



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 6  
1201 ELM STREET, SUITE 500  
DALLAS, TEXAS 75270

3/04/2026

Addie McClain  
Program Supervisor, Brownfields  
Arkansas Department of Energy and Environment  
5301 Northshore Drive,  
North Little Rock, AR 72118-5317

RE: Arkansas CERCLA QAPP FY26 Quality Assurance Project Plan Document

Dear Addie McClain,

The Region 6 Environmental Protection Agency has reviewed and approved the Arkansas Department of Energy and Environment Quality Assurance Project Plan (QAPP), which has been assigned the QTRAK number 26-059. The date of approval is 12/5/2025 and the QAPP expires on 9/30/2026. I have enclosed a copy of the signature page for your records. If you have any questions or concerns, please contact me at 214-665-6713, or I may be reached by e-mail at [debose.willie@epa.gov](mailto:debose.willie@epa.gov)

Sincerely,

Will DeBose  
Project Officer  
Superfund & Emergency Management Division

Enclosure



**A2. Approval Page**

**Quality Assurance Project Plan  
CERCLA Program**

Arkansas Department of Environmental Quality  
Division of Environmental Quality, Office of Land Resources  
Quality Management Plan EPA QTRACK # 25-075

 Digitally signed by Addie McClain Date: 2025.10.20 14:29:57 -05'00'	October 20, 2025
DEQ-OLR Site Assessment Section Supervisor Addie McClain	Date
 Digitally signed by Terry Sligh DN: cn=Terry Sligh, o=Division of Environmental Quality, ou=Office of Land Resources, email=terry.sligh@arkansas.gov, c=US Date: 2025.10.20 15:11:29 -05'00'	October 20, 2025
DEQ-OLR Quality Assurance Coordinator Terry Sligh	Date
 Digitally signed by Dianna Kilburn DN: cn=Dianna Kilburn, o=Division of Environmental Quality, ou=Office of Land Resources, email=dianna.kilburn@arkansas.gov, c=US Date: 2025.10.20 15:39:35 -05'00'	October 20, 2025
DEQ-OLR Managing Geologist Dianna Kilburn	Date
 Digitally signed by Olivia Blasdel Date: 2025.10.21 08:03:10 -05'00'	October 21, 2025
E&E Quality Assurance Manager Olivia Blasdel	Date
MICHELLE DELGADO-BROWN Digitally signed by MICHELLE DELGADO-BROWN Date: 2025.12.17 10:07:17 -06'00'	December 17, 2025
EPA Region 6 Site Assessment Manager Phillip Ofosu signed for	Date
 Digitally signed by WILLIE DEBOSE Date: 2025.12.18 13:42:10 -06'00'	
EPA Region 6 Grant Project Officer Willie DeBose	Date



# **QUALITY ASSURANCE PROJECT PLAN**

## **CERCLA PROGRAM**

Prepared by:

Arkansas Department of Energy and Environment

5301 Northshore Drive

North Little Rock, Arkansas 72118

Prepared for:

United State Environmental Protection Agency Region 6

1201 Elm Street, Suite 500

Dallas, Texas 75270

Prepared April 2024, Revised October 2025

**Group A. Project Management and Information/Data Quality Objectives**

**A1. Title Page**

**Quality Assurance Project Plan  
CERCLA Program  
Cooperative Agreement No. VX01F70401**

Prepared by:  
Arkansas Department of Energy and Environment  
5301 Northshore Drive  
North Little Rock, Arkansas 72118

Prepared for:  
United State Environmental Protection Agency Region 6  
1201 Elm Street, Suite 500  
Dallas, Texas 75270

Prepared April 2024 (Revised October 2025)  
Period of Applicability: Federal Fiscal Year (FFY) 2026  
October 1, 2025 – September 30, 2026

**A2. Approval Page**

**Quality Assurance Project Plan  
CERCLA Program**

Arkansas Department of Environmental Quality  
Division of Environmental Quality, Office of Land Resources  
Quality Management Plan EPA QTRACK # 25-075

---

DEQ-OLR Site Assessment Section Supervisor  
Addie McClain

---

Date

---

DEQ-OLR Quality Assurance Coordinator  
Terry Sligh

---

Date

---

DEQ-OLR Managing Geologist  
Dianna Kilburn

---

Date

---

E&E Quality Assurance Manager  
Olivia Blasdel

---

Date

---

EPA Region 6 Site Assessment Manager  
Phillip Ofosu

---

Date

---

EPA Region 6 Grant Project Officer  
Willie DeBose

---

Date

**QAPP Revision History**

<b>Revision No.</b>	<b>Description</b>	<b>Author</b>	<b>Date</b>
0	Original Version	Addie McClain	4/12/2024
1	Updated period of applicability, Approvals Page, Distribution List, and Organizational Charts	Addie McClain	9/30/2024
2	Updated Approvals Page	Addie McClain	10/1/2024
3	Cover Page—Update revision date; A1. Title Page—updated Period of Applicability; A2. Approvals Page—Updated EPA contacts and DEQ personnel; A4. Background—updated Table 1: QA Documents with current QMP information; A7. Distribution List—updated Table 3: Distribution List A10. Project Organization Chart and Communications—added communications processes and procedures; Document Control—Updated headers with new submission date and current revision number; Appendix A—Updated Project Organization Chart.	Addie McClain	10/14/2025

**A3. Table of Contents**

<b>Group A. Project Management and Information/Data Quality Objectives .....</b>	<b>2</b>
<b>A1. Title Page .....</b>	<b>2</b>
<b>A2. Approval Page .....</b>	<b>3</b>
<b>A3. Table of Contents .....</b>	<b>5</b>
<b>A4. Project Purpose, Problem Definition, and Background .....</b>	<b>9</b>
<b>A5. Project Task Description .....</b>	<b>10</b>
<b>A6. Information/Data Quality Objectives and Performance/Acceptance Criteria .....</b>	<b>12</b>
<b>A7. Distribution List .....</b>	<b>12</b>
<b>A8. Project Organization .....</b>	<b>13</b>
<b>A9. Project Quality Assurance Manager Independence .....</b>	<b>17</b>
<b>A10. Project Organization Chart and Communications .....</b>	<b>17</b>
<b>A11. Personnel Training/Certifications .....</b>	<b>18</b>
<b>A12. Documents and Records .....</b>	<b>18</b>
<b>Group B: Implementing Environmental Information Operations .....</b>	<b>20</b>
<b>B1. Identification of Project Environmental Information Operations .....</b>	<b>20</b>
<b>B2. Methods for Environmental Information Acquisition .....</b>	<b>21</b>
<b>B3. Integrity of Environmental Information .....</b>	<b>25</b>
<b>B4. Quality Control .....</b>	<b>26</b>
<b>B5. Instruments/Equipment Calibration, Testing, Inspection, and Maintenance .....</b>	<b>27</b>
<b>B6. Inspection/Acceptance of Supplies and Services .....</b>	<b>28</b>
<b>B7. Environmental Information Management .....</b>	<b>28</b>
<b>Group C: Assessment, Response Actions, and Oversight .....</b>	<b>29</b>
<b>C1. Assessments and Response Actions .....</b>	<b>29</b>
<b>C2. Oversight and Reports to Management .....</b>	<b>30</b>
<b>Group D: Environmental Information Review and Usability Determination .....</b>	<b>31</b>
<b>D1. Environmental Information Review .....</b>	<b>31</b>
<b>D2. Usability Determination .....</b>	<b>31</b>

