

QUALITY ASSURANCE PROJECT PLAN
SOLID WASTE INFRASTRUCTURE FOR RECYCLING

Project Period: 10/01/2023 – 09/30/2026

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SUBMITTED BY:
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**QUALITY ASSURANCE PROJECT PLAN
APPROVAL PAGE**

**September 2025 for
FFY 2026**

This Quality Assurance Project Plan (QAPP) was prepared by, and the work is to be carried out by, the Arkansas Department of Energy & Environment (E&E), Division of Environmental Quality (DEQ), Office of Land Resources (OLR) under the DEQ Quality Assurance Management Plan.

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A4 – Project Purpose, Problem Definition, and Background

Project Purpose

The objective of the Solid Waste Infrastructure for Recycling (SWIFR) Quality Assurance Project Plan (QAPP) is to enhance data collection by establishing baseline performance data for systems around the state. Data collected will include waste generated and recycled by material type, the number of recycling programs, cost and jobs associated with each program and demographics on how many residents have access to these programs, highlight the amount of investment needed to modernize material recovery infrastructure, and identify areas where improvement is needed and where funds can be utilized to demonstrate the best outcomes.

This QAPP will serve to provide detailed requirements for the conduction of data collection and characterization. It is DEQ's goal that effective implementation of this QAPP will provide an avenue of collecting quality data for decision-makers and establishment of future projects.

This SWIFR QAPP is associated with the Arkansas Energy and Environment's Quality Management Plan (QMP), Quality Control Number QMP-001.001.

Problem Definition

The State of Arkansas has suffered from declining markets for recycled materials and recycling infrastructure that has not kept pace with new technologies, changing waste streams, increased population, and rising costs. Part of the problem can be attributed to confusion and disagreement over what materials can be recycled and the lack of a uniform method to collect and analyze solid waste generation and recycling efforts.

Background

Act 1333 of 2013 eliminated the Recycling Grant Program under the Solid Waste Management and Recycling Fund Act and provided for an alternate means of distributing funds. Funds are allocated to the nineteen (19) Regional Solid Waste Management Boards (RSWMBs) created in Ark. Code Ann. § 8-6-703, determined by a population-based formula. The State Solid Waste Management Plan is located here https://www.adeq.state.ar.us/sw/programs/state_plan.aspx.

Ark. Code Ann. § 8-6-1904 required DEQ to develop the Statewide Solid Waste Management Plan that establishes minimum requirements for all regional solid waste management plans, including requirements for:

- a. Strategic planning;
- b. Reporting;
- c. Public notice and participation;
- d. Services; and
- e. Solutions to problems and issues.

A5 – Project Task Description

The QAPP encompasses all environmentally related measurement activities supported or required by the U.S. Environmental Protection Agency (EPA). Environmentally-related measurement activities include all field activities that involve the measurement of the quantity and type of recyclable and recoverable materials; define and identify waste generation areas; define recyclables, areas of reduction, reusable items, municipal waste, hazardous waste, industrial waste, and solutions to problem materials.

This QAPP, prepared according to the *Guidance for Quality Assurance Project Plans, EPA, QA/G-5* (EPA, 2002), was developed to illustrate DEQ procedures followed during environmentally-related measurement activities supported and/or required by EPA. The QAPP defines the necessary QA, QC, and other technical activities that will be implemented to ensure the results of all work performed by the DEQ will satisfy EPA's performance criteria.

Proper data collection will ensure the regions, districts, counties, and municipalities are representative of the state's boundaries. The methodology of collection will be uniform and consistent. The accuracy and validity of the data is dependent on the number of program coordinators conducting interviews and surveys, the depth of the research and the informed analysis of the data. Improper data collection, redundant collection, and inconsistent analytical procedures will not present a comprehensive presentation of the data or meet the objective of this QAPP, which is a minimum of 90% within control limits.

PROJECT SCHEDULE

Ongoing activity

- Inventory baseline data across all regions of the state
 - ✚ Materials Collected by Type
 - ✚ Transportation Services
 - ✚ Types of Recycling and Material Recovery Facilities Available
 - ✚ Amount of Waste Disposed
 - ✚ Population Having Access to Recycling Opportunities
 - ✚ Number of Jobs Created
- Research Best Practices in Other States
- Provide Program Updates
- Field Research with Regional Solid Waste Management Boards (RSWMBs), Counties, Municipalities, Schools, Industry, etc.

