<b>Prepared by:</b>	<b>Name:</b>	<b>Date:</b>	<b>CC:</b>
<b>PM Approval:</b>	_____	_____	PQAM
<b>Reviewed by:</b>	_____	_____	EMS PM
PM/PTL	_____	_____	IT PM
PQAM	_____	_____	RCM
DPHSM/RSO	_____	_____	DRCM
			SHSO
			PHSM
			WC

**Project Scope and Management**

**Task Name:** \_\_\_\_\_

**Task Number:** \_\_\_\_\_

**Anticipated Field Work Dates:** \_\_\_\_\_

**Scope:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Item	Description
Task objectives	
Roles & responsibilities	
Delegation of authority documented	
Primary activities	
Data requirements	
Data quality objectives	
Schedule	
Budget	
Resource allocation (including subcontractors)	
Quality Assurance/Quality Control	

---

# DOCUMENT CONTROL

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities associated with the control and distribution of project documents.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan*

2.2 *SQP 4.2 - Records Management*

2.3 *SQP 5.1 - Preparation, Revision and Approval of Plans and Procedures*

2.4 *SQP 11.1 - Field Work Variance*

### 3.0 DEFINITIONS

#### 3.1 *Planning Documents*

Those documents which establish the requirements and methods to implement the project activities. These documents are identified as Work Plans, Quality Assurance Project Plan (QAPP), Project Health and Safety Plan (PHSP), Standard Quality Procedures (SQPs), Standard Operating Procedures (SOPs), Health and Safety Procedures (HSPs), Contingency Plan and General Emergency Response Procedures (CPGERP), and Field Work Variances (FWV).

#### 3.2 *Controlled Documents*

Documents which have been assigned a unique identifier and issued to a specific person, discipline, or facility. These documents are maintained current by accounting for their initial issue and revisions.

#### 3.3 *Uncontrolled Documents*

A document which is issued current, but which is not maintained current with revisions.

### **3.4 *Decontrolled Documents***

A copy of a controlled document which is issued current, but which is not maintained current with revisions.

Decontrolled copies of controlled documents may be issued for informational purposes to parties not directly performing the governed work, but these copies must be clearly identified as decontrolled copies of a controlled document.

## **4.0 PROCEDURE**

### **4.1 *Responsibilities***

4.1.1 The Project Manager/Task Leader is responsible for the control of project/task plans, procedures, and FWVs. This includes establishing and maintaining lists of personnel who are issued controlled copies of those documents.

4.1.2 The Project Records Administrator (PRA) is responsible for the full implementation of the requirements of this SQP.

### **4.2 *Control and Distribution***

4.2.1 Once project documents have been prepared and approved, they will be issued to applicable personnel who are identified as controlled document holders.

4.2.2 Distribution of project plans and procedures will be controlled via the Document Control Log (Attachment 6.1). The distribution of new or revised documents will be by use of a Document Transmittal form (Attachment 6.2).

4.2.3 A controlled copy document may be reissued to another document holder upon a written request. Reissuing an already existing controlled copy document to a new document holder will be done by transmitting a new cover page.

### **4.3 *Receipt Acknowledgment***

4.3.1 The recipient of the controlled plan, or procedure, will:

1. Acknowledge receipt of the plan and revisions, and certify that his/her plan is in agreement with the document transmittal by signing and returning a copy of the Document Transmittal form to the originator. The recipient receiving revisions to the plan destroys obsolete pages and replaces them with the new revised pages of the plan.
2. Acknowledge receipt of the procedure and revisions by signing and returning a copy of the Document Transmittal form to the originator. The recipient

receiving revisions to the procedure destroys obsolete procedure and replaces them with the new revised procedure.

3. Acknowledge receipt of the FWV by signing and returning a copy of the Document Transmittal form to the originator.

#### **4.4 Receipt Acknowledgment Follow-up**

4.4.1 If the recipient fails to return the Document Transmittal form within 30 working days within the contractor organization and 40 working days outside the contractor organization, the PRA takes follow-up measures via memorandum to assure the Document Transmittal form is returned within an additional 5 working days within WA and 10 working days outside WA. Should the recipient fail to respond to the follow up measures pertaining to the plan, his/her plan will be redesignated as "Uncontrolled." Should the recipient fail to respond to the follow up measures pertaining to procedure or FWV, the recipient will be removed from distribution and notified by memorandum that his/her project document is being designated uncontrolled.

#### **4.5 Revisions**

4.5.1 Revisions to approved plans and procedures will be issued in the same manner as the original. Superseded record copies will be marked "Superseded by Revision X" in the project record files.

### **5.0 RECORDS**

Records generated as a result of implementing this SQP will be controlled and maintained in the project record files in accordance with SQP 4.2.

### **6.0 ATTACHMENTS**

#### **6.1 Document Control Log**

#### **6.2 Document Transmittal Form**

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **DOCUMENT CONTROL LOG**



## ATTACHMENT 6.2

### DOCUMENT TRANSMITTAL FORM

# DOCUMENT TRANSMITTAL

THE FOLLOWING CONTROLLED COPY

Copy No.: \_\_\_\_\_

OF DOCUMENTS WHICH COMPRISE LEHR PROJECT OR PORTIONS THEREOF ARE BEING TRANSMITTED FOR YOUR IMPLEMENTATION AND USE. PLEASE SIGN/DATE THIS DOCUMENT TRANSMITTAL ACKNOWLEDGING YOUR RECEIPT OF THE DOCUMENT(S) LISTED BELOW.

**DOCUMENT NAME:**

**DOCUMENT REVISION:**

**NOTE:**

**ISSUED TO AND LOCATION:**

HAVE RECEIVED THE ABOVE LISTED DOCUMENTS

Name (Printed): \_\_\_\_\_

Name (Signed): \_\_\_\_\_

Company Name/Office: \_\_\_\_\_

Date Received: \_\_\_\_\_

PLEASE COMPLETE THIS RECEIPT AND RETURN TO:

Mary Stallard, PQAM  
WEISS ASSOCIATES  
5500 SHELLMOUND STREET  
EMERYVILLE, CA 94608

---

# RECORDS MANAGEMENT

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities associated with the management of project and task records.

### 2.0 REFERENCES

- 2.1 *Quality Assurance Project Plan*
- 2.2 *SQP 4.1 - Document Control*
- 2.3 *SQP 10.1 - Nonconformance Control*

### 3.0 DEFINITIONS

#### 3.1 *Records*

All forms of documentation relating to a project, including but not limited to paper and electronically stored documents, photographs, and video/audio tapes.

#### 3.2 *Administrative Documents*

Those documents which do not directly provide objective evidence of the quality of items or activities, or compliance to the contract or regulatory requirements.

#### 3.3 *Quality Control Record*

A completed document that furnishes objective evidence of the quality of items, and/or activities affecting quality or compliance to the contract or regulatory requirements.

## **4.0 PROCEDURE**

### **4.1 Discussion**

Accurate records are critical to a project for historical purposes, including liability and regulatory issues. The proper management of these records is necessary to ensure that historical representation of project activities is maintained.

### **4.2 Responsibilities**

4.2.1 The Program Manager has the overall responsibility for the management of records including but not limited to providing for adequate storage facilities, maintenance of those facilities and assuring implementation of this SQP. He/she will designate those personnel authorized to remove program records from the records file area.

4.2.2 The Project Manager reports to the Program Manager and is responsible for the collection, maintenance, and control of project records.

4.2.3 The Project Records Administrator (PRA) reports to the Project Quality Assurance Manager (PQAM) and is responsible for properly filing records in the project records file, ensuring that only authorized personnel are allowed access to the records file area, and providing the Site Records Administration (SRA) with copies of project records for the Site files.

4.2.4 The Site Records Administrator (SRA) reports to the Project Manager and is responsible for properly filing and maintaining project records in the Site office and, as a minimum, sending originals or legible and reproducible copies weekly to the PRA.

4.2.5 The PQAM reports to the Program Manager and is responsible for performing audits and surveillances of record files to verify the effectiveness of the records control system.

4.2.6 The Project QA Specialists (PQAS) report to the PQAM and are responsible for monitoring the records control system of project records for specific tasks.

### **4.3 Receipt**

4.3.1 All incoming project and task records and administrative documents received at the project office will be sent to the PRA. He/she will stamp and date the document (Received (date) LEHR Project." The stamped records will then be distributed to the addressed individual for review and additional distribution designation if needed. Records generated in the field will be packaged and sealed at the end of each field activity, as a minimum, and sent to the PRA in the project office for incorporation into the records files. If the PRA receives the package with a broken seal, he/she will contact the sender to assure no records were lost. If records are missing, copies will be generated from the field records files and sent with the next shipment to the PRA.

#### **4.4 Indexing and Filing**

4.4.1 Records will be organized into file categories, using the Records Inventory and Disposition Schedule/File (RIDS) index system. Since all categories may not be applicable to specific project tasks, categories may be added or deleted as needed to support the project contract. A copy of the tailored index will be maintained with the project records file and identified as the file index. The project Site office will receive a copy of the updated file index as needed.

4.4.2 Working documents will be maintained in the project office but are not required to be filed as records until they are finalized.

4.4.3 Records will be permanently filed in the project files unless specifically required as submittals in the Contract.

#### **4.5 Storage**

4.5.1 Records will be stored in a manner which will preclude their loss, damage or tampering. The PRA will effect administrative procedures and physical safeguards to ensure the security of the records in the project office. The project records filing area will be controlled with limited access of unauthorized personnel. The PRA, Project Manager, and Program Manager will have keys to the filing area. Any other project personnel wishing to sign out records from the filing area must get access from one of these three people.

#### **4.6 Temporary Issue**

4.6.1 Records or files may be reviewed from stations within the filing area. In the event a record needs to be removed from the project filing area, a copy of the record can be requested from the PRA. Copies of records or information will be kept to a minimum, copying only the specific information needed rather than an entire document. Copies of records will be stamped "copy" by the PRA prior to exiting the filing area.

4.6.2 Bound copies of selected documents in the project files may be checked out to project personnel by the PRA. The PRA will use Attachment 6.1, Record/File Check-out Sheet, or its equivalent, to issue records or files to users, filing it in the place of the record or file until the record or file is returned.

#### **4.7 Project Close-out**

4.7.1 Upon demobilization from the project site, the Project Manager will turn over unsubmitted project files to the PRA for incorporation into the project files. The RIDS index will be checked and updated as necessary during the integration process.

## **4.8    *Records Retention***

4.8.1 Records will be retained based on client and regulatory requirements, and company policy. Where no specific guidance is available, the Project Manager will make this determination. Typical retention time periods from the completion of the project are:

- Records prepared as part of site investigations, e.g., RI/FS activities - 10 years;
- Records associated with facilities governed by the Resource Conservation and Recovery Act (RCRA) - 5 years after closure if the project was performed prior to closure, or for the duration of the 30-year monitoring period following closure if the project was performed for the purpose of closure monitoring;
- Records associated with nuclear projects, e.g., site characterization, geological respiratory design, and respiratory seal design - life of facility; and,
- Records for conventional projects - 7 years.

The PRA will mark the appropriate retention years and date on the front of the file index upon closure of the project or contract.

## **4.9    *Nonconformance***

4.9.1 Any significant deviation to this SQP will be reported by the individual who discovers the deviation.

## **5.0    RECORDS**

Records generated as a result of implementing this SQP will be controlled and maintained in the project record files in accordance with this SQP.