**List of Tables**

- Table 1**      **Quality Assurance Planning Documents**
- Table 2**      **Tasks, Projects, and Schedules**
- Table 3**      **Distribution List**
- Table 4**      **CERCLA Program Environmental Information Operations**

**List of Appendices**

- Appendix A**      **Project Organizational Charts**

## Abbreviations

APCEC	Arkansas Pollution Control and Ecology Commission
CERCLA	Comprehensive Environmental Response, Compensation and Liabilities Act
CLASS	Contract Laboratory Analytical Services Support
CLP	Contract Laboratory Program
DEQ	Arkansas Division of Environmental Quality
DQO	Data Quality Objective
E&E	Arkansas Department of Energy and Environment
EI	Environmental Information
EIO	Environmental Information Operations
EPA	United States Environmental Protection Agency
ESI	Expanded Site Inspection
FS	Feasibility Study
FYR	Five Year Review
HASP	Health and Safety Plan
NPL	National Priorities List
O&M	Operations and Maintenance
OSHA	Occupation Safety and Health Administration
PA	Preliminary Assessment
PO	Project Officer
PP	Proposed Plan
PSA	Pre-CERCLA Screening Assessment
QA	Quality Assurance
QAC	Quality Assurance Coordinator
QAM	Quality Assurance Manager
QAPP	Quality Assurance Project Plan
QC	Quality Control

QMP	Quality Management Plan
RA	Remedial Action
RATFA	Remedial Action Trust Fund Act
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SAM	Site Assessment Manager
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SOW	Statement of Work
SPL	State Priorities List
TWP	Task Work Plan

#### **A4. Project Purpose, Problem Definition, and Background**

The United States Environmental Protection Agency (EPA) administers and enforces the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Program in the State of Arkansas, in consultation with the E&E-DEQ Office of Land Resources. Under authority of CERCLA of 1980, the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the Arkansas Remedial Action Trust Fund Act (RATFA) (Act 479 of 1985, as amended), DEQ is responsible for performing site assessment activities at pre-CERCLA sites and assisting and/or overseeing remediation at CERCLA sites.

Site Assessment activities consist of pre-remedial investigations to evaluate sites where a release of hazardous substances has occurred or is likely to occur and potentially threatens human health, welfare, and/or the environment. Environmental information operations (EIO) conducted and/or overseen by Site Assessment staff at pre-remedial CERCLA sites includes: research and using existing data from other sources, collecting both quantitative and qualitative environmental information (EI) from the site, laboratory analyses, and performing calculations and/or analyses of EI. This EI is used to support DEQ's decision to recommend a site for further Site Assessment investigations, to recommend proposing a site to the CERCLA National Priorities List (NPL) or to the RATFA State Priorities List (SPL), to refer the site to another response program, or to recommend no further actions at a site.

Management Assistance activities are conducted at CERCLA sites where removal actions or remediation are warranted. DEQ makes recommendations, conducts, and/or oversees these activities in coordination with EPA to ensure proper cleanup of CERCLA sites. EIO conducted at remedial CERCLA sites includes: laboratory analyses, performing calculations and/or analyses of EI, and using environmental technologies. DEQ uses this EI to make cleanup recommendations and/or decisions and to verify that a cleanup is complete.

The objective of the CERCLA Program QAPP is to document the purpose of the CERCLA Program, the EIO needed to meet program goals, and the application of quality management strategies to those goals.

Hazardous substance investigations involving field sampling and laboratory analysis require proper precision and accuracy documentation to establish the presence or absence of hazardous substances and their concentrations. Investigations relying on research and/or the use of existing data from other sources require an assessment of data quality criteria and acceptance specifications for decision making. This QAPP provides detailed requirements to be followed in conducting environmental site assessment and remedial activities. Effective implementation of this QAPP will produce high-quality, defensible EI that can be used to justify DEQ's decisions in a court of law should enforcement actions be required.

Relevant planning documents pertinent to this CERCLA QAPP are summarized in **Table 1** below.

**Table 1. QA Planning Documents**

<b>Title of Document</b>	<b>Date of Document</b>	<b>Pertinence to this QAPP</b>
E&E Quality Management Plan (QMP)	Effective 12/29/2024 through 12/29/2025 <i>OTRACK # 25-075</i>	This QAPP was developed in accordance with the organization's QMP.
CERCLA Work Plan	Effective 12/31/2019 through 6/30/2026	This Work Plan describes the activities and tasks to be completed under the CERCLA Program.

**A5. Project Task Description**

Tasks to be completed under the CERCLA Program are summarized in **Table 2** below.

**Table 2. Tasks, Schedules, and Products**

<b>Task</b>	<b>Schedule for Accomplishment</b>	<b>Description of Work</b>	<b>Products Produced</b>
Core Program Activities	Ongoing/semi-annual reporting.	Ongoing management of the CERCLA Program including staff supervision/management, CA administration, legal assistance, and fiscal/contract management.	Semi-annual progress reports to EPA.
Pre-Remedial Investigations	Ongoing/semi-annual reporting	Site Assessment activities. Includes conducting research, using existing data, and direct measurements including field sampling/laboratory analysis at pre-CERCLA sites or oversight of field sampling events performed by contractors.	Pre-CERCLA Screening Assessment (PSA), Preliminary Assessment (PA), Site Inspection (SI), Expanded Site Inspection (ESI), HRS QuickScore Package
Management Assistance Activities	Ongoing/semi-annual reporting	Support of EPA activities on NPL sites, and other tasks related to community relations, public meetings, briefings, and technical assistance. Includes monitoring activities, review of field sampling and laboratory analysis data produced by contractors, calculations and/or analyses of data, modeling, oversight of construction and operations of environmental technologies by contractors.	Remedial Investigation (RI), Feasibility Study (FS) Proposed Plan (PP), Record of Decision (ROD), Remedial Design (RD), Remedial Action (RA), Five Year Review (FYR), Operations & Maintenance (O&M)

This QAPP, prepared in accordance with the EPA Quality Assurance Project Plan Standard ([CJO 2105-S-02.1](#)), was developed to outline the procedures followed during EIO supported and/or required by EPA. The QAPP defines the necessary quality assurance (QA), quality control (QC), and other technical activities that will be implemented to ensure the results of all work performed by DEQ will satisfy EPA's performance criteria.

#### Task 1: Core Program Activities

Task 1 does not include activities that require QA documentation.

#### Task 2: Pre-Remedial Investigations

Under Task 2, the Site Assessment Supervisor will assign a Site Assessment Inspector to serve as the Project Coordinator for each site throughout the pre-remedial Site Assessment process and to oversee QC measures for site-specific activities. Managers and/or Supervisors will assign a technical team consisting of a Geologist, Engineer, and Epidemiologist for each pre-remedial CERCLA site. The Site Assessment Supervisor will serve as the main point of contact between DEQ and the EPA Site Assessment Manager (SAM).

As Project Coordinators, Site Assessment Inspectors will conduct research, review existing information, and perform or provide oversight of field activities including sampling with laboratory analysis. All sampling events will be conducted according to a Task Work Plan (TWP) with a site-specific QAPP, which will be approved by the EPA SAM prior to the initiation of any direct environmental measurements or data generation.

All laboratory analyses for pre-remedial investigations will be conducted by a Contract Laboratory Analytical Services Support (CLASS) laboratory assigned by the EPA according to the Contract Laboratory Program (CLP) Statement of Works (SOWs).

