# State of Arkansas
# Department of Energy & Environment

# Quality Management Plan

## Section 1: Title Page

Version Control Number QMP-001.002

Preparation Date: September 2024

Period of Performance: December 29, 2024 – December 29, 2025

# FY24-25 Extramural Agreements

| Media | Number | Type | Date |
|---|---|---|---|
| Air | A00614924 | 105 Air 24 | 6/30/2025 |
| Air | 5T-02F67701 | AIR Monitoring 24 | 6/30/2025 |
| Air | DS02F01001 | Diesel 22 | 5/30/2025 |
| Air | DS02F48801 | Diesel 22 | 9/30/2026 |
| Air | 5D-02F35201 | CPRG | 7/30/2027 |
| Water | 102F21001 | Monitoring Initiative 22 | 9/30/2026 |
| Water | pending | Water 25 | 9/30/2026 |
| Water | pending | UIC 25 | 9/30/2025 |
| Water | C605000059 | Monitor 25 | 6/30/2025 |
| Water | OS84051501 | IENG 22 | 9/30/2025 |
| Water | OS84069801 | IENG 23 | 9/30/2026 |
| Water | pending | IENG 24 | 9/30/2027 |
| Land | 4Z02F42201 | SWIFR | 9/30/2025 |
| Land | D00625125 | Haz Waste 25 | 9/30/2025 |
| Land | L00640124 | UST 25 | 9/30/2025 |
| Land | LS00651128 | Trust 25 | 9/30/2025 |
| Land | VXC01F70401 | CERCLA-19 | 6/30/2026 |

# Table of Contents

# List of Abbreviations and Acronyms*

| | |
|---|---|
| E&E | Arkansas Department of Energy and Environment |
| CAP | Corrective Action Plan |
| CIO | Chief Information Officer |
| COC | Chain of Custody |
| DEMR | Division of Energy & Mineral Resources |
| DEQ | Division of Environmental Quality |
| DQO | Data Quality Objectives |
| EIO | Environmental Information Operations |
| EPA | Environmental Protection Agency |
| ITS | E&E's Information Technology System |
| LAM | Laboratory Accreditation Manager |
| MOU | Memorandum of Understanding |
| NPDES | National Pollution Discharge Elimination System |
| PA | Purchasing Agent |
| PARCCS | Precision, accuracy, representativeness, comparability, completeness, sensitivity |
| PDCA | Plan, Do, Check, Act |
| PO | Purchase Order |
| PIP | Performance Improvement Plan |
| PR | Purchase Request |
| OAQ | Office of Air Quality |
| OLR | Office of Land Resources |
| OPM | Office of Personnel Management |
| OSP | Office of State Procurement |
| OWQ | Office of Water Quality |
| QA | Quality Assurance |
| QAC | Quality Assurance Coordinator |
| QAM | Quality Assurance Manager |
| QAP | Quality Assurance Plan |
| QAPP | Quality Assurance Project Plan |
| QC | Quality Control |
| QMP | Quality Management Plan |
| RCRA | Resource Conservation and Recovery Act |
| SAP | Sampling and Analysis Plan |
| SOP | Standard Operating Procedure |
| TNI | The NELAP Institute |
| UIC | Underground Injection Control |

*Not included in table if used once in the text and defined immediately adjacent. In these cases, the acronym is only defined due to its regularity of use for referencing a specified program. E.g. RST is colloquially used to reference the Regulated Storage Tank Program, but the acronym is not encountered throughout the remainder of the document.

# Section 2: Quality Management Plan Approval Page

Quality Management Plan
Version 001.002
Arkansas Department of Energy & Environment
5301 Northshore Drive
North Little Rock, Arkansas 72118

| Name and Title | Signature | Date |
|---|---|---|
| Christy Warren<br>US EPA Region 6<br>Quality Assurance Manager | ELIZABETH WARREN Digitally signed by ELIZABETH WARREN Date: 2024.12.02 13:00:45 -06'00' | |
| Alan York<br>E&E<br>Director of Operations &<br>QMP Senior Manager | Digitally signed by Alan J. York DN: cn=Alan J. York, o, ou, email=alan.york@adeq.state.ar.us, c=US Date: 2024.09.16 09:49:22 -05'00' | 09/16/2024 |
| Brie Lusk<br>E&E<br>Quality Assurance Manager | Brie Lusk Digitally signed by: Brie Lusk DN: CN = Brie Lusk email = brie.lusk@arkansas.gov C = US O = AR Dept. of Energy & Env. Date: 2024.09.13 10:28:24 -06'00' | 9/13/2024 |
| | | |
| | | |

*No managers exist between the Senior Manager and Quality Assurance Manager*

# Section 3: Quality Statement

## Mission

The mission of Arkansas Department of Energy and Environment (E&E) is to provide effective and efficient energy and environmental solutions informed by science. E&E promotes responsible management of resources and protects the environment for the benefit of all Arkansans.