## **6.0    ATTACHMENTS**

### **6.1    *Record/File Check-Out Sheet***

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **RECORD/FILE CHECK-OUT SHEET**

## RECORD/FILE CHECK-OUT SHEET

Record/File:

---

Company:

---

Date:

---

User's Name:

---

User's Signature:

---

Telephone Number:

---

---

# PREPARATION, REVISION AND APPROVAL OF PLANS AND PROCEDURES

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities associated with the preparation, revision, and approval of quality-affecting documents.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan (QAPP)*

2.2 *Project Health and Safety Plan (PHSP)*

2.3 *SQP 4.1 - Document Control*

2.4 *SQP 4.2 - Records Management*

2.5 *SQP 11.1 - Field Work Variance*

### 3.0 DEFINITIONS

#### 3.1 *Quality Assurance Project Plan (QAPP)*

A plan describing the quality assurance requirements to be applied, as applicable, to the project requirements, which includes the methods and responsibilities established to meet those requirements specified.

#### 3.2 *Standard Quality Procedures (SQPs)*

A set of implementing procedures which establish the responsibilities and describe the methods of performing quality-affecting activities in response to QAPP requirements.

#### 3.3 *Standard Operation Procedures (SOPs)*

A set of implementing procedures which prescribe the actions necessary to complete a work operation in accordance with accepted practices for quality and safety.

### **3.4 Health and Safety Procedures (HSPs)**

A set of implementing procedures which describe the actions necessary to ensure project work is conducted within accepted practices for health and safety.

### **3.5 Quality Improvements**

A change in any aspect of the project that will result in meeting the quality goals of this project with a corresponding improvement in project efficiency or reduction in project costs.

## **4.0 PROCEDURE**

### **4.1 Discussion**

4.1.1 The QAPP is established and maintained as the documented basis for compliance with the project quality assurance requirements. The QAPP emphasizes the contractor's commitment to meeting those requirements. The associated SQPs and SOPs establish methods and responsibilities for complying with those commitments.

### **4.2 Responsibilities**

4.2.1 The Program Manager has the responsibility to assure that the QAPP is implemented effectively by project personnel. Further, the Program Manger is responsible to ensure that SOPs which are required for project performance are prepared by qualified personnel and are reviewed and approved by authorized personnel, prior to the implementation of project activities.

4.2.2 The Project Quality Assurance Manager (PQAM) is responsible for the preparation and maintenance of the QAPP and SQPs. The PQAM reviews and approves SOPs to assure compliance with the requirements of the QAPP and that they constitute an acceptable approach to meeting QA objectives. He/She is also a part of the approval cycle for the technical project planning documents (e.g., work plan, sampling and analysis plan, etc.).

4.2.3 The Project Health and Safety Manager (PHSM) is responsible for site preparation and maintenance of HSPs. The PHSM reviews and approves HSPs to assure compliance with the requirements of the PHSP. He/She initiates revision to the HSPs due to programmatic requirement changes, audit findings, or corrective actions, as applicable.

### **4.3 Preparation**

4.3.1 The PQAM determines the need for establishing a procedure describing how to perform quality-affecting activities. He/She also initiates revisions to these documents due to programmatic requirement changes, audit findings, or corrective actions, as applicable.

4.3.2 Procedures, Field Work Variances (FWV), and drawings will include appropriate qualitative and quantitative acceptance criteria for determining satisfactory work performance and quality compliance.

#### **4.4 Format**

4.4.1 The SQPs, SOPs, and HSPs will adhere to a consistent format in accordance with the following guidelines.

4.4.2 Revision Block - This area will contain the document identification, section or procedure number, revision number, date, and pages. This information will appear on each page of the document.

4.4.3 Title Block - This area will contain the title of the SQP, SOP or HSP and will appear on the first page only.

#### **4.5 Contents**

4.5.1 Procedures required to implement project task activities will include the information listed below. When any of these items are not required or are inappropriate to the SQP, SOP, or HSP, they will be noted by the word "none."

4.5.2 Describe the purpose of the SQP, SOP or HSP. Be as specific as possible; do not generalize.

- **References** - Identify pertinent documents or procedures that interface with the SQP, SOP or HSP being prepared. Reference to specific documents that are directly applicable to the SQP, SOP or HSP (e.g., QAPP, PHSP, etc.) is acceptable.
- **Definitions** - Define words and phrases having a special meaning of application within the SQP, SOP or HSP. Definitions must be consistent with the glossary of terms located within the QAPP.
- **Procedure** - Identify the sequence of activities to be followed and assign responsibility for accomplishing activities, be specific in context. Include appropriate reporting requirements for assuring that important activities have been satisfactorily accomplished and incorporate examples of forms or documents which are required to be completed as a result of the procedure implementation.
- **Records** - If there are any special record handling requirements, identify them in this section; otherwise, state that records generated will be maintained in accordance with the SQP for records management.
- **Attachment** - List all attachments that will be included within the specific SQP, SOP or HSP.

## **4.6 Approval**

4.6.1 The signature of the Program Manager or Project Manager and PQAM, and others as deemed necessary by the Program or Project Manager on the Table of Contents and Log of Revisions or cover page will signify the documents and revisions listed are authorized for use. For SQPs and SOPs, the Program Manager, Project Manager and PQAM will sign the Table of Contents and Log of Revisions page of the procedure manual indicating their approval.

## **4.7 Manual Change Requests**

4.7.1 Personnel responsible for complying or interfacing with the requirements of the QAPP, SQPs or SOPs may request revisions to these documents via the Document Change Request (DCR) form, Attachment 6.1. Document change requests are different from field work modifications, as they are used to suggest improvements to existing processes or systems and are not structured to adjust the plans and procedures based on changing site conditions.

4.7.2 Originators of DCRs are responsible for completing Sections I through V on the DCR form. The originator will then forward the DCR to the PQAM for dispositioning.

4.7.3 The PQAM and line management are responsible for reviewing all DCRs and either accepting or rejecting them. If a DCR is accepted, the PQAM will indicate this acceptance by marking the appropriate block on the form and signing and dating the DCR. He/She will forward a copy of the signed DCR to the originator for their files. A copy of accepted DCRs will be maintained by the PQAM for logging and revision inclusion.

4.7.4 If a DCR is not accepted, the PQAM will indicate this by marking the appropriate space on the form and signing and dating the DCR. Non-accepted DCRs will be maintained in the project files.

## **4.8 Quality Improvement**

4.8.1 Personnel responsible for complying or interfacing with the requirements of any aspect of this project may request quality improvements via the Quality Improvement Request (QIR) form, Attachment 6.2. QIRs are used to suggest improvements to existing processes, systems, or procedures based on changing site conditions or observations of project inefficiency.

4.8.2 Originators of QIRs are responsible for completing Sections I through V on the QIR form. The originator will then forward the QIR to the PQAM for dispositioning.

4.8.3 The PQAM and line management are responsible for reviewing all QIRs and either accepting or rejecting them. If a QIR is accepted, the PQAM will indicate this acceptance by marking the appropriate block on the form and signing and dating the QIR. He/She will forward a copy of the signed QIR to the originator for their files. A copy of accepted QIRs will be maintained by the PQAM for logging and revision inclusion. The Project Team will be notified of each QIR that has been implemented.

4.8.4 If a QIR is not accepted, the PQAM will indicate this by marking the appropriate space on the form and signing and dating the QIR. Non-accepted QIRs will be maintained in the project files.

#### **4.9 Revisions**

4.9.1 Revisions to an approved QAPP, SQP, SOP or technical planning document will be documented and will receive the same level of review, approval, and control as the original document.

4.9.2 Field Work Variances (SQP 11.1) will be issued by the PQAM using the FWV form. When twelve (12) months have elapsed for a Field Work Modification Form or six (6) have been issued, whichever comes first, the PQAM may elect to issue new revisions to the affected documents to incorporate the FWV.

#### **4.10 Distribution and Control**

4.10.1 SQP 4.1 describes the procedures for distributing and controlling the planning documents, QAPP, and procedures.

### **5.0 RECORDS**

The original and originals of revisions of the QAPP, SQPs, and SOPs will be controlled and maintained in the program record files in accordance with SQP 4.2.

### **6.0 ATTACHMENTS**

#### **6.1 Document Change Request**

#### **6.2 Quality Improvement Request**

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **DOCUMENT CHANGE REQUEST**

## DOCUMENT CHANGE REQUEST

Company: \_\_\_\_\_

I	Change Requested For		
	a. Document:	e. Paragraph:	DCR No.:
	b. Procedure:	f. Attachment:	Date Received:
	c. Section:	g. Page Rev.:	____ Manual
	d. Page:	h. Other:	____ Procedure
II	Present Verbiage		
III	Proposed Verbiage		
IV	Reason for Change		
V	Submitted by:	Location:	Date:
	Disposition		
	____ Accepted		____ Major Change
	____ Not Accepted		____ Minor Change
VI	PQA Manager:	Date:	
	Incorporation		
	Manual/Procedure:		
	Revision:	Date:	

cc:     Originator (completed request)

## **ATTACHMENT 6.2**

### **QUALITY IMPROVEMENT REQUEST**

# QUALITY IMPROVEMENT REQUEST

Company: \_\_\_\_\_

I	Change Requested For		
	a. Document:	e. Paragraph:	QIR No.:
	b. Procedure:	f. Attachment:	Date Received:
	c. Section:	g. Page Rev.:	___ Manual
	d. Page:	h. Other	___ Procedure
II	Present Quality Issue		
III	Proposed Quality Improvement		
IV	Reason for Quality Improvement		
V	Submitted by:	Location:	Date:
	Disposition		
VI	___ Accepted		Remarks:
	___ Not Accepted		Remarks:
	PQA Manager:		Date:
VI	Incorporation		
	Manual/Procedure:		Date:
	Revision:		Date:

cc:     Originator (completed request)

---

# QUALITY INSPECTIONS AND INSPECTION RECORDS

---

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for the performance and documentation of Quality Control (QC) inspection of activities performed during project activities to ensure compliance with established requirements.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan (QAPP)*

2.2 *SQP 4.2 - Records Management*

2.3 *SQP 10.1 - Nonconformance Control*

### 3.0 DEFINITIONS

#### 3.1 *Inspection*

Examination or measurement to verify whether an item or activity conforms to specified requirements.

### 4.0 PROCEDURE

#### 4.1 *Qualification of Inspectors*

4.1.1 Personnel performing inspection activities will have the necessary expertise in the area to be inspected, but will be sufficiently independent of the activity performed.

4.1.2 Prior to performance of inspection activities, personnel designated for that responsibility will review and be thoroughly familiar with the procedures, regulations, etc., governing the activities to be inspected.

## **4.2 *Field Inspection Plans and Reports***

4.2.1 Project activities requiring inspection (i.e., Preparatory Phase, Initial Phase and Follow-up Phase) will have an Items to Inspect Checklist (Attachment 6.1) prepared for that activity. Inspections will be performed for definable features of work which are identified for each task and will be performed consistent with ongoing project activities. Preparation Phase Inspections will not be conducted on tasks requiring Readiness Reviews (SQP 3.3) as the Readiness Review will serve as a Preparatory Phase Inspection.

4.2.2 The Items to Inspect Checklist will identify the items and activities to be inspected. If hold points are required, the Items to Inspect Checklist will identify them and indicate required notifications and sign-offs. The Project Manager and PQAM will limit the number of items to inspect to ensure that undue inspection activities are not spent on smaller tasks.

4.2.3 If a Nonconformance Report (SQP 10.1) is required for activities being inspected, a reference will be provided on the Contractor QC Report (Attachment 6.2).