The Project Coordinator and technical team will use analytical data to calculate an estimated Hazard Ranking System (HRS) score for the site, which allows DEQ to recommend listing the site on the NPL or SPL, referring it to another response program, or recommending no further actions.

#### Task 3: Management Assistance Activities

Under Task 3, Managers and/or Supervisors will assign a Project Coordinator to serve as the main point of contact between DEQ and the assigned EPA Remedial Project Manager (RPM) and to oversee QC measures for the project. Project Coordinators may be Geologists, Engineers, or Epidemiologists. Managers and/or Supervisors will assign other members of the project technical team. The Environmental Operations Manager (Program Manager) will also be directly involved in communications between DEQ and the EPA Project Officer (PO).

Field work, including sampling, will be performed by contractors for remedial CERCLA sites when DEQ is the lead and for all CERCLA sites in the Operation and Maintenance phase. CERCLA staff will ensure that contractors performing work on CERCLA sites develop and implement an approved site-specific QAPP before commencing site-related activities. Because of the complex and diverse nature of hazardous substance investigations, the CERCLA staff will review site-specific QAPPs annually to determine if changes exist which could significantly

impact the technical and quality objectives of the project. Contractors will modify the site-specific QAPPs, as necessary, to document any procedural changes and submit revisions for approval by DEQ.

All laboratory analyses for CERCLA sites will be conducted by an DEQ-accredited laboratory. DEQ's Environmental Laboratory Accreditation Program ensures that data submitted for regulatory development, planning, permitting, or other functions will be of acceptable quality. The selected laboratory will be responsible for following the appropriate QA/QC procedures and methodologies.

The Project Coordinator and technical team will perform analyses and/or calculations using the analytical results to make remediation recommendations and/or decisions, and to verify that remediation remains effective.

#### **A6. Information/Data Quality Objectives and Performance/Acceptance Criteria**

EI collected at pre-remedial and CERCLA Operation and Maintenance sites will be used to meet some or all of the following goals:

- Determine if a release has occurred from a site;
- Identify potential threats to public health or the environment;
- Locate and identify potential sources of contamination;
- Determine the extent of contamination;
- Develop remediation strategies and estimate costs;
- Determine treatment and disposal options;
- Verify attainment of clean-up goals or ascertain if additional remediation is required; and
- Provide data in compliance with EPA analytical criteria for environmental measurements.

Data quality objectives (DQOs) for each task will be clearly defined within all site-specific QAPPs prepared by Site Assessment staff or contractors. DQOs are qualitative and quantitative statements specifying the type, quantity, and quality of data needed to support decisions. The geographic location, environmental medium, time projections, resources, and any other site-specific constraints of a project will be defined in each site-specific plan prepared by Site Assessment staff or contractors.

#### **A7. Distribution List**

This section presents the primary staff who work in the CERCLA Program, including staff members who will identify existing data resources for evaluation and potential use, and all other staff who will serve in project-specific roles for implementing this QAPP. The listing in **Table 3** includes staff responsible for implementing independent internal quality management steps and staff serving in external oversight roles.

This QAPP and, as applicable, all major deliverables relying on existing data will be distributed to the staff presented in **Table 3**. Additionally, this QAPP will be provided to any unlisted staff and any contractors or subcontractors who are assigned to perform work under this project. A secured copy of this QAPP will be maintained in the department-wide computer system under the E&E Public Network Drive at the following file path: *G:Quality AssuranceTeam\OLR\CERCLA*.

**Table 3. Distribution List**

Name	Organization	Role
Kara Allen	EPA Region 6	Quality Assurance Officer (LAS)
Willie DeBose	EPA Region 6	EPA Project Officer/Superfund State Grant Coordinator (SEDMR)
Philip Ofosu	EPA Region 6	EPA Site Assessment Manager (SEDAS)
Lauren Ballard	E&E	Interim Senior Manager
Bryan Leamons	E&E	Deputy Director
Dianna Kilburn, PG	E&E	Managing Geologist (Program Manager)
Addie McClain	E&E	Site Assessment Supervisor
Jonathan Burns	E&E	Site Assessment Inspector
Brock Huerkamp	E&E	Site Assessment Inspector
Matthew Carey, PG	E&E	Managing Geologist
David Gillespie, PG	E&E	Geologist
Candice Cone	E&E	Geologist
Shannon Bione	E&E	Geologist
Doug Ritchie	E&E	Risk Assessment Supervisor
Vacant	E&E	Epidemiologist
Megan Ruffin	E&E	Epidemiologist
Mark Moix, PE	E&E	Engineer Supervisor
Clay McDaniel	E&E	Engineer
Vacant	E&E	Engineer
Christy Coker	E&E	Engineer
Maunish Shah	E&E	Engineer
Terry Sligh	E&E	OLR Quality Assurance Coordinator
Olivia Blasdel	E&E	E&E Quality Assurance Manager
Emily Brickman	EnSafe, Inc.	Professional Services Contractor
Jeffrey Mitchell	Tetra Tech	Professional Services Contractor
Mary Clerget	AECOM	Professional Services Contractor
Mark Koch	Olsson Associates	Professional Services Contractor

**A8. Project Organization**

The primary personnel responsible for implementation of this QAPP are the Assessment & Remediation Operations Manager (Program Manager), the Supervisors and Managers, the OLR Quality Assurance Coordinator (QAC), and the E&E QA Manager (QAM). The duties of key personnel are briefly outlined in this section. All staff participating in field activities have stop-work authority to ensure safety.

**Senior Manager:** Office of the Secretary, Arkansas Department of Energy & Environment

- Senior Manager with executive leadership authority for E&E.

**Managing Geologist (Program Manager):** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Project Operations Manager (Program Manager) for the CERCLA Program;
- Has approval authority for the Program QAPP;
- Conducts EIO for pre-remedial CERCLA investigations and remedial CERCLA sites;
- Serves as the main point of contact between DEQ and the EPA PO.

**Site Assessment Supervisor:** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Assigns a Site Assessment Inspector as the Project Manager for duration of the Site Assessment process;
- Conducts EIO for pre-remedial CERCLA investigations;
- Serves as the main point of contact between DEQ and the EPA SAM.

**Site Assessment Inspectors:** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Serve as site-specific Project Coordinators for the duration of the Site Assessment Process;
- Conduct EIO for pre-remedial CERCLA investigations.

**Managing Geologist:** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Conduct EIO for remedial and O&M CERCLA sites.

**Geology Supervisor:** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Assign a Geologist to the technical team for the duration of the Site Assessment process;
- Assign a Geologist as the Project Coordinator and main point of contact between EPA RPMs and DEQ for remedial and O&M CERCLA sites, or as a member of the technical team for remedial and O&M CERCLA sites;
- Conduct EIO for pre-remedial investigations and remedial and O&M CERCLA sites.

**Geologists:** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Serve as members of the technical team for the duration of the Site Assessment Process;
- May serve as Project Coordinators and main points of contact between EPA RPMs and DEQ at remedial and O&M CERCLA sites, or may serve as members of the technical team for remedial and O&M CERCLA sites;

- Conduct EIO for pre-remedial investigations and remedial and O&M CERCLA sites.

**Risk Assessment Supervisor:** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality - Arkansas Department of Energy & Environment

- Assigns an Epidemiologist to the technical team for the duration of the Site Assessment process;
- Assigns an Epidemiologist as the Project Coordinator and main point of contact between EPA RPMs and DEQ for remedial and O&M CERCLA sites, or as a member of the technical team for remedial and O&M CERCLA sites;
- Conducts EIO for pre-remedial investigations and remedial and O&M CERCLA sites.