## Purpose

To document the E&E recognition of the importance of quality in environmental information operations used to support environmental decisions and to formally document the E&E quality system. Approval by all senior management conducting EIO ensures E&E-wide commitment to and accountability for the quality system laid out in this document.

## Quality Statement

E&E strives to meet strategic goals and fulfill our mission in the most cost-effective. efficient, and high-quality manner possible. Meeting the mission of E&E necessitates environmental decisions achieved using high-quality data and consistent and intelligent management, planning, and implementation. A well-designed quality system is integral in cost-savings by reducing redundant sampling and analyses and in reducing erroneous decisions. E&E employees are integral to such high-quality data processes, products, and services, as well as continual agency improvement. It is E&E's goal to thoroughly document and make its quality system transparent and understandable for the citizens of Arkansas and to serve as an example and resource to other environmental data collectors throughout the state.

## Responsibility

E&E's ultimate responsibility is to the people of Arkansas and the regulated community. E&E on an organizational level is responsible for establishing the trust of these communities through transparent processes, responsible spending, and fostering an environment of continual improvement.

E&E's Senior Manager is responsible for ensuring all EIOs are covered by this Quality Management Plan (QMP) and that each section has adequate resources for implementing E&E's quality system. The Senior Manager shall demonstrate commitment to the implementation of the quality system and will support the actions necessary to swiftly resolve quality management problems.

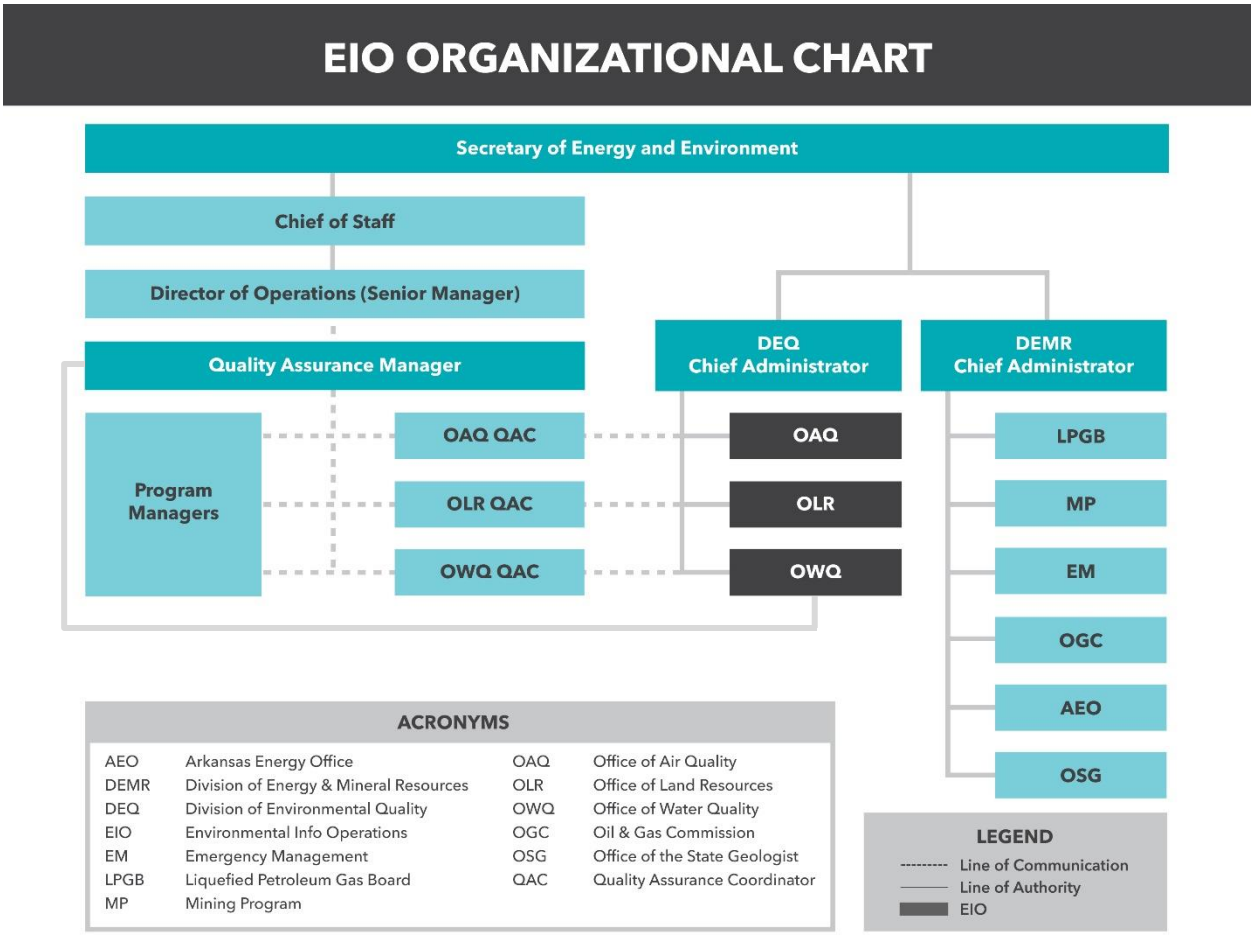
E&E's quality assurance manager (QAM) is responsible for maintaining this policy and quality management system programs, plans, and procedures that comply with this policy. The QAM is expected to continuously improve and streamline the quality system, identify quality management problems, initiate actions that result in solutions, and verify solution implementation.