4.2.4 The Contractor QC Reports will be issued identifying inspections performed. The report will be completed by the Project QA Specialist (PQAS) and will address each inspection performed during the course of the daily activities.

4.2.5 Items or activities not conforming to inspection acceptance criteria will be resolved and, when determined necessary, documented on a Nonconformance Report (SQP 10.1). Contractor QC Reports will be logged and sequentially numbered by project task. Each Contractor QC Report will be signed by the PQAS certifying that the activities listed within the report have been completed in accordance with the project planning documents to the best of his/her knowledge.

## **5.0 RECORDS**

Records generated as a result of this SQP will be controlled and maintained in the project record files in accordance with SQP 4.2.

## **6.0 ATTACHMENTS**

### **6.1 *Items to Inspect Checklist***

### **6.2 *Contractor Quality Control Report***

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **PRE-PHASE INSPECTION CHECKLIST**

## Pre-phase Inspection Checklist

Task Name: \_\_\_\_\_

Task Number: \_\_\_\_\_

Scope: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Anticipated Field Work Dates: \_\_\_\_\_

Authorization from Task Leader: \_\_\_\_\_

Action Items	N/A	Yes	Verification/Date	No	Remedy/Date
<b>Notifications</b>					
Affected LEHR Facility Occupants/Operations Notified	N/A	Yes	_____	No	_____
<b>Project Documents</b>					
Work Plan is on-site	N/A	Yes	_____	No	_____
Quality Control Plan is on site	N/A	Yes	_____	No	_____
Health and Safety Plan is on-site	N/A	Yes	_____	No	_____
Emergency Response Plan is On-site	N/A	Yes	_____	No	_____
Waste Management Plan and SOPs	N/A	Yes	_____	No	_____
AHA and/or ALARA Evaluation	N/A	Yes	_____	No	_____
<b>Personnel Training</b>					
Personnel has been trained with and acknowledge Project Documents	N/A	Yes	_____	No	_____
Site briefing	N/A	Yes	_____	No	_____
40 hour OSHA completed	N/A	Yes	_____	No	_____
8 hour OSHA refresher completed	N/A	Yes	_____	No	_____
Rad Worker II completed	N/A	Yes	_____	No	_____
Medical Clearance completed	N/A	Yes	_____	No	_____
Bioassay Submitted	N/A	Yes	_____	No	_____
Whole Body Count Completed	N/A	Yes	_____	No	_____
Contingency Plan and GERT Training	N/A	Yes	_____	No	_____
<b>Permits</b>					
USA clearance	N/A	Yes	_____	No	_____
UC clearance	N/A	Yes	_____	No	_____
Excavation Permit	N/A	Yes	_____	No	_____
Hazardous Work Permit	N/A	Yes	_____	No	_____
<b>Subcontractors</b>					
Contracts complete	N/A	Yes	_____	No	_____
Scheduled for work	N/A	Yes	_____	No	_____
Subcontractor briefed on projects, documents, and procedures	N/A	Yes	_____	No	_____

General

## Pre-phase Inspection Checklist

Action Items	N/A	Yes	Verification/Date	No	Remedy/Date
Daily field logs	N/A	Yes	_____	No	_____
Alconox	N/A	Yes	_____	No	_____
Decon brushes	N/A	Yes	_____	No	_____
Decon sprayer	N/A	Yes	_____	No	_____
Decon containers	N/A	Yes	_____	No	_____
Distilled water	N/A	Yes	_____	No	_____
Poly sheeting	N/A	Yes	_____	No	_____
Drums/Drum labels	N/A	Yes	_____	No	_____
Camera	N/A	Yes	_____	No	_____
Weather (hot/cold, wet/dry)	N/A	Yes	_____	No	_____
<b><u>Sampling Equipment and Supplies</u></b>					
Sampling plan	N/A	Yes	_____	No	_____
Sample collection log	N/A	Yes	_____	No	_____
Drill rig	N/A	Yes	_____	No	_____
Support vehicles	N/A	Yes	_____	No	_____
Sampling device	N/A	Yes	_____	No	_____
Hand auger and extensions	N/A	Yes	_____	No	_____
Hand trowel	N/A	Yes	_____	No	_____
Ziploc bags	N/A	Yes	_____	No	_____
Paper towels	N/A	Yes	_____	No	_____
Sample containers	N/A	Yes	_____	No	_____
Sample labels	N/A	Yes	_____	No	_____
Shipping containers	N/A	Yes	_____	No	_____
Sample packing supplies	N/A	Yes	_____	No	_____
Shipping documentation	N/A	Yes	_____	No	_____
Chain of Custody	N/A	Yes	_____	No	_____
Fixed lab contacted/contact	N/A	Yes	_____	No	_____
On-site lab	N/A	Yes	_____	No	_____
<b><u>Earthwork Equipment and Supplies</u></b>					
Loader	N/A	Yes	_____	No	_____
Dump Truck	N/A	Yes	_____	No	_____
Stockpile Area	N/A	Yes	_____	No	_____
Dust suppression equipment	N/A	Yes	_____	No	_____
Fuel	N/A	Yes	_____	No	_____
Trench plate and/or protection fence	N/A	Yes	_____	No	_____
Nuclear density gauge	N/A	Yes	_____	No	_____
DOE source authorization	N/A	Yes	_____	No	_____
Operator training certification	N/A	Yes	_____	No	_____
Straw bales	N/A	Yes	_____	No	_____
HDPE	N/A	Yes	_____	No	_____
Track-mounted hydraulic backhoe	N/A	Yes	_____	No	_____
Wheel-mounted hydraulic backhoe	N/A	Yes	_____	No	_____
Trench compactor	N/A	Yes	_____	No	_____
Geotechnical lab contacted/contact	N/A	Yes	_____	No	_____
Shoring	N/A	Yes	_____	No	_____
- Hydraulic fluid	N/A	Yes	_____	No	_____
- Installation/removal tools	N/A	Yes	_____	No	_____
- Hydraulic pump	N/A	Yes	_____	No	_____

## Pre-phase Inspection Checklist

Action Items	N/A	Yes	Verification/Date	No	Remedy/Date
<b>Waste Management</b>					
Waste stockpile areas	N/A	Yes	_____	No	_____
Waste sorting equipment	N/A	Yes	_____	No	_____
Waste shipping containers	N/A	Yes	_____	No	_____
Shaker screen	N/A	Yes	_____	No	_____
Hand tools					
- Rakes	N/A	Yes	_____	No	_____
- Hoes	N/A	Yes	_____	No	_____
Gaskets for B-25s	N/A	Yes	_____	No	_____
B-25 liners	N/A	Yes	_____	No	_____
Postings/signage	N/A	Yes	_____	No	_____
Waste inventory logs	N/A	Yes	_____	No	_____
Waste container inspection	N/A	Yes	_____	No	_____
Box labelling material	N/A	Yes	_____	No	_____
Waste storage container	N/A	Yes	_____	No	_____
- Drum	N/A	Yes	_____	No	_____
- Bucket	N/A	Yes	_____	No	_____
- B-25	N/A	Yes	_____	No	_____
- Other	N/A	Yes	_____	No	_____
<b>Health and Safety</b>					
Tailgate Safety meeting	N/A	Yes	_____	No	_____
Hazards/HAZARDOUS WORK PERMIT posted	N/A	Yes	_____	No	_____
PID onsite/calibrated	N/A	Yes	_____	No	_____
First Aid Kit	N/A	Yes	_____	No	_____
PPE (tyveks, gloves, booties, steel-toed boots)	N/A	Yes	_____	No	_____
TLD/finger ring	N/A	Yes	_____	No	_____
Eye protection	N/A	Yes	_____	No	_____
Air horn	N/A	Yes	_____	No	_____
Eye wash	N/A	Yes	_____	No	_____
Fire Extinguisher	N/A	Yes	_____	No	_____
Drinking water	N/A	Yes	_____	No	_____
Perimeter established	N/A	Yes	_____	No	_____
Heat stress Monitoring	N/A	Yes	_____	No	_____
Work zone air monitoring	N/A	Yes	_____	No	_____
Perimeter air monitoring	N/A	Yes	_____	No	_____
Respirator	N/A	Yes	_____	No	_____
Air horn	N/A	Yes	_____	No	_____
<b>Radiological Equipment</b>					
Ludlum 2121 Smear Counter	N/A	Yes	_____	No	_____
Ludlum 3 44-9 Equipment Frisking Beta-Gamma	N/A	Yes	_____	No	_____
Ludlum 177, 44-9 Personnel Frisking Beta-Gamma	N/A	Yes	_____	No	_____
High volume air sampler	N/A	Yes	_____	No	_____
Rad equipment calibrated	N/A	Yes	_____	No	_____
LSC	N/A	Yes	_____	No	_____

## Pre-phase Inspection Checklist

Action Items	N/A	Yes	Verification/Date	No	Remedy/Date
<u>Chemical and/or Physical Equipment</u>					
PID	N/A	Yes	_____	No	_____
O <sub>2</sub> monitor	N/A	Yes	_____	No	_____
_____	N/A	Yes	_____	No	_____
_____	N/A	Yes	_____	No	_____
_____	N/A	Yes	_____	No	_____

**Attachments**

---

**Readiness Review Checklist Completed by:**

---

\_\_\_\_\_  
Weiss Associates Date

\_\_\_\_\_  
IT Corporation Date

\_\_\_\_\_  
ITEH Facility Authorization Date

## **ATTACHMENT 6.2**

### **WEEKLY CONTRACTOR QUALITY CONTROL REPORT**

# WEEKLY CONTRACTOR QUALITY CONTROL REPORT

(Attach additional sheets if necessary)

Report No. \_\_\_\_\_

Date Filled Out. \_\_\_\_\_

Dates this Weekly Report covers: \_\_\_\_\_

### Summary of Weeks Activities:

---

---

---

---

---

---

### Nonconformance/Corrective Actions identified this Week:

NCR/CAR #	Status of Nonconformance/Corrective Actions for the week/Outstanding from previous Weekly Report

### Field Work Variances Created this Week that effect the Quality:

FWV #	Status of Field Work Variances for the Week that effect Quality

### PQA Specialist Remarks:

---

---

---

---

---

---

I certify that this report is complete and correct, and that equipment and material used and work performed during this reporting period are in compliance with the contract drawings and specifications, to the best of my knowledge, except as noted in this report.

\_\_\_\_\_  
PQA Specialist

\_\_\_\_\_  
Date

---

# RECEIPT INSPECTION

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for the performance and documentation of receipt inspections of quality affecting items. These items are to be used or installed during project activities to ensure compliance with established requirements. Receipt inspection of items purchased to support field activities (i.e., gloves, heavy equipment, hand tools) will in general be conducted by the requestor and will verify the type and number delivered.

### 2.0 REFERENCES

- 2.1 *Quality Assurance Project Plan (QAPP)*
- 2.2 *SQP 3.2 - Indoctrination and Training*
- 2.3 *SQP 4.2 - Records Management*
- 2.4 *SQP 7.1 - Quality Inspections and Inspection Records*
- 2.5 *SQP 10.1 - Nonconformance Control*

### 3.0 DEFINITIONS

#### 3.1 *Inspection*

Examination or measurement to verify whether an item or activity conforms to specified requirements.

#### 3.2 *Inspector*

A person who performs inspection.

#### 3.3 *Requestor*

A person who requests a purchase requisition.

### **3.4 *Item***

An all-inclusive term used in place of any of the following: appurtenance, facility, sample, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, system, unit, documented concepts, or data.