**Epidemiologists:** Assessment & Remediation - Operations - Office of Land Resources - Division of Environmental Quality - Arkansas Department of Energy & Environment

- Serve as members of the technical team for the duration of the Site Assessment Process;
- May serve as Project Coordinators and main points of contact between EPA RPMs and DEQ at remedial and O&M CERCLA sites, or may serve as members of the technical team for remedial and O&M CERCLA sites;
- Conduct EIO for pre-remedial investigations and remedial and O&M CERCLA sites.

**Engineering Supervisor:** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Assigns an Engineer to the technical team for the duration of the Site Assessment process;
- Assigns an Engineer as the Project Coordinator and main point of contact between EPA RPMs and DEQ for remedial and O&M CERCLA sites, or as a member of the technical team for remedial and O&M CERCLA sites;
- Conducts EIO for pre-remedial investigations and remedial and O&M CERCLA sites.

**Engineers:** Assessment & Remediation, Operations, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Serve as members of the technical team for the duration of the Site Assessment Process;
- May serve as Project Coordinators and main points of contact between EPA RPMs and DEQ at remedial and O&M CERCLA sites, or may serve as members of the technical team for remedial and O&M CERCLA sites;
- Conduct EIO for pre-remedial investigations and remedial and O&M CERCLA sites.

**OLR Quality Assurance Coordinator:** Administration, Office of Land Resources, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Oversees OLR QA programs;
- Prepares, updates, and revises the CERCLA Program QAPP;
- Ensures proper implementation of the CERCLA Program QAPP;
- Submits annual reviews of Program QAPP activities to the QAM;

- Conducts or schedules audits by the QAM;
- Reports QC failures or project-related problems to the QAM.

**E&E Quality Assurance Manager (QAM):** Office of Water Quality, Division of Environmental Quality, Arkansas Department of Energy & Environment

- Provides final approval of the CERCLA Program QAPP;
- Oversees E&E's QA program;
- Prepares, updates, and revises the agency's QMP;
- Conducts internal reviews; and
- Serves as the main point of contact between E&E and EPA Region 6 Office of Quality Assurance.

### **Professional Services Contractors**

- Develop site-specific SAPs for remedial sites;
- Communicate DQOs to laboratories analyzing samples collected from remedial sites;
- Assemble project teams, implement field work, and coordinate sample analyses;
- Verify proper function of all equipment before beginning field activities;
- Ensure the proper number, type, and quantity of sample containers, including preservation methods, are available for field activities;
- Follow standard sampling procedures as defined in this QAPP or in the site-specific SAP;
- Record all field data in accordance with this QAPP or the site-specific SAP;
- Follow all applicable SOPs to ensure samples are collected, preserved, labeled, packaged, and shipped to laboratories in an appropriate manner;
- Prepare reports described in Table 2, Management Assistance Activities; and
- Perform data validation as required.

### **Analytical Laboratories**

For pre-remedial sites:

- Maintain a contract with EPA through the CLP;
- Perform the requested analyses using appropriate test methods specified in site-specific QAPPs and in Scribe;
- Satisfy laboratory QA/QC objectives and activities;
- Prepare laboratory reports for DEQ, including all data and QC reports;
- Communicate any analytical issues or concerns to DEQ in a timely manner; and
- Initiate corrective action measures when deficiencies in sample collection, preservation, handling, test methods, or documentation are identified.

For remedial sites:

- Maintain accreditation by DEQ's Environmental Laboratory Accreditation Program;
- Understand and follow DQOs outlined in this QAPP and site-specific SAPs;
- Perform the requested analyses using appropriate test methods specified in the QAPP and site-specific SAPs;
- Satisfy laboratory QA/QC objectives and activities;

- Prepare laboratory reports for contractors, including all data and QC reports;
- Communicate any analytical issues or concerns to the contractor in a timely manner; and
- Initiate corrective action measures when deficiencies in sample collection, preservation, handling, test methods, or documentation are identified.

#### **A9. Project Quality Assurance Manager Independence**

The QAM operates independently from the OLR, the unit generating data for the CERCLA Program. The QAM has the authority to access and discuss quality-related issues with DEQ's senior manager outside of their direct supervisory chain as necessary. The OLR QAC reports directly to the QAM for quality-related issues.

#### **A10. Project Organization Chart and Communications**

Effective communication allows DEQ staff and contractors to identify and resolve issues immediately to ensure project goals are met. Methods of communication include in-person conversations and meetings, telephone and video conferencing calls, emails, and written correspondence, with written correspondence being the most official form of communication. All written correspondences are maintained in the project file.

All data collection is performed under this QAPP as well as a site-specific O&M plan that must be approved by DEQ. Contact information for the contractor(s) and DEQ, personnel involved in QA decisions are included in each scope of work (SOW) approval letter. This ensures that key decision-makers can be reached immediately should issues arise. Because QA issues often occur in the field and require quick resolutions to keep projects on track, calls or emails are the preferred means of communication. However, all QA/QC issues and resolutions are also documented in the contractor's field notes and must be described in any work products submitted to DEQ.

For Site Assessment investigations, DEQ staff prepare SI TWP's and submit them to the EPA SAM prior to conducting site work.

All technical work products submitted by contractors, including site-specific SAPs, are reviewed by the assigned project manager for the site. The project manager is responsible for communicating comments and questions from the technical team to the contractor in a written comment letter, usually within two work weeks. During this review time, the project manager may call or meet with the technical team and/or the contractor to ask questions or seek concurrence on issues. The project manager or program manager may also elevate issues to the EPA PO and request assistance in identifying solutions. Major QA/QC issues will also be reported to EPA POs in interim progress reports which are submitted on a semi-annual basis.

Once a comment letter is issued to a contractor, the contractor is responsible for submitting a revised work product, typically within one to two work weeks. The review and revision process continues until DEQ approves the work product in an approval letter.

Most QA/QC issues can be resolved between the contractor, DEQ staff, and EPA POs. However, major discrepancies and deviations from this QAPP and/or site-specific SAPs are reported to the OLR QAC who may, in turn, elevate them to the E&E QAM. As stated in Section A9 of this QAPP, the QAM operates independently from CERCLA staff and contractors and may initiate corrective action measures described in the E&E QMP.

See **Appendix A** for the CERCLA Program EIO Organization Chart.

#### **A11. Personnel Training/Certifications**

The Program Manager, Managing Geologist and/or Supervisors, and the OLR QAC are responsible for outlining specific training requirements for new and existing personnel. Managers or Supervisors assign new employees to apprentice with an employee experienced in the needed skills. New employees are required to read and understand the appropriate QA documents pertaining to their work. Direct supervisors are responsible for documenting personnel training.

DEQ staff are not permitted on a potential or known hazardous substance site without an escort until they have completed 40 hours of Hazardous Waste Operations and Emergency Response (HAZWOPER) training as required by applicable OSHA regulations (29 CFR 1910.120). DEQ also requires personnel to obtain 8-hour annual refresher courses, according to OSHA 1910.120, once during each calendar year. All technical staff must attend at least 24 hours of Hazardous Waste Sampling training prior to conducting field sampling events. All employees are offered QA courses from EPA when available.

Additional training is required for certain positions. Site Assessment staff are required to attend the following EPA-provided trainings as available: Superfund Essentials Training, Hazard Ranking System (HRS) Training, and PA/SI Training. Remedial and O&M CERCLA staff are required to attend Superfund 101 Training, which includes Fundamentals of Superfund and Enforcement Process Overview.