Ongoing activity

- Organize and Analyze Data
- Revise Existing Statewide Solid Waste Management Plan

Future activity

- Present Plan to Stakeholders and Public for Input
- Implement Statewide Solid Waste Management Plan

- Provide Outreach to RSWMBs in the Development of Regional Solid Waste Management Plans

A6 – Information/Data Quality Objectives and Performance/Acceptance Criteria

Information/Data Quality Objectives

Data Quality Objectives (DQOs) allow DEQ personnel to define the project’s goals, identify the processes needed to discover problems and collect data, formulate decisions, and perform analyses of extracted data. The DQOs will be specific, measurable, and attainable.

Ultimately, the outcome will produce complete data with the precision and accuracy necessary for proper interpretation. Comprehensive and accurate documentation is essential to determine the presence or absence of necessary data needed to make educated decisions and plans.

This QAPP will serve to provide detailed requirements for the conduction of data collection and characterization, which include the following:

1. Uniform questions (developed to obtain targeted and consistent data) will be presented in small to medium groups to encourage thoughtful discussion and interaction. DEQ reserves the option to conduct these interviews in person, by phone, or via a virtual platform;
2. Recording the discussions and interviews electronically to ensure all information is collected;
3. Encourage follow-up questions and comments from the meeting participants;
4. Analyze the results within five (5) days of the meetings to determine if the format should be revised and if additional questions or comments could be included;
5. Encourage “User Stories” regarding availability or lack of recycling services in the area in which the meetings are conducted;
6. Review existing and historical data that is available for that area and/or region.
7. Observation – Collect data at recycling centers, material recovery facilities, landfills, businesses, etc.; with criteria determined in advance.
8. Data Mining – recording the types of social media posts on recycling, gathering educational materials published and available to the public, determine the amount of outreach (training & educational events), and record the number of recycling events held every year for the public;
9. Waste Characterization Studies – visit landfills, businesses, and schools to perform waste audits. Clarify waste categories (glass, paper, cardboard, plastic, aluminum, etc.); identify opportunities for waste diversion, waste reduction and recycling; and communicate the results of each study/audit.

Performance/Acceptance Criteria

Acceptance criteria address the adequacy of existing information that is available from other sources. Data Quality Indicators (DQI) are measures of information associated with environmental information. The six standards of DQIs are as follows (and defined in EPA’s QAPP Standard): ***precision, accuracy, representativeness, comparability, completeness, and sensitivity.***

The following reports, submitted by permitted facilities and Regional Solid Waste Management Boards, are required by either state statute or rules. These reports provide meaningful, historical data on solid waste management, disposal, composting, and recycling. Each of the reports meet the six standards of DQIs and can be used to further define and support the DQOs listed above.

- Quarterly Disposal Fee Reports at Class 1, Class 3, and Class 4 landfills;
- Annual Engineering Inspection Reports for Class 1, Class 3, and Class 4 landfills;
- Annual Reports for Transfer Stations and Compost facilities;
- Regional Needs Assessments (RSWMBs);
- Solid Waste Plan Updates (RSWMBs);
- Solid Waste Management and Recycling Fund Expenditure Reports (RSWMBs);
- Recycling Activity Surveys (RSMWBs).

A7 – Distribution List

Name	Title	Phone	Email
Bryan Leamons	Deputy Director	501-682-0990	Bryan.Leamons@arkansas.gov
Susan Speake	Associate Director	501-682-0594	Susan.Speake@arkansas.gov
Terry Sligh	Grant Coordinator	501-682-0867	Terry.Sligh@arkansas.gov
Colbie Jones	Associate Environment Administrator	501-628-0713	Colbie.Jones@arkansas.gov
Lucy Cross	Enterprise Services Supervisor	501-682-0788	Lucy.Cross@arkansas.gov
Vanessa Kohrs	Environmental Program Coordinator	501-682-0946	Vanessa.Kohrs@arkansas.gov
Tommy Edgman	Environmental Program Coordinator	501-682-0592	Tommy.Edgman@arkansas.gov
Stacie Wassell	E&E Interim QA Manager	501-682-0941	Stacie.Wassell@arkansas.gov
Kelly Longfellow	EPA Reg. 6 SWIFR Grant Project Officer	214-665-6541	longfellow.kelly@epa.gov

The E&E quality assurance manager (QAM) is responsible for independent review, assessment, and consultation, as needed, within DEQ and with EPA for all work performed or administered by DEQ. The QAM issues recommendations to management about quality performance.