E&E associate directors of each office conducting EIO are responsible for implementing established quality management system programs, plans, and procedures for their respective media and ensuring that employees are familiar with and adhering to the quality system documented herein. Each associate director is responsible for assigning and supporting a quality assurance coordinator (QAC) to ensure programs are adhering to applicable quality assurance (QA) documents.

E&E employees are responsible for familiarizing themselves with the quality system for each of their respective positions and achieving E&E goals to continuously improve the quality of products and performance. E&E employees are responsible for identifying quality system concerns, implementing solutions, if possible, or elevating concerns through the chain of command.

The E&E secretary, QAM, Senior Manager, associate directors, and QACs are expected to stop any work not meeting E&E's quality criteria.

# Section 4: Organizational Chart



# Section 5: Roles, Responsibilities, and Authorities

## Senior Manager (Director of Operations)

The Director of Operations acts as the Senior Manager for the agency. This position is responsible for assuring that the QMP covers all EIO specified by the applicable extramural agreements and for which the agency's management is accountable. The Senior Manager has executive authority for all staff involved with environmental information operations and implementing the QMP.

## Quality Assurance Manager

The QAM has responsibility for oversight of E&E's QA program and its operations. The QAM has the authority to independently oversee the agency's quality program. The QAM does not report directly to the senior manager; however, the QAM has a direct line of communication with the senior manager to discuss quality-related issues. The QAM duties are to see that QA programs are being administered appropriately and QA procedures are being followed in both the field and the laboratory. The QAM also provides technical QA assistance in conjunction with EPA's Regional Quality Assurance Management Office, as necessary. The QAM generates reports on E&E's QA activities and submits those reports to the appropriate individuals or entities. The QAM is responsible for revising and updating the QMP considering EPA guidelines and in conjunction with the EPA Region 6 QMP and EPA directives. The QAM also serves as the liaison between E&E and EPA Region 6 Office of Quality Assurance. The QAM is responsible for final approval of E&E Quality Assurance Project Plans (QAPPs) before submittal to EPA. The QAM does not have authority to sign QA documentation for the Program Managers. The QAM is a part-time position within the organization and does not perform EIO activities during other duties.

## Operations Manager (Program Managers)

Each person responsible for one or more of E&E's QAPPs is designated as a Program Manager. Program Managers are responsible for developing the program QAPP, adhering to submission and renewal deadlines, and coordinating with both the E&E QAM, the quality assurance coordinator (QAC) for each E&E Office, and the EPA Project Officer. Program Managers are independent of the QAM and do not have the authority to sign QA documentation for the QAM. The person or persons responsible for EIO activities are identified in the respective program QAPPs.

## Quality Assurance Coordinators

Each Office has a person designated as the QAC. Each QAC will report directly to the QAM for QA-related purposes, as prescribed in the individual QAPPs. The QACs are responsible for ensuring that QAPPs for their respective Offices are prepared, updated, and revised by the program manager. The QACs may submit an annual review of their QAPP activities to the QAM. The QACs will be responsible for scheduling audits by the QAM or other qualified individual, if annual audits are required by their QAPP. Each QAC is also responsible for

reporting any quality control (QC) failures or project-related problems to the QAM. The QACs are responsible for all EIO activities in their respective sections and will sign all QAPPs in their respective Offices

# Section 6: Technical Activities and Programs Supported by the QMP

E&E is comprised of two divisions—the Division of Energy & Mineral Resources (DEMR) and the Division of Environmental Quality (DEQ).

There are three offices, all within DEQ, with programs that conduct EPA-funded EIO:

- Office of Air Quality (OAQ),
- Office of Land Resources (OLR), and
- Office of Water Quality (OWQ).

The DEQ programs that conduct EIO activities operate in accordance with EPA-approved QAPPs.