Job qualifications for management and technical staff personnel include a baccalaureate degree or higher in a relevant discipline of environmental or earth science, engineering, and/or management. Personnel responsible for grant applications or grant-related duties also participate in the EPA Grants Management Training for Applicants and Recipients.

Managers, Supervisors, the Program Manager, OLR QAC, Deputy Director, Associate Director, or a combination of the aforementioned, will assess training effectiveness when reviewing project and personnel performance. Training programs will be developed to correct problems discovered during project and personnel reviews.

#### **A12. Documents and Records**

The CERCLA Program QAPP describes the general QA/QC measures implemented during pre-remedial investigations and at remedial and O&M CERCLA sites. The Program QAPP will be effective for a period of five (5) years following its approval date unless it is amended, replaced, or rescinded prior to expiration. A secured copy of this QAPP will be maintained in the department-wide computer system under the following file path: *G:Quality AssuranceTeam\OLR\CERCLA* and on the E&E website at <https://www.adeg.state.ar.us/qa>.

Work products to be produced by the pre-remedial Site Assessment staff include PSAs, PAs, SIs, and ESIs. A TWP, including a site-specific QAPP and Health and Safety Plan (HASP), will be developed for each SI and ESI conducted at pre-remedial CERCLA sites. These site-specific plans will be reviewed and approved by the EPA SAM prior to the initiation of any direct environmental measurements or data generation. These plans will also be provided to all DEQ personnel and on-call contractors involved in site activities. Signed documentation will be maintained showing the plans have been reviewed and are understood by all personnel.

Work products to be produced for remedial and O&M CERCLA sites include RIs, FSs, PPs, RODs, RDs, RAs, FYRs, and O&M Reports. Activities at remedial and O&M CERCLA sites will, at a minimum, adhere to this Program QAPP. Additional plans that may be developed prior to field activities include site-specific QAPPs, TWPs, Sampling and Analysis Plans (SAPs), and HASPs. These plans will ensure thorough planning prior to the commencement of field activities. The design of each site-specific plan prepared and/or approved by the DEQ will be based on site-specific DQOs. All site-specific plans must be approved by DEQ management and/or the EPA RPM prior to the initiation of any direct environmental measurements or data generation. These plans will be provided to all DEQ personnel involved in site activities. Signed documentation will be maintained showing the plans have been reviewed and are understood by all personnel.

Field personnel will ensure that pertinent documentation is maintained during all site-related activities. Any deviations from pre-approved plans will be documented within a bound logbook. Throughout all site sampling events, personnel will maintain chain-of-custody forms or ensure that contractors maintain chain-of-custody forms. Copies of logbook records and chain-of-custody forms will be included in final work products.

Sample collection types may include grab samples, composite samples, split samples, duplicate samples, background samples, and control samples. Each sample will be assigned a unique and traceable sample number.

Paperwork required for sampling activities can include any or all of the following:

- Organic Traffic Report/Chain-of-Custody
- Organic Sample Numbers (stickers)
- Inorganic Traffic Report/Chain-of-Custody
- Inorganic Sample Numbers (stickers)
- Custody Seals

Turn-around time for analytical results will conform to the guidelines established in [\*Hazardous Waste Test Methods\*](#) (EPA Publication SW-846) or [\*Arkansas Pollution Control and Ecology Commission \(APCEC\) Rule No. 23, Hazardous Waste Management § 261 App. 1\*](#). DEQ will also ensure analytical parameters are included on all chain-of-custody forms.

After the assigned laboratory has completed the required analytical services, a complete data package will be sent to the designated DEQ Project Coordinator. The data package will include, but will not be limited to, all analytical results requested, QC data, a validation package, a case narrative, and chain-of-custody forms.

The Site Assessment Project Coordinator will use data packages to prepare SI and ESI reports. All reports will include a narrative discussing site characteristics, operational history, analytical results, and specific migration pathways. The reports will include figures and tables illustrating sources, sample locations, sample numbers, and contaminants detected in each media. Appendices to the reports will include photographic documentation, EPA Region 6 Screening Levels, chemical data summaries, sample receipts, and traffic reports/chain-of-custody forms.

All remedial CERCLA Project Coordinators will ensure that analytical data is received by the project team members and that it meets all the QA/QC criteria established for each project. The protocol followed will, at a minimum, be consistent with this CERCLA Program QAPP.

Work products produced for the CERCLA Program will be maintained in site-specific project folders in the department-wide computer system. Additionally, copies of work products will be archived in DEQ's digital file management system. At present, DEQ plans to retain these records indefinitely.

## **Group B: Implementing Environmental Information Operations**

The CERCLA Program QAPP was developed in accordance with the EPA Quality Assurance Project Plan Standard (*CIO 2105-S-02.1*).

### **B1. Identification of Project Environmental Information Operations**

**Table 4** summarizes the EIO conducted under the CERCLA Program, how these operations satisfy the purpose of the CERCLA Program, and performance/acceptance criteria used to evaluate EI for usability.

**Table 4. CERCLA Program Environmental Information Operations**

<b>Environmental Information Operation</b>	<b>Connection to Program Purpose</b>	<b>Performance/Acceptance Criteria</b>
<b>Task 2: Pre-Remedial Investigations</b>		
Research/use of existing EI from other sources	-Identify sites that pose a potential risk -Identify potential targets surrounding the site	-Site meets criteria for conducting a PSA -Source is a Federal or State publication or data source
Collection of quantitative & qualitative EI from the site, including sampling	-Verify site conditions -Identify potential sources of contamination -Identify potential pathways of exposure -Collect samples	-Photographic evidence aligns with field notes and logbooks -Sampling follows the approved QAPP and TWP
Laboratory analyses	-Confirm that a release has occurred from the site -Attribute the release to the site	-Data validation package from laboratory -QC checks by Project Coordinator and Supervisor to ensure data meets quality requirements
Calculations and/or analyses of EI	-Calculate HRS QuickScore to determine if site can be proposed to NPL, proposed to SPL, referred to another program, or if no further action is required	-HRS QuickScore QC check by Supervisor -Final recommendation by DEQ is reviewed by EPA SAM -If site recommended for listing on NPL, EPA will prepare official HRS package
<b>Task 3: Management Assistance Activities (Remedial and O&amp;M CERCLA Sites)</b>		
Laboratory analyses	-Identify areas of concern -Determine extent of contamination -Confirm a cleanup is complete	-Data validation package from laboratory -QC checks by contractor to ensure data meets quality requirements
Collection of quantitative and qualitative data from sites, including sampling	-Monitor progress at remedial and O&M sites -Collect environmental samples	-Photographic evidence aligns with field notes and logbooks -Sampling follows the approved QAPP and SAP as documented on field forms and logbooks
Calculations and/or analyses of EI	-Evaluate potential unacceptable risks to nearby targets -Develop cleanup plans and estimate costs -Determine effectiveness of the remedial action(s)	-Quality assured by uniform application of EPA risk analysis procedures -Use of EPA standard cost estimating tools -Application of standard groundwater statistical analysis
Use of environmental technologies	-Determine treatment and disposal options -Contain and/or treat contamination -Determine the need for optimization of the remedy	-Review and compare to options used at other similar CERCLA sites -Apply standard statistical procedures to evaluate optimization per EPA guidance

**B2. Methods for Environmental Information Acquisition**

The following subsections describe methods for obtaining EI in the CERCLA Program.