The associate director will assign the quality assurance manager to oversee the quality assurance (QA) and quality control (QC) performance for each waste characterization survey or data collection effort.

The associate director and Enterprise Services supervisor will be responsible for maintaining communication with the EPA project officer and confirming that project activities are performed according to this QAPP. The associate director is also responsible for (1) assigning QC

coordinators for deliverable products, (2) managing, monitoring, and documenting the quality of all work produced, (3) coordinating with the EPA Region 6 personnel, and (4) will have stop-work authority. Problems encountered during the assignment activities will be communicated to and resolved by the Enterprise Services supervisor and/or the associate director.

A8 – Project Organization

- Approval Authority for the QAPP: Susan Speake, Associate Director, Office of Land Resources and Stacie Wassell, E&E Interim Quality Assurance Manager.
- Sr. Manager having executive leadership authority: Bryan Leamons, Deputy Director for the Office of Land Resources and Colbie Jones, Associate Environment Administrator for the Division of Environmental Quality.
- Project Operations Manager: Susan Speake Associate Director, Office of Land Resources.
- Maintaining QAPP: Susan Speake, Associate Director, Office of Land Resources.
- Titles, Roles, Names (subject to change) Conducting Information Operations:

Terry Sligh	Grant Coordinator	Data Miner
Colbie Jones	Associate Environment Administrator	Decision Maker, Planning
Lucy Cross	Enterprise Services Supervisor	Decision Maker, Planning
Vanessa Kohrs	Environmental Program Coordinator	Data Miner
Tommy Edgman	Environmental Program Coordinator	Data Miner
Stacie Wassell	E&E Interim Quality Assurance Manager	Quality Assurance Manager

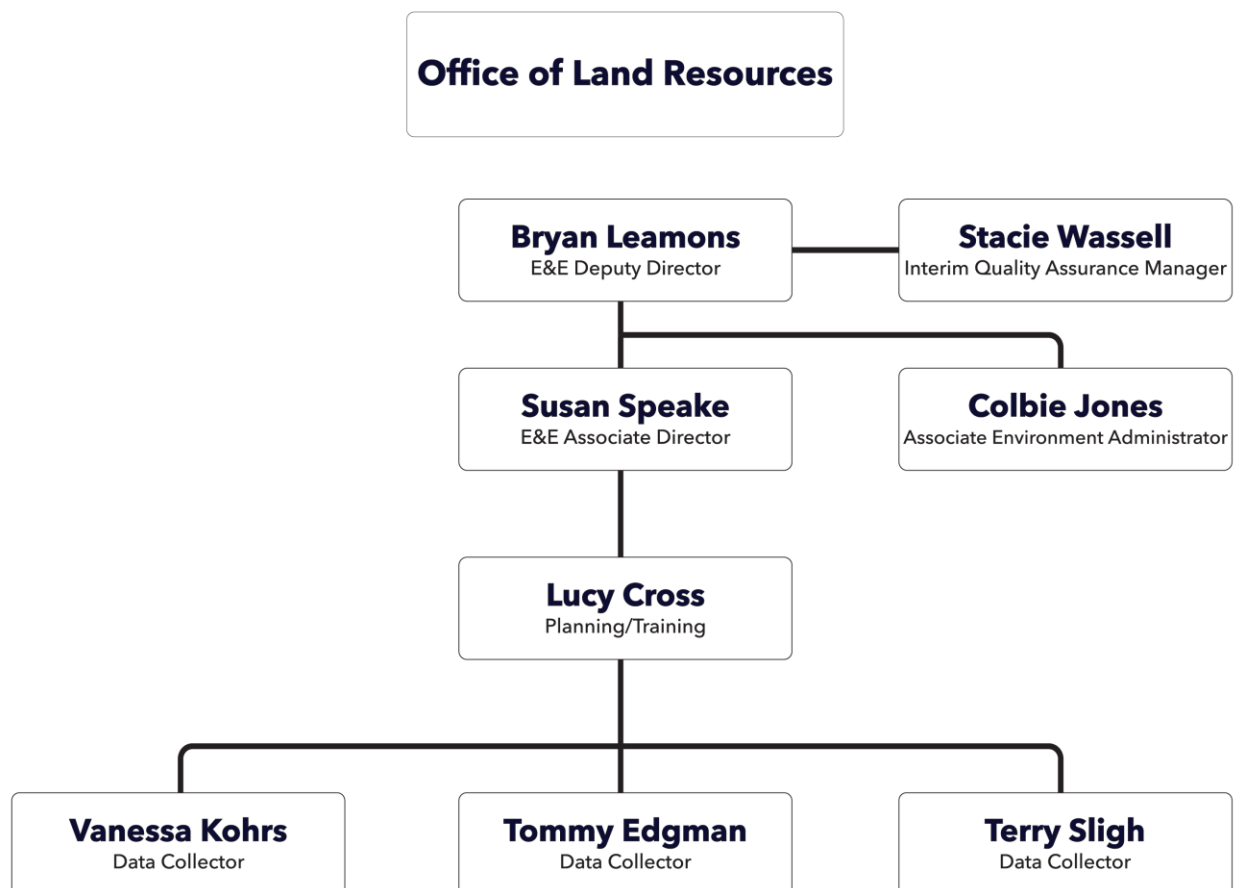
- Identification of all contractors, subcontractors, sub-grantees: N/A
- Principal environmental information or data users within the organization or outside the organization: N/A