### **3.5 *Supplier***

- (1) Any individual or organization that furnishes items in accordance with procurement documents.
- (2) An all-inclusive term used in place of any of the following: vendor, seller, contractor, subcontractor, fabricator, consultant, and their subtier levels.

### **3.6 *Procurement Document***

Purchase order, subcontract, micro-purchase order (verbal), drawings, specifications, or instructions used to define requirements for purchase.

## **4.0 PROCEDURE**

### **4.1 *Qualification of Inspectors***

4.1.1 Personnel performing receipt inspection activities will have knowledge of the item to be inspected and its application to the work being performed. If an individual is not completely knowledgeable of the item, additional inspectors will be assigned by the Project QA Specialist (PQAS) to inspect the items.

4.1.2 The PQAS will assure performance of receipt inspections by qualified personnel for site specific items. Alternate inspectors may be designated by the PQAS based on their specialized technical expertise or familiarity with the items to be inspected.

### **4.2 *Inspection Preparations***

4.2.1 After a purchase requisition is processed, the Contracts Administrator will prepare and forward a copy of the applicable procurement document for receipt inspection to the requestor. The inspector will review the procurement documents and item specifications and, upon receipt of the item, ensure the item meets the requirements of the procurement documents. The inspector will also verify compliance with the Buy America Act requirements.

4.2.2 The supplier will provide the item as described in the procurement document. Any variation to the procurement document will require the same level of review and approval as the original procurement.

4.2.3 Items arriving at the project site will be routed to a designated receiving area. The recipient shall notify the requestor of its arrival and readiness for inspection.

### **4.3 Inspection**

4.3.1 At the discretion of the Project Manager (PM) or PQAM, the inspector will conduct a receipt inspection of items designated to be consumed or permanently installed at the site. If the item is rejected, the basis for rejection will be documented on the Receipt Inspection Report (Attachment 6.1) and indicated on the shipper's receipt document. The PM and Contracts Administrator will be notified when an item is rejected. No items will be returned to a supplier without prior authorization of both the Project Manager and the Contracts Administrator.

4.3.2 The inspector will compare the shipping document (packing slip, weighmaster's certificate, etc.) with the procurement documents and note any discrepancies. When a minor discrepancy is identified, the PQAS will notify the PTL, who will resolve the issue with the supplier.

4.3.3 The inspector will visually inspect the item for physical damage and compliance to procurement documents requirements. The inspection of items will not include operational, performance or item applicability. If the item meets the procurement document requirements and no visual deficiencies are observed, the inspector will document acceptance on the Receipt Inspection Report and release the item for use. If the item is unacceptable, the inspector will notify the PQAS who will determine if the item should be accepted or rejected. If the item is rejected, the requestor will immediately notify the PTL and PM.

4.3.4 When the supporting documentation (i.e., catalog cuts, performance specifications) is not provided, and if the item meets the procurement document requirements, the PQAS will issue a conditional release for the item. The conditional release is temporary and allows management use of the item contingent on future receipt of the missing documentation in a timely manner. If requests for documentation are non-responsive, the conditional release will be revoked and the PQAM and the PTL will be notified. They will then consult with the Project Manager and Contracts Administrator and resolve the issue in question. Items conditionally released will be tracked on the Conditional Release Tracking Log (Attachment 6.2) by the PQAM until closure.

4.3.5 After an item is inspected and approved for use, the item will be released for use. The item will be stored in a secure area in a manner which protects its physical and operational characteristics from damage, deterioration or tampering.

## **5.0 RECORDS**

Receipt inspection will be documented using the Receipt Inspection Report. A copy of the Receipt Inspection Report will be forwarded to the Contracts Administrator.

Records generated as a result of this SQP will be controlled and maintained in the project record files in accordance with SQP 4.2.

## **6.0 ATTACHMENTS**

### **6.1 *Receipt Inspection Report***

### **6.2 *Conditional Release Tracking Log***

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **RECEIPT INSPECTION REPORT**

# RECEIPT INSPECTION REPORT

---

Date received:	_____	Date released:	_____
Date inspected:	_____	Released to:	_____
Contractor:	_____	Report No.:	_____
Contract No.:	_____	Task Name:	_____
Project No.:	_____	P.O. No.:	_____
Vendor Name:	_____		
Item Name or Description:	_____		

---

**Y - YES; N - NO (SEE REMARKS); NA - NOT APPLICABLE**

- Item conforms to the Buy American Act Requirements
- Procurement documents were reviewed and used for inspection
- Required supporting documentation has been received (i.e., MSDS, certifications)
- Item numbers/volume corresponds to those identified on procurement documents
- Item is visually free of defects or damage
- Item meets project specification
- Item is acceptable for release

**REMARKS:**

---

---

---

\_\_\_\_\_  
Receipt Inspector

\_\_\_\_\_  
Date

\_\_\_\_\_  
PQA Specialist

\_\_\_\_\_  
Date

## **ATTACHMENT 6.2**

### **CONDITIONAL RELEASE TRACKING LOG**



---

# CALIBRATION AND MAINTENANCE OF MEASURING AND TEST EQUIPMENT

---

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities associated with the calibration, control, and maintenance of measuring and test equipment (M&TE). It applies to all tools, gauges, instruments, and other test equipment where the manufacturer requires or recommends equipment accuracy to be checked periodically. In the case of commercial devices such as rulers, tape measures, and levels, calibration controls will not be required.

### 2.0 REFERENCES

- 2.1 *Quality Assurance Project Plan*
- 2.2 *SQP 4.2 - Records Management*

### 3.0 DEFINITIONS

#### 3.1 *M&TE*

Measuring and test equipment used to obtain data during the performance of tests or inspections.

#### 3.2 *Calibration*

The comparison of a measurement standard or instrument of a known accuracy with another standard or instrument to detect, correlate, report, or eliminate by adjustment, any variation in the accuracy of the items being compared within allowable deviations.

#### 3.3 *Reference Standard*

An item of known and verifiable value which is used to check or establish the basis for tests or inspections.

## **4.0 PROCEDURE**

### **4.1 Responsibilities**

4.1.1 The Project Task Leader (PTL) is responsible for assuring that M&TE used in activities affecting quality is calibrated and properly adjusted or replaced at specific periods or use intervals to maintain accuracy within necessary limits. He/she will also ensure implementation of this procedure and provide adequate facilities to store and maintain the M&TE.

4.1.2 The PQAS is responsible for monitoring the effective implementation of this SQP and/or the M&TE manufacturer's recommendations.

4.1.3 The PTL is responsible for the selection of M&TE to be used in the field activity and to assure it is of the proper type, range, accuracy and tolerance required to meet project objectives. Additionally, he/she is responsible for storage and protection of M&TE.

4.1.4 The field personnel performing tests are responsible for assuring that all M&TE is properly calibrated prior to and during use, and for documenting the calibration or deficiencies of equipment.

### **4.2 Equipment Identification and Control**

4.2.1 M&TE that requires calibration will be uniquely identified by the manufacturer's serial number, or other suitable assigned number. If this should prove to be impractical, an identification label will be affixed using materials and methods which provide a clear and legible identification and do not detrimentally affect the function or service life of the M&TE. This identification will be replaced as needed to provide clear identification of the M&TE.

4.2.2 All M&TE and reference standards shall be stored between uses in a manner that will minimize damage or deterioration.

### **4.3 Calibration**

4.3.1 Written and approved procedures will be used for calibration of M&TE. Calibration procedures that have been previously established and approved by the M&TE manufacturer or a nationally recognized authority (i.e., ASTM, EPA) will be used when available. If no preexisting procedure is available, procedures will be developed by qualified personnel familiar with the M&TE and approved by the Project Manager and PQAM. Development of procedures will take into consideration the intended use and objective of the resulting data, equipment characteristics, required accuracy and precision of data, location of examination, effects of climate or any other parameter which would adversely influence the calibration. The procedures will include, as applicable:

- Name/type of equipment to be calibrated
- Reference standards to be used
- Calibration method and sequential actions

- Acceptance criteria
- Frequency of calibrations/checks
- Data recording form/format
- Data processing methodology
- Any special instructions
- Operator training and qualification requirements.

4.3.2 Field M&TE will be calibrated prior to use. Calibrations of M&TE will be performed by trained and qualified personnel, approved external agencies or by the equipment manufacturer.

4.3.3 The following types of calibrations and checks will be performed by qualified personnel:

- Periodic calibrations - which are performed at prescribed intervals established for the M&TE to assure that the equipment is operating within its designed range and accuracy. These are usually performed by outside agencies or the M&TE manufacturer. A calibration certificate will be provided documenting the operational and functional acceptance of the M&TE.
- Specific calibrations - which are performed for specific measurements or tests and varies from instrument to instrument and from procedure to procedure. Specific calibrations are typically performed prior to start of each work shift.

#### **4.4 Calibration Frequency**

4.4.1 M&TE will be calibrated at prescribed intervals and before each specific use. The frequency of periodic calibrations will be based on manufacturer's recommendations, national standards of practice, equipment type and characteristics, and past experience.

4.4.2 Scheduled calibrations of M&TE does not relieve the user of the responsibility for selecting the appropriate and properly functioning equipment.

4.4.3 In the event that the calibration has expired, the M&TE will be removed from service and tagged as "out-of-service" to prevent inadvertent use until it has been appropriately recalibrated.

#### **4.5 Reference Standards and Equipment**

4.5.1 Calibration reference standards and equipment will have known relationships to the National Institute of Standards and Technology (NIST) or other nationally recognized standards. If a national standard does not exist, the basis for calibration will be fully documented by the PTL and approved by the Project Manager and PQAM.

4.5.2 Physical and chemical standards will have certifications traceable to NIST, EPA or other recognized agencies. Standards that are repackaged or split will also have traceable lot or batch numbers transferred onto the new container.

4.5.3 It is the responsibility of the user to select, verify and use the correct standard in accordance with an approved procedure or established practice.

#### **4.6 Calibration Failure**

4.6.1 Each individual user of M&TE is responsible for checking the calibration status of equipment to be used and confirming the acceptable calibration status prior to use. Equipment for which the periodic calibration period has expired, equipment that fails calibration, or equipment that becomes inoperable during use will be removed from service and tagged as out-of-service.

4.6.2 Out-of-service M&TE will be segregated from operational M&TE when practical. The specific reason for removal from service and the date of removal will also be stated on the out-of-service tag. The M&TE will then be repaired and/or recalibrated by the appropriate vendor or manufacturer as deemed necessary by the PTL or the Project Manager. M&TE that cannot be repaired will be replaced, as necessary, to provide support to the project. Any M&TE consistently found to be out-of-calibration will be replaced.

4.6.3 Results of activities performed using equipment that has failed recalibration will be evaluated by the PTL and/or Project Manager and approved by the PQAM. If the activity results are adversely affected, the results of the evaluation will be documented as a nonconformance.

#### **4.7 Calibration Documentation**

4.7.1 Specific calibration records will be prepared and documented for each calibrated M&TE used. Periodic calibration certificates will be maintained and available for review at the field office. Calibration data will be recorded on the Test Equipment List and Calibration Log form (Attachment 6-1) or other suitable form. The Project Task Leader will be responsible for reviewing the calibration data for appropriateness, accuracy, readability, and completeness.

4.7.2 Calibration records will include, as applicable, the following information:

- Equipment identification number;
- Calibration procedure used;
- Date/time of calibration;
- Time of calibration checks (if required);
- Identification of reference standard(s) used;
- Applicable responses or readings of calibration;
- Name of individual performing calibration; and,
- Item(s) that are being tested or inspected.