### **Existing Information**

Existing information will be used to evaluate pre-remedial CERCLA sites during the PSA and PA stages. Additional existing information may be used to update site information in SI and ESI reports. This EI is obtained from Federal or State government databases, websites, existing publications, and decision support tools. Sources of this information are maintained in the Site Assessment Standard Operating Procedures (SOP) which is maintained by the Site Assessment Program Supervisor. The EI that is obtained from these sources is primarily used to identify potential targets and to assess whether these targets could be impacted by a release from the site. Existing DEQ records are also used to evaluate a site's regulatory and compliance history and to determine whether a release may have occurred from a site. This existing information is used to calculate an estimated HRS score for the site using HRS QuickScore software, and the resulting score is used to make recommendations to EPA for the site.

### **Field Activities Environmental Measurements**

Field activities at pre-remedial CERCLA sites include site visits and sampling events. Site visits are performed during each stage of the Site Assessment process. During PSA and PA site visits, the EI to be collected includes photographs and field notes to verify site conditions, to identify potential sources of contamination, and to identify potential migration pathways of concern. A minimum of two Site Assessment staff are present for each site visit. One staff member is responsible for taking photographs using a digital camera equipped with GPS, while the other staff member is responsible for taking field notes. This method of EI collection ensures that all photographs confirm and support field notes.

Site visits are also performed during the development of the SI TWP. The purpose of these site visits is to update existing information on site conditions and to ensure that the planned sampling locations will be adequate.

Sampling events occur at the SI and ESI stage of the Site Assessment process. All SI and ESI field activities will be conducted according to the TWP, which will be approved by the EPA SAM prior to the initiation of any direct environmental measurements or data generation. These plans will include specifications for appropriate sample containers, preservation methods, volumes, maximum holding times for extraction and/or analysis, and sample handling and custody procedures.

When preparing to sample various media at a site, the following procedures will be adhered to as closely as possible:

- During sampling events, volatiles will be collected first, then semi-volatiles, metals, and cyanides.
- When sampling surface soils, the sampler will use stainless steel spoons, trowels, or pre-sterilized polyethylene scoops. The top layer of the soil will be carefully removed, the

sample transferred into the appropriate-sized glass jar, the cap tightly secured, and labeled appropriately.

- When sampling subsurface soils, the sampler will use a stainless steel hand auger. The auger will be used to bore a hole to the desired depth and withdrawn. The sample will be collected directly from the auger bit, placed into the appropriate sized glass jar, the cap tightly secured, and labeled appropriately.
- When sampling sediments, the sampler will use a dredge, trowel, or pre-sterilized polyethylene scoop to collect the sediments. When using the dredge, the sampler should allow it to hit the bottom of the area to be sampled and retrieve the dredge by pulling vertically on the rope. The sample will then be transferred to a stainless steel bowl. This collection procedure will be repeated until enough sediment has been collected to fill the sample jar. The cap on the container will be tightly secured and labeled appropriately.
- When sampling surface waters, the sampler will use a pond sampler or similar device, if necessary. If the surface waters are accessible, sampling or equipment will not be utilized (i.e., sample will be collected directly into the sample bottle). Prior to adding preservatives, if needed, a field pH measurement will be taken of the sample.
- When sampling groundwater from monitoring wells, the sampler will utilize Teflon<sup>®</sup> or PVC bailers. Groundwater will be poured directly into sample containers. Monitoring wells will be purged until a stabilization of field parameters occur or a minimum of three well volumes are removed before sampling.

All sampling equipment, unless pre-sterilized, will be decontaminated before and after use. The following decontamination procedures will be used for sampling equipment utilized:

- Scrub with brush to remove any excess material
- Wash in Liquinox<sup>®</sup> or equivalent (phosphate-free detergent) and water solution
- Rinse with potable water
- Rinse with deionized water

Decontaminated sampling equipment will be placed on clean plastic sheeting or on surfaces covered with aluminum foil. Sampling personnel will wear clean nitrile gloves during decontamination of equipment. All decontamination procedures performed during sampling events will be documented in the field logbook. Any deviations from the standard decontamination procedures will be noted in a field logbook.

DEQ personnel will follow personal decontamination procedures specified within the site-specific HASP. The level of personal protective equipment (PPE) will be determined site-specifically in the HASP.

Formal personal decontamination procedures involving exclusion zones and equipment drop and wash areas will also be addressed in the HASP. If conditions encountered warrant a PPE upgrade, these procedures will be implemented in accordance with the HASP.

DEQ personnel will use investigation methods that minimize the generation of investigation-derived wastes. These methods include (1) returning the unused portion of soil, sediment, and surface water samples to the sampling location, (2) using disposable PPE and equipment, and (3) eliminating the use of decontamination solvents. All disposable protective clothing (i.e., Tyvek<sup>®</sup> suits, booties, and gloves) and equipment will be collected, double-bagged, and disposed according to [\*Management of Investigation-Derived Wastes During Site Inspections\*](#) (EPA, 1991).

For sample data to be considered valid, samples must be traceable from the time of collection through chemical analysis and final disposition. DEQ will obtain and complete the necessary paperwork related to documentation, labeling, and shipping. EPA guidelines will be adhered to for all sampling events.

Sampling activities will be documented in bound logbooks. For each sample, the location, time, depth, station number, tag number, and any field observations will be recorded. Sampling personnel, bottle lot numbers, and sample designations will also be recorded. Each page of the logbook will be dated, numbered, and signed by all individuals making entries. All entries into the logbook will be recorded in ink and errors will be voided by striking a single line through the error, initialing, and dating the error by the person making and correcting the error. Color photographs of sample locations will be taken to document site conditions and support the observations made in the logbook.

All laboratory analyses for pre-remedial investigations will be performed by a CLASS laboratory assigned by EPA according to the CLP SOWs.

Field activities at remedial and O&M CERCLA sites include site visits to oversee assessments and remedial actions being performed by EPA or DEQ on-call contractors. EI to be collected by CERCLA staff includes photographs and field notes to document site activities and progress. A minimum of two CERCLA staff are present for each site visit. One staff member is responsible for taking photographs using a digital camera equipped with GPS, while the other staff member is responsible for taking field notes. This ensures that all photographs confirm and support field notes.

DEQ on-call contractors performing work at CERCLA remedial and O&M sites collect EI using field instruments such as photoionization detectors, pH meters, and conductivity meters. These contractors also perform sampling and monitoring events according to site-specific, DEQ-approved QAPPs, TWPs, or SAPs. These plans will include specifications for appropriate sample containers, preservation methods, volumes, maximum holding times for extraction and/or analysis, and sample handling and custody procedures.

## **Laboratory Analyses**

All laboratory analyses for the CERCLA Program will be performed by either a CLASS laboratory assigned by EPA according to the CLP SOWs or by a DEQ-accredited laboratory.

Procedures for the chemical analysis of samples will conform to methods described in [Contract Laboratory Program Guidance for Field Samplers, OSRTI 9240.0-51; EPA 540-R-20-005](#) (2020); [Hazardous Waste Test Methods](#) (EPA Publication SW-846); or as otherwise provided by [APCEC Rule No. 23, Hazardous Waste Management § 261 App. 1](#). The CLASS laboratory or DEQ-accredited laboratory of choice will be responsible for following appropriate QA/QC procedures and methodologies to ensure data quality.

### **Environmental Technology**

Environmental technologies are used at remedial and O&M CERCLA sites for the purposes of containment and/or remediation of contaminants. These technologies typically include excavations of contaminated soil and/or sediments, installation of pump-and-treat systems, or monitoring and natural attenuation (MNA). Use of environmental technologies requires QA activities in the design, installation, operation and maintenance, and verification phases. These systems are designed, installed, and maintained by contractors according to pre-approved, site-specific plans.