A9 – Project Quality Assurance Manager Independence

- Associate director and the QAM will define the quality objectives for the team, which includes identifying the objectives of the project and establish best practices to achieve results.
- Associate director will communicate to the team that the QAM will review the work, be authorized to make inquiries, and provide feedback independently.
- It will be established to the team that the QAM will have complete autonomy to guarantee the integrity of the data collected.
- The QAM will periodically and/or randomly monitor the testing, interviews, and studies to insure consistency.
- The QAM will have the authority to make changes in the practices of data collection.

- The QAM will have the authority to implement “continuous process improvement” (Lean).

A10 – Project Organization Chart and Communication



Communication

- Initial meeting in January 2024 to develop interview questions and strategies; determine target participants for interviews; and schedule waste characterization studies at strategic locations.
- Monthly in-person or virtual meetings with team members to plan a timeline for interviews and waste audits, discuss what is working and what is not, and make adjustments.
- The best way to communicate will be emails to all team members.
- Problems, concurrence, approvals, and process improvements can be communicated at any time.
- Communication, whether at planning meetings, emails, or phone calls will be logged.

A11 – Personnel Training/Certification

Susan Speake, associate director, Office of Land Resources and Lucy Cross, Enterprise Services supervisor, will be tasked with training the data collection team, which will include the following areas:

- Introduction of the project's purpose.
- Role play and mock interviews.
- Assist the respondents with gaining a clear understanding of the surveys and interviews.
- How to ask questions.
- Record data.

Training programs are available to DEQ personnel to enhance their professional and technical knowledge. Job qualifications for program coordinators may include an associate's degree or higher in a relevant discipline of environmental or earth science, and/or management.

A12 – Documents and Records

All records and documents will be collected and stored electronically.

Records will include the following

- Meeting minutes.
- List of Team Members.
- Schedule of monthly activities: interviews, studies, field visits, etc.
- Log of internal emails and phone calls.
- Project Status reports.

Documentation will include the following:

- List of interview questions.
- Waste Characterization Steps and Strategies.
- List of people interviewed.
- List of sites and facilities which participated in Waste Characterization Studies.
- Results of all interviews, observations, and studies.
- Spreadsheets and/or databases that list the collected data.
- Results of Performance Evaluations and Systems Audits.
- Results of periodic data quality assessments.
- Changes in the site-specific QAPP.
- Significant QA problems and recommended solutions.

Storage and Retention:

- Create a data management plan for collecting and organizing the data and storing the data for later analysis and reporting.
- Data will be stored electronically and backed up regularly, with a duplicate electronic copy stored separately.
- Create a spreadsheet or database that keeps the data collected during interviews, observations, and studies.