#### **4.8**    *Preventive Maintenance*

4.8.1 Preventive maintenance of M&TE will be performed in accordance with manufacturers recommendation to maintain proper M&TE performance, minimize equipment failure and to increase measurement reliability.

### **5.0 RECORDS**

The records generated as a result of implementing this SQP will be controlled and maintained in the project record files in accordance with SQP 4.2.

### **6.0 ATTACHMENTS**

#### **6.1**    *Test Equipment List and Calibration Log*

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **TEST EQUIPMENT LIST AND CALIBRATION LOG**



---

# NONCONFORMANCE CONTROL

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the method and responsibilities for documenting and resolving technical or other quality related nonconformances which may not have been identified or resolved through assessments, inspections, or reviews.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan*

2.2 *SQP 4.2 - Records Management*

2.3 *SQP 10.2 - Corrective Action*

### 3.0 DEFINITIONS

#### 3.1 *Nonconformance*

A deficiency in characteristic documentation or procedure which renders the quality of an item unacceptable or indeterminate with respect to established criteria. Examples of nonconformances include, but are not limited to test failures, physical defects, incorrect or inadequate documentation, data losses, or deviations from prescribed work plan processes, inspections, or procedures.

### 4.0 PROCEDURE

#### 4.1 *Precautions*

Nonconformances may be related to hazards or potential safety concerns that require expedient action to resolve or mitigate. When prompt action is required, that action should not be unduly delayed for the processing of a Nonconformance Report (NCR). However, action that mitigates or even resolves nonconformances does not eliminate the requirement for documenting the deficiency on a NCR.

## **4.2 Nonconformance Identification**

Any individual assigned to a project, who discovers a nonconformance, is responsible for preparing a NCR to describe and document it. The individual completes the nonconformance description sections of the NCR/CA form (Attachment 6.1). The NCR will be accurately and concisely written after consultation with the interested parties to ensure that the discrepancy is correctly described, the appropriate project task criteria are referenced, and that sufficient data are provided to facilitate a proper and complete disposition for resolving the nonconformance. When this section of the NCR/CA form is completed, the report is sent to the PQAM for review. After this review is complete, the NCR/CA form is forwarded to the responsible organization for determining and documenting the appropriate disposition.

## **4.3 Segregating Nonconforming Items**

Whenever practical, nonconforming items will be segregated from the conforming items by separated storage, clearly marked storage boundaries utilizing signs or roped off areas, or other appropriate means to prevent the inadvertent installation or use of the nonconforming items, or will be identified as nonconforming by the use of tags or markings.

## **4.4 Nonconformance Reporting**

4.4.1 Potential nonconformances will be evaluated by the PQAM to assess the extent of nonconformance, the significance, and any potential impact on safety, waste isolation, or quality. This assessment will be performed with the assistance of the responsible engineering/construction discipline.

4.4.2 Nonconformances that are evaluated and determined to be conditions "significantly" adverse to quality will be documented and reported in accordance with SQP 10.2. The following guidelines will be used to determine "significant" conditions:

- Failure of the procedural system to produce the results desired in project deliverables.
- Identification of repetitive conditions for which previous corrective actions have proven ineffective.
- Repeated failure to comply with contract requirements, QAPP and procedures.
- Significant deficiencies found during the review or validation of data.

**NOTE:** Situations described above will require immediate notification of the Program or Project Manager and PQAM.

4.4.3 The client will be promptly notified of technical errors in work previously completed and transmitted to them.

4.4.4 The PQAM will maintain an NCR/CA status log (Attachment 6.2) of open and closed Nonconformance Reports. The Log will also serve as the basis for the NCR serial number system.

#### **4.5 *Nonconformance Resolution***

The responsible organizational discipline will document the resolution of the nonconformance in the space provided on the NCR, or on additional sheets, as necessary. The resolution response will also describe the cause, the corrective action to be taken to resolve the condition, the measures to be taken to prevent recurrence of the nonconformance, the date when all actions will be completed, and will be signed by management of the organization responsible for the nonconformance.

#### **4.6 *Verification and Closeout***

Resolution of nonconformances will be verified by the PQAM/PQAS. The nonconformance will not be closed until all corrective and preventative measures have been completed, or long-term corrective measures established and implemented.

### **5.0 RECORDS**

5.1.1 Records generated as a result of implementation of this SQP will be retained for each NCR and will include the following:

- The initial notification which resulted in the NCR.
- The results of any technical evaluation.
- The original NCR/CA form issued with the appropriate resolution and signatures.
- Other pertinent information necessary to document resolution of the NCR, including scope and significance of the problem as applicable.

5.1.2 Records, upon closure of each NCR, will be controlled and maintained in the project record files in accordance with SQP 4.2.

### **6.0 ATTACHMENTS**

#### **6.1 *Nonconformance Report/Corrective Action***

#### **6.2 *Nonconformance Report/Corrective Action Log***

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **NONCONFORMANCE REPORT/CORRECTIVE ACTION**



## **ATTACHMENT 6.2**

### **NONCONFORMANCE REPORT/CORRECTIVE ACTION LOG**



---

# CORRECTIVE ACTION

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for documenting and resolving conditions "significantly" adverse to quality. These conditions require immediate management action or attention to resolve. Conditions adverse to quality, which are not determined to be "significant", shall be documented and reported in accordance with SQP 10.1.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan*

2.2 *SQP 4.2 - Records Management*

2.3 *SQP 10.1 - Nonconformance Control*

2.4 *SQP 10.3 - Stop Work Order*

### 3.0 DEFINITIONS

#### 3.1 *Conditions Adverse to Quality*

An all-inclusive term used in reference to any of the following: failure to meet performance objectives, malfunctions, deficiencies, defective items, and nonconformance. A significant condition adverse to quality is one, which, if uncorrected, could have a serious effect on safety, operability or project performance.

#### 3.2 *Corrective Action*

Measures taken to rectify conditions adverse to quality and, where necessary, to preclude repetition.

## **4.0 PROCEDURE**

### **4.1 *Corrective Action Identification***

4.1.1 A Corrective Action will be initiated for those conditions adverse to quality which are evaluated and determined by the PQAM or PQAS to be "significantly" adverse to quality. The following guidelines will be used to determine "significant" conditions:

- Failure of the procedural system to produce the results desired in project deliverables.
- Identification of repetitive conditions for which previous corrective actions have been ineffective.
- Repeated failure to comply with contract requirements, QAPP, SQPs, SOPs and HSPs procedures.
- Significant deficiencies found during the review or validation of data.

### **4.2 *Corrective Action Reporting***

4.2.1 For Nonconformances determined to be significantly adverse to quality, the Corrective Action (CA) to be taken will be documented on the Corrective Action portions of the NCR/CA form (see SQP 10.1)

4.2.2 The PQAM will maintain an NCR/CA status log of open and closed corrective action requests. The log will also serve as the basis for the an NCR/CA serial number system.

### **4.3 *Corrective Action Follow-up***

4.3.1 The PQAM or PQAS will monitor the status of NCR/CAs and prepare correspondence relating to overdue responses. If a request for an extension of a response is received, an evaluation will be made and a formal response submitted to the requestor. All extensions to response due dates will be recorded in the NCR/CA log.

4.3.2 Failure to address Nonconformances that require CA will result in an evaluation of the condition to determine if a Stop Work Order (SWO) is warranted. Stop Work Order evaluation and determination will be conducted in accordance with SQP 10.3.

4.3.3 Implementation of CAs, will be verified by the PQAM or PQAS. The results of verification will be documented on the NCR/CA form and status log.

Upon completion (closeout) of the CA, the PQAM will then note it as closed in the NCR/CA log.

## 5.0 RECORDS

5.1.1 Records generated as a result of implementation of this SQP will be retained for each CA and will include the following:

- The original NCR/CA form along with all required corrective actions completed and all appropriate signatures.
- Any backup data necessary to substantiate the original condition noted in the NCR/CA form, the stated corrective action, evaluation, or verification.
- Overdue response notifications, requests for extension of response due dates, and replies to extension requests.

5.1.2 Records, upon closure of each CA, will be controlled and maintained in the project record files in accordance with SQP 4.2.

## 6.0 ATTACHMENTS

None (see Forms in SQP 10.1).

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

---

# STOP WORK ORDER

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) describes the process and responsibilities for issuing, resolving, and verifying acceptable response/actions for Stop Work Orders (SWO). SWOs are limited to Contractor and subcontractor/vendor activities.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan*

2.2 *SQP 4.2 - Records Management*

### 3.0 DEFINITIONS

#### 3.1 *Stop Work Order*

The order issued to the Project Manager or responsible individual for subcontractor/vendor services to stop further processing, delivery, installation, or operation until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.

#### 3.2 *Action Party*

The manager or responsible individual to whom the Stop Work Order is issued.

### 4.0 PROCEDURE

#### 4.1 *Responsibilities*

4.1.1 The PQAM or PQAS is responsible for issuing Stop Work Orders (SWO) when conditions warrant and for assuring corrective action is accomplished. The PQAM or PQAS will notify the Program Manager and/or Project Manager that a SWO condition exists as described in 4.2.1. The PQAM or PQAS will maintain a SWO log and the original SWO(s); perform verification that corrective action is complete and effective; and notify responsible management of closure for SWOs.

4.1.2 The Action Party is responsible for stopping work upon verbal notification from the PQAM or PQAS and for implementing the required corrective action.

#### **4.2 Stop Work Order Criteria**

4.2.1 The following criteria are utilized as a guideline for determining whether to issue a Stop Work Order:

- Continuing an operation will directly affect the integrity of the work or documentation which is required and would result in significant rework.
- Continuing an operation will jeopardize the integrity of design, the nonconformance will cause design discontinuities to other item or activities, or compromise the essential features which are important to programmatic objectives or safety.

#### **4.3 Issuance of the Stop Work Order**

4.3.1 Upon determination by the PQAM or PQAS that the criteria for issuing a SWO applies, the Program or Project Manager will be notified verbally or by memorandum that an SWO condition exists and that a stop work order will be issued.

4.3.2 The PQAM or PQAS will notify (written or verbal) the applicable Action Party of the intent to stop work, when the stop work is effective and to what activities the stop work applies.

4.3.3 The Program Manager or PQAM will notify the following personnel (as soon as practical) when an SWO is issued:

- Client Contracting Officer
- Client Project Manager
- Action Party

**NOTE:** This verbal notification will include all data available at the time of notification and will be followed up with a copy of the written confirmation.

4.3.4 The PQAM or PQAS will issue the written SWO, Attachment 6.1, as soon as practical, after verbal notice is given.

4.3.5 The Program Manager, Project Manager, and/or Project Task Leader, and PQAM and/or PQAS, and Action Party will coordinate, as necessary, a corrective action plan and a date for completion. The Program Manager, Project Manager, and/or Project Task Leader and PQAM and/or PQAS, will sign the SWO, signifying agreement with the corrective action required.

4.3.6 The PQAM or PQAS will forward a copy of the SWO to the Action Party. The original SWO will be maintained by the PQAM for logging the SWO on the Stop Work Order Log (Attachment 6.2). The original SWO will be maintained by the PQAM.

4.3.7 The Action Party will implement the required remedial action and notify the PQAM or PQAS when completed.

#### **4.4 *Stop Work Order Closure***

4.4.1 Upon verification of satisfactory completion of remedial action, the PQAM or PQAS may verbally cancel the Stop Work Order by notifying the Program or Project Task Leader and obtaining concurrence.