### **B3. Integrity of Environmental Information**

DEQ will ensure the integrity of EI generated by the CERCLA Program by adhering to, or ensuring contractors adhere to, strict procedures and requirements for sample collection, handling, and custody.

For both pre-remedial investigations and sampling events at remedial and O&M CERCLA sites, all sampling methods and/or equipment, decontamination, procedures, and any specific performance requirements will be addressed in the TWP, SAP, QAPP, and/or HASP. Sampling will be conducted according to protocols listed in [Contract Laboratory Program Guidance for Field Samplers, OLEM 9240.0-51; EPA 540-R-20-005](#) (EPA, 2020); [Test Methods for Evaluating Solid Wastes Physical/Chemical Methods](#) (EPA Publication SW-846); or as otherwise provided by [Arkansas Pollution Control and Ecology Commission Rule No. 23, Hazardous Waste Management § 261 App. 1](#).

The following QC samples will be used to assess the precision, accuracy, representativeness, completeness, and comparability of analytical laboratory data:

- Field Duplicates
- Equipment Rinsate Samples
- Matrix Spike/Matrix Spike Duplicate Samples
- Trip Blanks and Temperature Blanks

Guidelines for collecting minimum QA/QC samples are outlined in [Data Quality Objectives Process for Superfund](#) (EPA, 1994). QA/QC samples will be collected for each medium at the frequency specified within the site-specific TWP or SAP.

Field duplicate samples are collected at specified frequencies and are used to document precision. Field duplicates will be collected by using the same procedures specified for the medium.

Equipment rinsate samples are intended to identify sources of (1) contamination from sampling equipment, (2) cross-contamination from previously collected samples, or (3) contamination from conditions during sampling. Equipment rinsate samples will consist of reagent-grade deionized water poured over or through (1) decontaminated sampling equipment used to collect the samples, or (2) equipment that contacts the samples. Frequency of rinsate sample collection will be specified in site-specific TWPs or SAPs.

The laboratory will be required to analyze inter-laboratory split and matrix samples to assure the precision and accuracy of the analytical laboratory instruments, as specified by the CLP SOW. Non-CLP laboratories must be certified by the National Environmental Laboratory Accreditation Program (NELAP) for Site Assessment work and accredited by E&E DEQ for CERCLA O&M work.

Trip blanks, consisting of deionized water, will also be submitted for each specified analysis. Analysis of trip blanks is required to evaluate the effectiveness of sample handling during shipping. Frequency of trip blank collection will be specified in site-specific TWPs or SAPs.

After the assigned laboratory has completed the required analytical services, a complete data package will be sent to the designated DEQ Project Coordinator or the contractor. The data package will include, but will not be limited to, all analytical results requested, QC data, a validation package, a case narrative, and chain-of-custody forms.

Upon receipt of the data package from the analytical laboratory, the Project Coordinator, a Risk Assessor, or the consultant will perform a desktop review. This process involves reviewing and understanding the case narrative, data qualifiers, and QC nonconformances, and contacting the laboratory directly if there are questions regarding data quality. Then, the reviewer will determine whether the data are of sufficient quality to meet the DQOs outlined in the specific QAPP, TWP, or SAP. Data usability is discussed in greater detail in Section D2.

#### **B4. Quality Control**

Internal quality control checks are performed by the assigned Project Coordinator, their Supervisor or Manager, and the QAC.

Use of existing data will be limited to the Site Assessment section's evaluation of pre-remedial CERCLA sites. This EI will come from State and Federal databases using known sources of information and will be reviewed by the Supervisor or Manager and Program Manager prior to inclusion in a final work product.

For site visits without sampling, the assigned Project Coordinator will conduct an internal QC check upon returning from the field. This includes a thorough review of field notes and photographs, which are consolidated into a Photographic Log. The Photographic Log is reviewed by the assisting inspector to ensure accuracy, and is reviewed again by the Supervisor or Manager and Program Manager prior to inclusion in a final work product.

During sampling events, sample collection types may include grab samples, composite samples, split samples, duplicate samples, background samples, and control samples. Each sample will be assigned a unique and traceable sample number.

The selected laboratory will be responsible for assessing the precision/bias, accuracy, representativeness, completeness, and comparability of analytical laboratory data using field duplicates, equipment rinse samples, matrix spike/matrix spike duplicate samples, and trip blanks and temperature blanks.

DEQ or its contractors will collect QA/QC samples according to the guidance in [\*Data Quality Objectives Process for Superfund\*](#) (EPA, 1994). QA/QC samples will be collected for each medium at the frequency specified within the site-specific TWP or SAP.

Following a sampling event, the Project Coordinator or contractor will conduct a QC check to include, at a minimum, evaluation of the following areas:

- Adequacy of data collection and management procedures;
- Adherence to established sampling and collection methods;
- Implementation of health and safety procedures;
- Compliance with applicable laws and regulations; and
- Compliance with chain-of-custody procedures.

Any QC issues will be documented by the Project Coordinator and reported to their Supervisor or Manager. The Supervisor and/or Manager will report QC issues to the QAC to discuss and implement corrective actions with the Project Coordinator. The QAC will report corrective actions to the QAM.

## **B5. Instruments/Equipment Calibration, Testing, Inspection, and Maintenance**

All testing, inspections, and calibrations of instruments and equipment will be conducted in accordance with specific instrument/equipment guidelines provided by the manufacturer and approved laboratory protocols. All field instruments and equipment will be inspected, tested for usability, and calibrated by the project staff or contractors prior to use to ensure performance accuracy. Records of instrument/equipment calibration will be included in final work products as applicable.

Field measuring and testing equipment such as photoionization detectors, pH meters, and conductivity meters will be calibrated, adjusted, and maintained by DEQ or contractors according

to either (1) standards provided by the manufacturer or (2) nationally recognized standards. Equipment inspection and service records and equipment manufacturer specification files are kept by DEQ for reference. Calibration and testing instructions provided by the manufacturer will accompany all measuring and testing equipment to the field. If no standards exist, an alternative basis of calibration will be used and documented.

The method and frequency of calibration for field instrumentation will be based on (1) type of equipment, (2) stability characteristics, (3) required accuracy, (4) intended use, (5) manufacturers' recommendations, and (6) other conditions affecting measurement control. This information is specified in the equipment inspection and service records and the equipment manufacturer specification files.

Each laboratory will be responsible for calibrating laboratory analytical equipment in accordance with (1) the specified analytical methodology, (2) the SOWs, and (3) the laboratory's internal QA plan. All calibration standards will be certified or will be traceable to EPA or other recognized standards.

Out-of-calibration equipment will be segregated and not be used until it has been recalibrated. If it is consistently out of calibration, the equipment will be repaired or replaced. Additional unscheduled calibrations will be performed when equipment accuracy is doubtful.

Preventive maintenance schedules will be adhered to in accordance with each instrument's manufacturer-supplied maintenance guide. DEQ personnel or contractors will be responsible for conducting preventive maintenance on all field equipment used during sampling activities. Laboratories will be responsible for preventive maintenance on all laboratory instrumentation in accordance with their respective SOWs.

## **B6. Inspection/Acceptance of Supplies and Services**

All sampling supplies will be inventoried by Site Assessment staff or by contractors upon receipt with shipping/receiving documents and purchase orders to ensure the amount and type ordered match the amount and type received. Any discrepancies in the shipments will be documented and reported to the purchasing agent. The supplier will be notified of such discrepancies.