- Make data easily accessible to decision makers.
- Retention period will be indefinitely.

B1 – Identification of Project Information Operations

The associate director and QAM will schedule monthly meetings to insure the project team are aware of the background, problem and purpose of the project. These meetings will include team building, discussion, sharing blockers and concerns and problem solving to insure the project moves forward and the ultimate outcome is successful. The key is extensive communication that emphasizes the critical nature of the data, the process and how this information will be used for planning, infrastructure, and funding.

B2 – Methods for Environmental Information Acquisition

QAM will develop a Standard Operating Procedure (SOP) for data collectors that includes:

- How to conduct interviews by phone, in person, or on-line.
- Develop and revise an interview guide.
- Manage logistics.
- Recording feedback in an electronic logbook.
- Report outcome with QAM.

B3 – Integrity of Environmental Information

N/A – No sampling or lab activities.

B4 – Quality Control

The associate director and QAM will incorporate the following quality control measures with the QAM having the final authority to make decisions on the activities necessary.

- Reviewing data collection tools: questionnaires, checklists, interview guides, etc.
- Select at least two (2) data collectors for each operation. The teams will change for every new operation scheduled.
- Train data collection team and follow up after every operation.
- QAM will do routine collection checks in the field.

B5 – Instruments/Equipment Calibration, Testing, Inspection, and Maintenance

N/A – No sampling or lab activities.

B6 – Inspection/Acceptance of Supplies and Services

N/A – No sampling or lab activities.

B7 – Environmental Information Management

The path of the environmental information that is collected:

- Develop processes, questionnaires, audits, and quality control checks.
- Plan logistics, timelines, and locations.
- Schedule interviews, meetings, town hall events, and waste audits.
- Train Data Collection Team.
- Conduct the first interview and waste audit.
- Meet with Project Team to discuss positives and negatives.
- Make changes to process if needed and update the SOP.
- QAM will conduct random field visits and observations.
- Monthly meetings with Project Team.
- Collect Data and enter into an electronic logbook or spreadsheet.
- Associate Director and QAM will start analysis of collected data.
- Provide updates to EPA SWIFR Project Officer and Sr. Manager.
- Begin development of final report and revision of existing Statewide Solid Waste Management Plan.
- Other activities to be developed as project progresses.

C1 – Assessments and Response Actions

Assessments

The QAM will perform the following assessment activities to evaluate the project, the processes, and the data:

- Establish a timeframe for assessments.
- Audit the interviews and waste audits.

- Interview Data Collectors.
- Evaluate the collection, reporting and storage of data.
- Follow up on the ongoing analysis of data.

Response Actions

Response actions will be taken if an interview or waste audit is lacking information or otherwise incomplete, if the data is not recorded accurately, schedule is not being followed, and complaints are received from respondents.

The response action will be a formal electronic memo that is logged into the final record addressing the problem and any corrective actions.

C2 – Oversight and Reports to Management

The associate director will complete and electronically transmit the following reports to the QAM and Kelly Longfellow, EPA Region 6 SWIFR grant project officer.

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

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

D1 – Environmental Information Review

Data review and verification will be ongoing throughout the collection process to ensure the analysis of the data is performed in real time while the collection is current. It will be performed by the associate director and the QAM. The methods will be as follows:

- Verify the data with data collectors by random observations and in person discussions.
- Assess the quality of the data by checking if the interviews were conducted according to established training and agreed upon categories.

D2 – Usability Determination

- Data has been reviewed, verified and determined to have little to no risk of being used for anything other than its intended use.
- The data can be interpreted and understood by potential stakeholders to make informed decisions.
- Data is categorized and ranked according to its impact on the overall implementation of program development and implementation.
- The usability of the data can be used to achieve the goals outlined in the program.

- Develop agreed upon and universally accepted definitions for different types of materials and processes.
- Establish a network for information exchange.
- Identify accessibility to recycling programs.
- Develop a comprehensive infrastructure for recycling.
- Removing the barriers to recycling by improving the behavioral issues, which will be accomplished by incorporating more education and outreach.
- Develop partnerships with Universities, Industry, and local Governments.
- Improving the culture of the State to increase incentives and attracting recycling industry.
- Provide data in compliance with EPA analytical criteria for environmentally-related measurements.