4.4.2 The PQAM or PQAS will notify the Action Party that they may resume work.

4.4.3 The PQAM or PQAS will complete the SWO form, distribute copies, and forward the completed SWO to the project record files for retention.

### **5.0 RECORDS**

5.1.1 Stop Work Orders and subsequent documentation, generated as a result of implementation this procedure will be controlled and maintained in the project record files in accordance with SQP 4.2.

5.1.2 The Stop Work Order Log is not a Project Record. The SWO Log will be maintained, as a minimum, until the end of the Project Task.

### **6.0 ATTACHMENTS**

#### **6.1 *Stop Work Order***

#### **6.2 *Stop Work Order Log***

A form referenced or attached to this SOP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **STOP WORK ORDER**

# STOP WORK ORDER

Company: \_\_\_\_\_ Location: \_\_\_\_\_

Date: \_\_\_\_\_

1. Written Notice Issued to: Name: _____ Title: _____ Org.: _____	2. P.O. # or Activity: _____ 3. Location: _____ 4. Issued by (name): _____ Issued by (title): _____
5. Verbal Notice Issued to: Name: _____ Date: _____ Time: _____ Title: _____	
6. Associated NCR No.: _____	7. Associate CAR No.: _____
8. Stop Work Order Condition Description: _____	Attachment: _____
9. Remedial Action Required: By Whom: _____ By When: _____ Required Remedial Action Determined by: Project Manager: _____ Date: _____ PQA Manager _____ Date: _____	Attachment _____
10. Follow-up of Remedial Action Taken: Verbal Notice to Resume Operations Given to: Name: _____ Date: _____ Time: _____ Title: _____ Stop work Order Cancellation Authorized by: PQA Manager: _____ Date: _____	Attachment: _____

## **ATTACHMENT 6.2**

### **STOP WORK ORDER LOG**



---

# FIELD WORK VARIANCE/MODIFICATION

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities associated with the development and control of Field Work Variances (FWV) and Field Work Modifications (FWM).

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan*

2.2 *SQP 4.2 Records Management*

### 3.0 DEFINITIONS

#### 3.1 *Field Work Variance*

A change to the performance of the work subject to the technical direction from the DOE Project Manager or Contracting Officer's Representative. Technical direction is defined as:

- (1) Directions which redirect the contract effort, shift work emphasis between work areas or tasks, require pursuit of certain lines of inquiry, fill in details or otherwise serve to accomplish the contractual Statement of Work.
- (2) Provision of written information, which assists in the interpretation of drawings, specifications or technical portions of the work description.
- (3) Review and, where required, approval of technical reports, drawings, specifications and technical information to be delivered to the DOE under the contract.
- (4) Technical direction must be within the scope of work stated in the contract.

Documentation of the Field Work Variance will be used to determine the necessity of requesting additional funding from DOE for the Task Assignment.

#### 3.2 *Field Work Modification*

Changes which constitutes a Field Work Modification based on the following:

- (1) Constitutes an assignment of additional work outside the Statement of Work;

- (2) Constitutes a change as defined in the contract clause FAR 52.243-2, Changes-Cost Reimbursement (Aug 1987);
- (3) In any manner causes an increase or decrease in the **total Task Assignment estimated cost**, or the time required for contract performance; and,
- (4) Changes any of the expressed terms, conditions or specifications of the contract.

Only the DOE Contracting Officer has the authority to authorize a change. Work for a Field Work Modification should not commence without the written approval from the Contracting Officer.

### **3.3 Task Plan Revision**

A Task Plan Revision is a modification to the cost proposal for a specific Task Assignment. The Task Assignment Revision is prepared by the WA Project Manager and submitted to DOE for negotiation, if necessary, and issuance of a Task Assignment Revision.

## **4.0 PROCEDURE**

### **4.1 Discussion**

Procedural or material changes may be required due to unforeseen events or assumptions based on limited data made during the development of plans, specifications and procedures. Worker input may also precipitate the need for change. To maintain and control project activities, changes must be documented and approved before their implementation. In general, changes will be documented through the use of a FWV/M form (Attachment 6.1) and tracked with a FWV/M tracking log (Attachment 6.2). The form should be completed in its entirety if the change affects the cost or schedule of work.

### **4.2 Responsibilities**

4.2.1 The Project Manager (PM) has the overall responsibility for the implementation and effectiveness of the FWV/M system.

The PM is responsible for reviewing and approving Project Task FWV/M forms and obtaining quality review by the PQAM.

4.2.2 The Project Task Leader (PTL) is responsible for the initiation of the FWV/M Form and obtaining worker input on the proposed changes, as appropriate.

4.2.3 The Program Quality Assurance Manager (PQAM) is responsible for reviewing the FWV/Ms that affect quality and for monitoring FWV/Ms to verify effectiveness of the change control systems.

4.1.5 The Contract Manager is responsible for assisting the PM in ascertaining if the variance requires a Task Plan Revision and participates upon the PM request in any subsequent negotiations with DOE.

### **4.3 Implementation of Change**

Attachment 6.2 is a flow-chart showing the Field Work Variance/Modification Process

#### **4.3.1 Determination of need for FWV/M**

4.3.2 When a FWV/M is needed, the Project Task Leader (PTL) shall verbally advise the PM of the change. Based on the information provided to the PM, a decision will be made as to what type a change is required, variance or modifications. The PTL will then prepare the FWV/M Form. The form will then be submitted to the PM for approval.

#### **4.3.3 Field Work Variance**

The PM shall obtain the PQAM review, if necessary, and will subsequently approve the FWV/M. A copy of the approved FWV/M will be provided to the DOE Contracting Officer's Representative and the DOE Project Manager for their information and files.

When approximately 75% of the Task Assignment costs have been expended, the PM will determine if the current estimated total cost of the Task Assignment is adequate to complete the work including all estimated costs of the variances. If a determination is made that additional funding is required, the PM will notify the DOE Contracting Officer's Representative and begin the Task Plan Revision process.

#### **4.3.4 Field Work Modification:**

The PM shall obtain the PQAM review and will subsequently approve the FWV/M.

The PM shall promptly request that the DOE Contracting Officer's Representative issue a Task Description authorizing the preparation of a Task Plan Revision. At this time the PM shall decide to issue a "stop work" order ending all effort pursuant to the Modification.

Upon receipt of the Task Description, a Task Plan Revision will be prepared and the instruction contained in Clause H.008, Ordering Procedure, of Contract DE-AC03-96SF20686 will be followed.

### **4.4 Preparation of FWV/M Forms**

4.4.1 The PTL or designee will complete the FWV/M form. The FWV/M will clearly identify the present requirement (including section number), the proposed change, technical justification, cost and schedule impact (if needed), and documents requiring change.

4.4.2 Any requested change or deviation to contract requirements or plans will not be implemented until signed approval of the FWV/M is received from the PM .

#### **4.5 *FWV/M Tracking Log***

The PTL or designee will maintain a FWV/M Tracking Log (Attachment 6.3) which will identify each item with a unique number, brief description, date of issue and status of the individual FWV/Ms

##### **4.5.1 Document Distribution**

A copy of the approved FWV/M Form shall be provided to the PTL and the Contracts Manager.

A copy of the FWV/M Tracking Log will be provided to the PM and the Deputy Project Manager when updated.

#### **5.0 RECORDS**

Records generated as a result of implementing this SQP will be controlled and maintained in the project record files in accordance with SQP 4.2.

#### **6.0 ATTACHMENTS**

##### **6.1 *Field Work Variance/Modification***

Field Work Variance/Modification Procedure Flow Chart

##### **6.2 *Field Work Variance/Modification Tracking Log***

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **FIELD WORK VARIANCE/MODIFICATION**

**FIELD WORK VARIANCE/MODIFICATION**

Project No.: 128-4005	Date:	Variance No.:
Phase No:	<input type="checkbox"/> Task assignment revision required	
Task Name:	Requested by:	

PRESENT REQUIREMENTS:

PROPOSED CHANGE:

TECHNICAL JUSTIFICATION:

COST/SCHEDULE IMPACT: (not necessary for modifications)

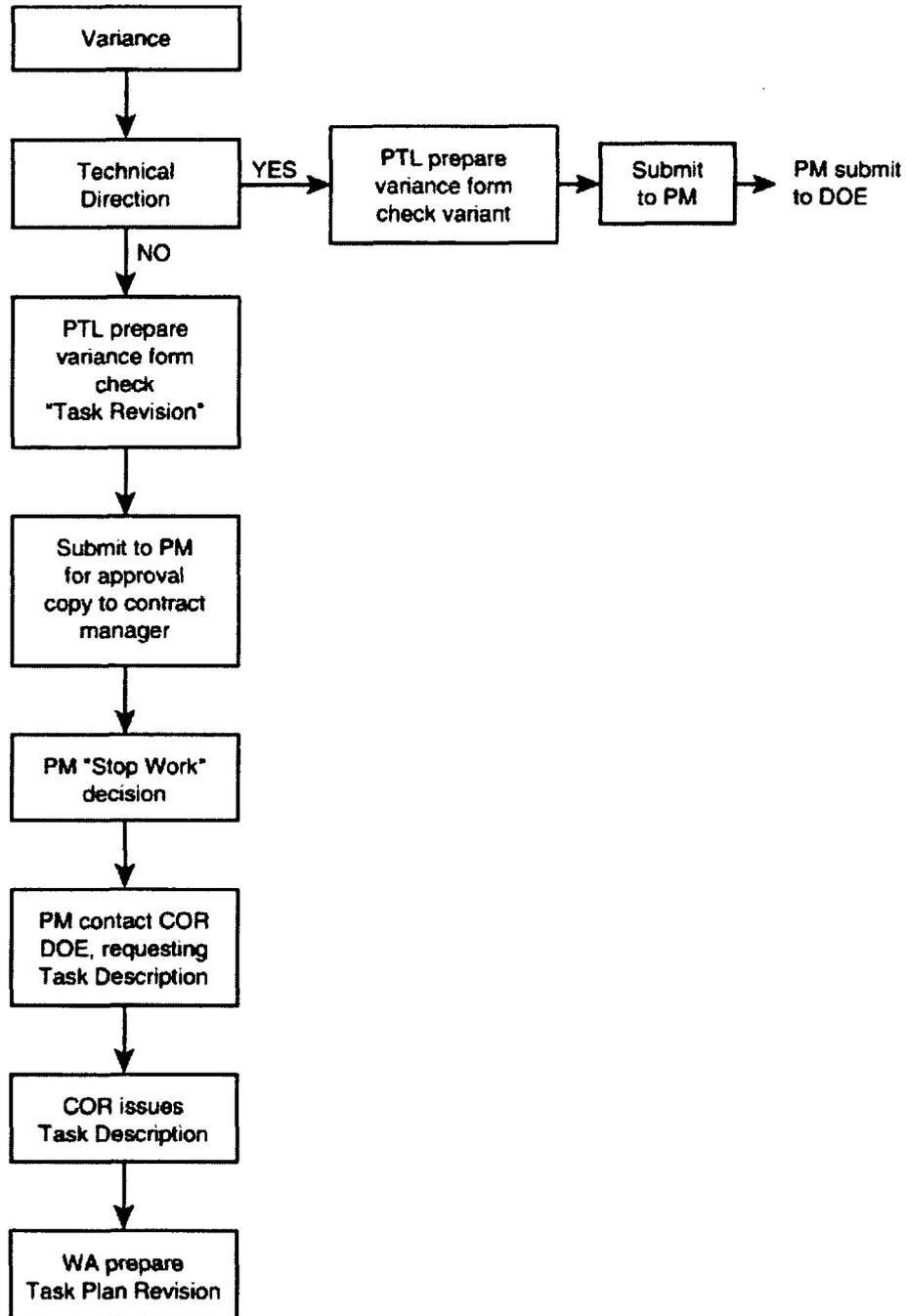
ATTACHMENTS:

PQAM REVIEWED _____	DATE: _____
APPROVED BY _____ Weiss Associates Project Manager	DATE: _____
APPROVED BY _____ DOE Contracting Officer Representative	DATE: _____

If modification affects subcontractor (s), submit a copy of this form to the appropriate subcontractor (s)

## **ATTACHMENT 6.2**

### **FIELD WORK VARIANCE/MODIFICATION PROCEDURE FLOWCHART**



COR = Contracting Officer Representative  
 PTL = Project Task Leader  
 PM = Project Manager

Attachment 6.2. Field Work Variance/Modification Procedure Flowchart

## **ATTACHMENT 6.3**

### **FIELD WORK VARIANCE/MODIFICATION TRACKING LOG**

**FIELD WORK VARIANCE/MODIFICATION TRACKING LOG**

PROJECT NO.:	DATE:	MODIFICATION NO:
PROJECT NAME:		
MODIFICATION DETERMINED BY (Name and Company) :		
PRESENT REQUIREMENTS:		
WORK PLAN/SPECIFICATION _____:		
MODIFICATION		
VERBALLY NOTIFIED (AS NECESSARY): IT: ___ No ___ Yes  EMS: ___ No ___ Yes  Additional Subcontractors: ___ No ___ Yes		
VERBALLY DISCUSSED AND APPROVED BY: (AS NECESSARY)		
PTL: ___ No ___ Yes	DATE: _____	
PM : ___ No ___ Yes	DATE: _____	
PRG MAN.: ___ No ___ Yes	DATE: _____	
DOE: ___ No ___ Yes	DATE: _____	

---

# QUALITY AUDITS

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for planning, scheduling, and performing project audits, which are designed to verify compliance to the Quality Assurance Project Plan (QAPP).

### 2.0 REFERENCES

- 2.1 *Quality Assurance Project Plan*
- 2.2 *SQP 4.2 - Records Management*
- 2.3 *SQP 10.2 - Corrective Action*

### 3.0 DEFINITIONS

#### 3.1 *Audit Team*

One of more persons who are responsible for audit performance and reporting. The team may consist of, or is headed by, an individual designated as the Audit Team Leader.

#### 3.2 *Audit Team Leader*

The individual responsible who organizes and directs the audit, coordinates the preparation and issuance of the Audit Report, and evaluates and performs follow-up of responses.

#### 3.3 *Technical Specialist*

One or more persons who may be assigned to the audit team due to the specialized or technical aspects of the areas to be audited. Technical Specialists are selected based on their special abilities, specialized technical training, and/or prior experience in the specialized or technical aspects of the area to be audited.

### **3.4 Audit**

A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

### **3.5 Finding**

A documented statement of fact concerning a noncompliance or deviation from established requirements.

### **3.6 Observation**

A statement of fact regarding the potential for a noncompliance which could lead to a more serious problem if not identified and/or corrected, but which does not constitute a lack of compliance with established requirements.

## **4.0 PROCEDURE**

### **4.1 Audit Schedule**

4.1.1 The Project QA Manager (PQAM)/Project QA Specialist (PQAS) will develop a schedule for the performance of audits. Key elements of the QAPP will be audited on an annual basis. Other QAPP elements will be audited as deemed appropriate by the PQAM. Tasks that are exempt from audit as noted in the Readiness Review (SQP 3.3), Preparatory Phase Inspection (SQP 7.1) or other task planning documents will not be subject to audit.

4.1.2 The audit schedule is based on previous audit results and the results of performance audits and inspections (as applicable).

4.1.3 The audit schedule will be reviewed periodically and revised as necessary to assure that coverage is maintained current.

4.1.4 Unscheduled audits will be used to supplement scheduled audits when conditions warrant.

### **4.2 Audit Teams**

4.2.1 The PQAM/PQAS will designate an Audit Team Leader for each audit to be conducted.

4.2.2 The Audit Team Leader selects and assigns auditors who are independent of any direct responsibility for performing the activities, which they will audit. The Audit Team Leader assures

that personnel having direct responsibilities for performing the activities being audited are not involved in the selection of the Audit Team.

4.2.3 The Audit Team Leader orients the team and coordinates the audit to assure communications within the team and with the organization being audited.

### **4.3 Audit Planning and Preparation**

4.3.1 The Audit Team Leader will complete an audit plan, Attachment 6.1, which identifies the following:

- Audit number;
- Audited Organization and Location;
- Audit Scope;
- Audit Purpose;
- Audit Team;
- Reference Documents;
- Audit Schedule;
- Follow-up Items; and,
- Special Concerns.

4.3.2 The Audit Team Leader will assure that the Audit Team is prepared prior to performance of the audit by providing applicable policies, procedures, standards, instructions, codes, regulations, and prior audit reports for information and review by the auditors, and by providing each auditor with the audit plan. In addition, he/she will assure the audit team is familiar with the audited organization and key individuals.

4.3.3 The Audit Team Leader will provide written notification to the organization to be audited of the scheduled audit within a reasonable time before the audit.

### **4.4 Audit Performance**

4.4.1 The Audit Team Leader will conduct a brief pre-audit meeting with management or supervisory personnel of the organization to be audited, to confirm the audit scope, introduce the Audit Team, meet the counterparts, discuss the audit sequence, establish a tentative time for the post-audit meeting, and establish channels of communication.

4.4.2 Audits will be performed in accordance with established checklists or procedures. The auditor(s) will assure that the audit consists of:

- Review of procedures and work instructions for completeness, adequacy, and responsiveness to QAPP requirements.

- Review of work areas for evidence of implementation of procedures and instructions.
- Review of personnel training and qualification records where special skills and qualifications are required.
- Review of selected work, which has been accepted, such as products, design calculations, drawings, and comparison of findings with applicable requirements and the previous basis for acceptance.
- Review of process controls and records to determine conformance with specifications.

4.4.3 Auditor(s) will discuss audit findings with individuals being audited, so that finding(s) as stated, are accurate and understood.

4.4.4 The Audit Team Leader will, at the conclusion of the audit, conduct a post-audit meeting with cognizant management or supervisory personnel of the organization or activity audited, to present the audit findings, observations, or discuss comments.

#### **4.5 Audit Reporting**

4.5.1 The Audit Team Leader, upon completion of the audit and with the aid of the audit team members, prepares an audit report using a format, which provides the following information as a minimum:

- Audit number;
- Audited organization;
- Location;
- Scope of audit;
- Audit personnel (indicating lead auditor);
- Audit date(s);
- Persons contacted; and,
- Summary of Audit Results.

Attachment 6.2 will be used as a general guideline for the audit report content and format. For all audits of external organizations, the Audit Team Leader will prepare an audit report cover letter or memorandum for signature and issuance by the PQAM/PQAS. The audit report will be issued to the management of the audited organization.

4.5.2 Audit Reports which contain Quality Finding Reports (QFRs) will require management of the audited organization to submit to the PQAM/PQAS a written response of each QFR identifying:

- The root cause that lead to the condition reported in the finding;

- The steps which have or will be taken to correct the condition reported in the finding;
- The steps which have or will be taken to preclude recurrence (if appropriate); and,
- The dates when indicated action was or will be complete.

4.5.3 Audit Reports, which contain observations, will clearly describe the condition(s), which led to the observation.

#### **4.6 Audit Follow-Up**

4.6.1 The PQAM/PQAS will maintain the status of audit findings for active audits and prepare correspondence relating to overdue audit responses. If a request for extension of response is received, an evaluation will be made and a formal response submitted to the requesting organization.

4.6.2 When responses are overdue, the PQAM/PQAS notifies the responsible organization by telephone that responses are overdue and prepares a memorandum or letter indicating a new response due date. Responses not received within the period of time established for the extension will result in the issuance of a Corrective Action request (Reference 2.3).

4.6.3 The PQAM/PQAS, upon receipt of responses to audit findings, will coordinate with the Audit Team Leader for the evaluation of responses.

4.6.4 The responsible evaluator will document the results of the evaluation on the QFR.

4.6.5 Unacceptable responses will be noted on the QFR together with the specific reason for rejection. The PQAM/PQAS will prepare transmittal correspondence reissuing the QFR to the responsible organization, delineate a new response due date, and include a copy of the original QFR with evaluation comments. Review and distribution of the reissued QFR will be the same as the original report.

4.6.6 The PQAM/PQAS will assure that verification of corrective action implementation is accomplished and document the results of verification on the QFR record copy.

**NOTE:** Unacceptable verification will be handled in accordance with Paragraph 4.6.5.

4.6.7 Upon completion (close-out) of all QFRs, the PQAM/PQAS will notify the audited organization by memorandum or letter that all actions are complete, have been approved and that the audit is closed.

## **5.0 RECORDS**

5.1.1 The following documents are generated as a result of implementation of this procedure:

- Audit plans

- Audit reports
- Quality finding reports, including response, evaluation, and verification
- Audit closure letter
- Correspondence related to the audit

5.1.2 Documents identified in paragraph 5.1 will be controlled and maintained in the project record files in accordance with SQP 4.2.

## **6.0 ATTACHMENTS**

### *6.1 Audit Plan*

### *6.2 Audit Report Format and Content*

### *6.3 Quality Audit Finding Report*

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **AUDIT PLAN**

# AUDIT PLAN

Company: \_\_\_\_\_

Audit Number \_\_\_\_\_ Audit Organization \_\_\_\_\_

Contract Number: \_\_\_\_\_ Location: \_\_\_\_\_

Audit Scope: \_\_\_\_\_

## AUDIT PERSONNEL

Lead Auditor: \_\_\_\_\_

Auditor: \_\_\_\_\_

Auditor: \_\_\_\_\_

Auditor: \_\_\_\_\_

## AUDIT SCHEDULE

Audit Dates: \_\_\_\_\_

Pre-Audit Conference: \_\_\_\_\_ Time: \_\_\_\_\_

Post-Audit Conference: \_\_\_\_\_ Time: \_\_\_\_\_

Reference Documents: \_\_\_\_\_

Follow-up Items: \_\_\_\_\_

Special Concerns/Items: \_\_\_\_\_

## AUDIT TEAM ASSIGNMENTS

Lead Auditor: \_\_\_\_\_

Auditor: \_\_\_\_\_

Auditor: \_\_\_\_\_

Auditor: \_\_\_\_\_

### REVIEW AND CONCURRENCE PRIOR TO AUDIT (SIGN AND DATE)

Lead Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

### AUDIT PLAN DEVELOPED BY (SIGN AND DATE)

Lead Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

### REVIEW AND APPROVAL OF ATTACHED AUDIT CHECKLIST (IF APPLICABLE) (SIGN AND DATE)

Lead Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

### REVIEW AND APPROVAL PRIOR TO AUDIT (SIGN AND DATE)

Lead Auditor: \_\_\_\_\_ Date: \_\_\_\_\_

PQA Manager: \_\_\_\_\_ Date: \_\_\_\_\_

## **ATTACHMENT 6.2**

### **AUDIT REPORT FORMAT AND CONTENT**

# AUDIT REPORT FORMAT AND CONTENT

As applicable and appropriate, audit reports will include the following information in the following general order:

## 1. INTRODUCTION

### 1.1. Purpose

The Purpose section shall state the scope and reason for the audit, and any extenuating circumstances which may have caused the audit to be conducted. If the audit is a regularly-scheduled audit, this shall be clearly stated.