## **B7. Environmental Information Management**

Methods of collecting EIO under the CERCLA Program include: using existing information, field measurements, laboratory analyses, and using environmental technology.

Existing information is obtained from Federal or State government databases, websites, existing publications, and decision support tools. EI to be used for project purposes is saved digitally to a site-specific project folder within the department-wide computer system, and copies of relevant information are provided in final work products.

Field activity environmental measurements are obtained at project sites and include field notes, photographs, and direct measurements of environmental parameters, including sampling. All field activity notes are maintained in bound logbooks which are physically retained at DEQ offices. Copies of field notes may be scanned and digitally retained in the site-specific project folder as well. All digital photographs are saved to the site-specific project folder.

Direct field measurements of environmental parameters may include the use of photoionization detectors, pH meters, and conductivity meters by contractors. This information is included in contractors' submittals to DEQ.

Sampling event activities, including any deviations from pre-approved plans, are recorded in bound field logbooks and verified by site photographs. Other documentation to be produced or used during field sampling events includes chain-of-custody forms, sample label stickers, and custody seals on sample containers. These records are shipped to the selected laboratory, and copies of the chain-of-custody records are included in the laboratory analytical data package and in final work products.

Laboratory analyses are performed by either a CLASS laboratory assigned by EPA according to the CLP SOW, or by a DEQ-accredited laboratory. These laboratories are responsible for following the appropriate QA/QC procedures and methodologies. For each sampling event, the selected laboratory will produce a laboratory analytical data package. For pre-remedial CERCLA sites, each CLASS data package will be reviewed and validated by the EPA Region 6 Houston Branch Environmental Services Assistance Team data review personnel. The approved data package is retained digitally in the department-wide computer system. DEQ staff enter data into data tables and reports using the analytical package. All data entry is reviewed by a Supervisor and another member of the project technical team.

E&E Office of State Technology (OST) is responsible for ensuring that DEQ digital records are secured and backed up according to the E&E QMP. All documents generated through word processing are stored on the department's servers with daily, weekly, monthly, quarterly, and annual backup onsite and offsite. This is in addition to hard copy files that may be physically retained at DEQ offices.

## **Group C: Assessment, Response Actions, and Oversight**

### **C1. Assessments and Response Actions**

All data generated will be assessed for accuracy, precision, completeness, representativeness, and comparability. Laboratories will substantiate all laboratory data by calculations of precision and

accuracy according to specified SOWs. In addition, comments regarding completeness, representativeness, and comparability will be included in a case narrative when applicable.

An effective QA program requires rapid, effective, and thorough correction of QA problems. Corrective action minimizes the possibility of questionable data or documentation. To provide a complete record of QA activities, all QA problems and corrective actions will be documented.

Corrective action is not complete until the problem has been effectively and permanently resolved. The QAC will monitor follow-up action to confirm that the problem does not recur; this is an important step in the corrective action procedure.

Major corrective actions for specific work assignments will be documented by field personnel and submitted to the QAC. The Managers, Supervisors, and Project Coordinators jointly define responsibilities for scheduling, performing, and documenting the required action and for verifying its effectiveness.

Audits are routinely conducted in QA programs to assess and document technical performance. Internal QA audits may be based on information contained in the [\*Uniform Federal Policy for Quality Assurance Project Plans\*](#) (Intergovernmental Data Quality Task Force, 2005), [\*Guidance on Assessing Quality Systems, QA/G-3\*](#) (EPA, 2003), or the [\*Guidance on Technical Audits and Related Assessments for Environmental Data Operations, EPA QA/G-7\*](#) (EPA, 2000a). Audits will be scheduled by the QAC, conducted by the QAM, and documented on checklists adapted to project-specific requirements.

Upon completion of a QA audit, the QAM will submit a report to the QAC, Manager and/or Supervisor, and then to the Project Coordinator. Deficiencies and recommended corrective actions will be referred to the Project Coordinator for immediate action. Any corrective action taken by the Project Coordinator will be reported to the Manager and/or Supervisor.

The QAC will conduct annual reviews of this QAPP focusing on the benefits and effectiveness of the plan. Structural changes will be implemented at the time of the scheduled review or upon demand of current situations which may need to be addressed.

## **C2. Oversight and Reports to Management**

Project-specific assessment and oversight reports will be issued to provide the following information:

- Project status;
- Results of Performance Evaluations and Systems Audits;
- Results of periodic data quality assessments;
- Changes in the site-specific QAPP; and
- Significant QA problems and recommended solutions.

The Project Coordinator will report to the QAC on the status of any required corrective actions and any proposed revisions to the QAPP. The QAC will report to the QAM, who will then report problems and corrective measures to designated EPA Region 6 personnel.

## **Group D: Environmental Information Review and Usability Determination**

### **D1. Environmental Information Review**

Data reduction will be performed by all laboratories according to their respective SOWs, instructions in [Hazardous Waste Test Methods](#) (EPA Publication SW-846) and 40 CFR Part 261, *Identification and Listing of Hazardous Waste*, for each analytical method. If the analytical data do not meet the minimum DQOs, the laboratory will implement the necessary corrective actions. All data falling outside of the QC limits will be flagged by the laboratory.

Validation of all measurement data will be based on adherence to method protocol and the prescribed QC procedures. The laboratory will perform data validation of the data package by using the criteria for specified analyses presented in [U.S. EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review; OLEM 9240.0-51; EPA 540-R-20-005](#) (U.S. EPA Office of Superfund Remediation and Technology Innovation (OSRTI), 2020) and [U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; OLEM 9240.1-66; U.S. EPA 542-R-20-006](#) (OSRTI, 2020).

Data validation forms for specified analyses will be completed by laboratory data validation personnel. These checklists are used to evaluate all the steps leading to the calculation of the final analytical results, including (1) sample holding times, (2) instrument calibration, (3) blanks, (4) check samples, (5) sample dilutions, (6) precision of duplicate analyses, (7) matrix spike recoveries, and (8) data completeness. All data elements will be qualified as “acceptable,” “provisional with problems noted,” or “unacceptable,” in accordance with EPA data qualifiers.

Each CLASS data package will be reviewed and validated by the EPA Region 6 Houston Branch Environmental Services Assistance Team data review personnel. DEQ staff will then use the approved data review summary for report preparation.

### **D2. Usability Determination**

In order to meet the goals of the CERCLA Program, all EI generated by DEQ and its contractors must be of sufficient quality to allow DEQ to make evidence-based, defensible decisions or recommendations regarding cleanup actions at pre-CERCLA and CERCLA sites.

All analytical data used to prepare reports will be validated by the selected laboratory according to the procedures described in Section D1. The validated data package will include a case narrative

that discusses any quality issues with the samples from receipt, preparation, analyses, or reporting. The validated data will include qualifiers indicating whether the specific sample result can be relied upon to accurately represent site conditions (i.e., “acceptable,” “unacceptable,” or another qualifier).

Any data deemed “unacceptable” by the laboratory due to quality issues will not be used to make decisions for the site. However, qualified data may still be used to draw conclusions in some cases. If qualified data is included in the data package, the Project Coordinator follow the guidance in [\*Using Qualified Data to Document an Observed Release and Observed Contamination\*](#) (EPA, 2022) to determine if the qualified data can still be used to meet the goals of the Site Assessment. When qualified data are used in work products, the qualifiers are included in data tables and discussed in the narrative, results, and/or conclusions.