### 1.2. Audit Team

List the auditors and identify the audit team leader.

### 1.3. Personnel Contacted

List the personnel contacted during the audit. Personnel attending the pre-audit and post-audit meetings should be identified by a plus sign (+) and an asterisk (\*), respectively.

## 2. SUMMARY

2.1. Describe the method of audit for each area audited (i.e., review of procedure; sampling of hardware, records, etc., interview).

2.2. Document areas audited and found satisfactory.

2.3. Provide a summary of the effectiveness of those elements of the QA program audited.

2.4. Provide any additional comments related to the audit.

2.5. List the audit discrepancies by QFR number. This summary should be a direct quote from the QFR.

2.6. List the items of concern as observations.

2.7. List action taken on previous QFRs (i.e., follow-up verification, close-out, reissue).

## 3. QUALITY FINDING REPORTS

QFRs shall be prepared in the following format. They shall be self-explanatory and contain the required pertinent information.

### 3.1. Finding:

A concise statement of the situation, including the requirement violated, complete to the extent that the finding will stand on its own.

Where additional discussion is determined to be necessary, the discussion shall relate any pertinent facts involved including identification of the repetitive nature of the finding, if applicable. When appropriate, specific assignment of responsibility may be included in the discussion.

## **ATTACHMENT 6.3**

### **QUALITY AUDIT FINDING REPORT**

# QUALITY AUDIT FINDING REPORT

Company:

Audit Number:	QAFR Number:	Date:
Organization/Project/Department:		Person Contacted:
Finding (Include Specific Requirement Violated):		
Auditor:		Response Due Date:
Root Cause Which Led To The Condition Reported:		
Corrective Action Taken/Proposed To Correct Deficiency:		
Corrective Action Taken To Preclude Recurrence:		
Corrective Action Taken By (Signature and Title:)		Date When Corrective Action Will Be Completed:
Corrective Action Evaluation:		Verification Of Implementation:
_____ Evaluator	_____ Date	_____ Verified By
		_____ Date

---

# MANAGEMENT ASSESSMENT

---

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for performing assessments of the Program by management, above or outside of the quality assurance organization, responsible for the implementation of the Quality Assurance Project Plan. Management assessments are conducted to determine the status and adequacy of the Management System, determine the effectiveness of implementing procedures, evaluate program performance versus program goals and verify that the Management System adequately protects the public, the workers and the environment.

### 2.0 REFERENCES

2.1 *Quality Assurance Project Plan*

2.2 *SQP 4.2 - Records Management*

### 3.0 DEFINITIONS

#### 3.1 *Management*

3.1.1 The Program Manager for activities internal to the program (i.e., at the Program Management office).

#### 3.2 *Assessment*

3.2.1 An all-inclusive term used to denote any of the following: audit, performance evaluation, management systems review, peer review, or surveillance performed by, or for, management.

### 4.0 PROCEDURE

#### 4.1 *Regular Assessment*

4.1.1 Regular assessments are performed by the Program Manager utilizing a combination of formal and informal evaluation activities as described below.

Formal assessments are conducted by use of the following methods as applicable:

- No Occupational Safety and Health violations,
- No environmental regulatory violations documented by a cognizant statutory regulatory agency and accepted by as appropriate by DOE,
- Any additional environmental protection goals, established in specific Work Plans,
- ALARA goals established per LEHR ALARA Program, and
- Radioactive Waste Management goals, if any, identified in the Radioactive Waste Management Program.

4.2.3 The results of the assessment will be documented in a formal report. The report will be distributed to the Program Manager, Project Manager and Project Task Leader, as appropriate, for their information and input in correcting deficiencies and improving project performance.

4.2.4 After receiving the Annual Assessment Report, the program office staff and project manager will assure that corrective actions for the unacceptable conditions noted in the report are accomplished and submit a memorandum to the Executive Sponsor and Program Manager informing him of the completion of required corrective actions or the anticipated date when corrective actions will be complete.

4.2.5 The Program Manager will provide a follow-up verification of the implementation of the corrective actions and upon completion issue a memorandum indicating the closed status of those actions. As part of the memorandum, the Program Manager will provide a statement validating that the corrective action implemented actually addressed and corrected the unacceptable conditions.

## 5.0 RECORDS

5.1.1 Documents generated as a result of implementation of this SQP will be maintained for each Annual Assessment and will include the following:

- The formal report;
- The memorandum of corrective action and verification (as applicable); and,
- The memorandum which closes the Annual Assessment Report.

5.1.2 Documents identified in 5.1 will be considered records, after closure of each Annual Assessment and will be controlled and maintained in the project record files in accordance with SQP 4.2.

---

# QUALITY SURVEILLANCES

---

## STANDARD QUALITY PROCEDURE

---

### 1.0 PURPOSE

This Standard Quality Procedure (SQP) establishes the methods and responsibilities for the conduct of surveillances in process activities to assure the effective implementation of the QAPP requirements.

### 2.0 REFERENCES

- 2.1 *Quality Assurance Program Plan*
- 2.2 *SQP 4.2 - Records Management*
- 2.3 *SQP 10.2 - Corrective Action*

### 3.0 DEFINITIONS

#### 3.1 *Surveillance*

The act of monitoring or observing to verify whether an item or activity conforms to specified requirements.

### 4.0 PROCEDURE

#### 4.1 *Discussion*

4.1.1 Surveillances are conducted to verify that activities which affect quality are being conducted in accordance with the requirements of the Quality Assurance Project Plan and implementing procedures. Surveillances may be performed on in-process work activities as well as completed work. They are performed as unscheduled, announced, and unannounced verifications to assess activities and performance of personnel who are implementing the QAPP.

#### 4.2 *Responsibilities*

4.2.1 The Program Manager is responsible for overall program operations. He is responsible for the proper implementation of the QAPP requirements.

4.2.2 The Program QA Manager (PQAM) and Project QA Specialist (PQAS) are responsible for conducting surveillances of quality affecting activities. Additionally, he/she assures that discrepancies identified during surveillances are documented, reported, and follow-up verification of corrective measures are conducted.

### ***4.3 Performance of Surveillance***

4.3.1 The PQAM or PQAS conducts surveillances at periodic intervals. He/she may select other personnel to participate in surveillances as appropriate. Personnel performing surveillances will be selected based on background, education, experience, capability, and the judgment of the PQAM or PQAS. It is not necessary to document the selection process. The performance of surveillances supplements but does not replace the requirements for scheduled audits of activities or inspections.

4.3.2 Prior to performing surveillances, the PQAM or PQAS will provide surveillance personnel with any necessary information (i.e., procedures, specifications, drawings, etc.).

4.3.3 The PQAM or PQAS will, through discussion with surveillance personnel, assure that surveillance personnel are familiar with the activity and the requirements applicable to the activity being surveilled and proceed with the surveillance.

4.3.4 Surveillance personnel will verify the following as a minimum:

- The activity is proceeding in accordance with current approved procedures;
- Personnel conducting the activity, as applicable, have been appropriately selected by project management (i.e., interdisciplinary reviews, independent technical reviews, audits, etc.); and,
- Personnel performing the activity have received the required indoctrination and specific training required to perform the activity.

### ***4.4 Surveillance Reporting***

4.4.1 Upon completion of the surveillance activity, any comments or discrepancies noted will be discussed with the personnel performing the activity. Significant comments and discrepancies will be documented on the Surveillance Report, Attachment 6.1.

4.4.2 Discrepancies found during the surveillance which are determined by the PQAM or PQAS not to be significantly adverse to quality will be reported by issuance of the surveillance report to management responsible for that activity.

4.4.3 Responsible management will, upon receipt of the surveillance report, establish proposed corrective action for the discrepancies identified. Proposed corrective action will be documented on the surveillance report and must include the date when corrective action will be complete.

4.4.4 The surveillance report with proposed corrective action is forwarded to the program or delivery order manager, as applicable, for approval of the proposed corrective action.

4.4.5 The program or delivery order manager, as appropriate, forwards approved surveillance reports to the PQAM or PQAS. Responses to surveillance reports must be submitted to the PQAM or PQAS within thirty (30) days after receipt of the surveillance report.

4.4.6 Discrepancies found during the surveillance which are determined by the PQAM or PQAS to be significantly adverse to quality will be documented on the surveillance report and also on a Corrective Action Request (CAR), the CAR number will be referenced on the surveillance report. The surveillance report is then closed as a result of the CAR being issued. Corrective Action Requests which are generated as a result of this procedure will be handled and controlled in accordance with SQP 10.3.

4.4.7 Surveillance personnel will, at the conclusion of the surveillance, conduct a brief post-surveillance meeting with cognizant management or supervisory personnel of the activity surveilled, to discuss discrepancies noted and any comments.

#### **4.5 *Surveillance Follow-up***

4.5.1 The PQAM or PQAS maintains the status of discrepancies for active surveillance reports and follows-up on overdue responses.

4.5.2 The PQAM or PQAS, upon receipt of dispositioned surveillance reports, performs an evaluation of the proposed corrective action. If the proposed corrective action is acceptable, the PQAM or PQAS signs the surveillance report in the "Approved" section.

4.5.3 Unacceptable responses will be noted on the surveillance report together with the specific reason for rejection. The PQAM or PQAS will reissue the surveillance report to the responsible organization, delineating a new response due date, and include a copy of the original surveillance report with evaluation comments. Review and distribution of the reissued surveillance report will be the same as the original report.

4.5.4 The PQAM or PQAS will assure that verification of corrective action implementation is accomplished and document the results of the verification on the surveillance report.

**NOTE:** Unacceptable verification will be handled in accordance with Paragraph 4.5.3

4.5.5 Upon completion (close-out) of the surveillance report, the PQAM or PQAS will notify responsible management by memorandum that all actions are complete and have been approved.

## **5.0 RECORDS**

5.1.1 The following documents may be generated as a result of this procedure:

- Surveillance Reports
- Surveillance Report Response Memorandums
- Surveillance Report Closure Memorandum

- Correspondence Related to the Surveillance

5.1.2 Documents identified in 5.1 will be considered records after closure of each surveillance and will be controlled and maintained in the project record files in accordance with SQP 4.2.

## 6.0 ATTACHMENTS

### 6.1 *Quality Assurance Project Surveillance Report*

A form referenced or attached to this SQP may be replaced with a substitute form, with the approval of the PQAM, if the substitute form contains equivalent information as the referenced form.

## **ATTACHMENT 6.1**

### **QUALITY ASSURANCE PROJECT SURVEILLANCE REPORT**

# QUALITY ASSURANCE PROJECT SURVEILLANCE REPORT

Company:			
Originator:	Surveillance No.:	Date:	Location:
Activities Under Surveillance:		<input type="checkbox"/> In Process	<input type="checkbox"/> Completed
Surveillance Personnel:		Individuals Contacted:	
Surveillance REF (Plan, Procedure):			
Surveillance Results:			
Deficiencies (Include Specific Requirement(s) Violated As Applicable):			
Proposed Corrective Action, As Applicable:			
			Corrective Action Completion Date:
Project Manager:		Date:	PQA Manager:
			Date:
<b>CORRECTIVE ACTION COMPLETED</b>			
Title:	Signature:		Date:
<b>VERIFICATION</b>			
Verification Results: <input type="checkbox"/> Accept <input type="checkbox"/> Reject <input type="checkbox"/> Elevated to NCR No.: _____			
Verified By:		Date:	PQA Manager:
			Date:
Verification Comments:			