QAPPS administered through OAQ

1. Ambient Air Monitoring Network
   - DEQ is required to submit an Ambient Air Monitoring Network Annual Plan to EPA every year. The review contains details about DEQ's ambient air quality monitoring network and a discussion of how network design and performance satisfy EPA's monitoring requirements for each criteria pollutant. The six EPA- designated criteria pollutants are carbon monoxide, lead, ozone, particulate matter, nitrogen dioxide, and sulfur dioxide. Monitoring requirements vary by pollutant but are based upon a combination of factors including population data, previous design values, and metropolitan area boundaries.

2. Emission Inventory
   - DEQ uses EPA's Air Emissions Reporting Requirements to determine which facilities are required to submit Emission Inventory reports.

3. Energy and Environment Innovation Plan
   - E&E's Innovation planning that enables access to and enhances Arkansas's competitiveness for federal funding for energy infrastructure including Climate Pollution Reduction Grants (CPRG), Inflation Reduction Act (IRA), and Infrastructure Investment and Jobs Act (IIJA). The plans will support investment in technologies and practices that reduce pollutant emissions, create high-quality jobs, and spur economic growth in the state.

QAPPS administered through OLR

4. Brownfield Program
   - The objective to return unproductive, potentially contaminated properties back to beneficial use, to define the financial liabilities associated with a cleanup early in the process, and to ensure environmentally sound redevelopment in the future. Funded by awards granted by EPA, DEQ can offer technical assistance for site assessments to qualified Brownfield Program participants belonging to either the nonprofit or public sector. Targeted Brownfield Assessments (TBAs) are designed to help minimize the uncertainties of contamination often associated with brownfields.

5. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
   - A comprehensive program known as Superfund to identify and clean up hazardous substance spills and contaminated sites. One of the primary functions of the Superfund program in the OLR is to perform site assessment activities for placement of properties on the National Priorities List.

6. Resource Conservation and Recovery Act (RCRA) Hazardous Waste
   - A program governing the management and disposition of hazardous wastes, used oils, and universal wastes. Arkansas has enacted several requirements under its hazardous waste management program which are either in addition to, more stringent than, or broader in scope than the minimum standards of Federal RCRA program.

7. Regulated Storage Tanks (RST)
   - Administration and enforcement of state regulations pertaining to underground storage tanks, as well as aboveground petroleum storage tanks. These tanks are primarily located at retail gasoline and diesel sales facilities but may also include bulk petroleum storage facilities, private fleet fueling facilities, schools, health facilities, and emergency generating stations.

8. Solid Waste Infrastructure for Recycling (SWIFR)
   - Program to enhance data collection by establishing baseline performance data for systems around the state. Data collected will include waste generated and recycling 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.

<u>QAPPS administered through OWQ</u>

9. Integrated Compliance Information System
   - A database maintained by the EPA of all National Pollutant Discharge Elimination System (NPDES) permits (including requirements under the permits such as effluent limits or scheduled reports) and formal enforcement actions.

10. Arkansas Water Quality and Compliance Monitoring
    - DEQ operates an integrated water quality monitoring program consisting of a routine water quality monitoring network for surface waters (lakes, rivers, and streams) and ground waters. Special surveys are routinely conducted on an as needed basis. In addition, monitoring point source discharges through compliance sampling inspections are conducted as needed.

11. Underground Injection Control (UIC)
    - Program to protect underground sources of drinking water and provide quality chemical data concerning the volatile organic compounds, semi-volatile organic compounds, and metals content in the tail brine that is injected into the Class V UIC brine disposal wells.

If it is determined that water quality violations may have occurred because of underground injection or that an underground source of drinking water is threatened, a sampling program relating to those concerns would be developed.

Quality Assurance/Quality Control (QA/QC) procedures and QAPPs are integrated into EIO as specified by the respective extramural agreements or other applicable documents through onsite training and audits of the employees performing the EIO.

# Section 7: Conformance with Policies, Procedures, Standards, and Regulations

The QMP is the written documentation of the quality management system. It describes the authorities, policies, and tools that are specific to ensuring excellence in E&E's operations, products, and decisions.

E&E adheres to the following EPA policies, procedures, standards, and regulations issued by the EPA Chief Information Officer (CIO) when performing EIO:

- EPA CIO 2105.4 Environmental Information Quality Policy
- EPA CIO 2105-P-01.4 Environmental Information Quality Procedure
- EPA CIO 2105-P-02.1 EPA QA Field Activities Procedure
- EPA CIO 2105-P-03.0 CIO Notification for Environmental Data Quality Issues Procedure
- EPA CIO 2105-S-01.1 Quality Management Plan Standard
- EPA CIO 2105-S-02.1 Quality Assurance Project Plan Standard

The following policies apply to all environmental data collection, generation or use conducted by E&E personnel and its contractors, grantees, and interagency agreement recipients:

1. Appropriate QA planning documents (e.g., QMP, QAPP or functionally equivalent document, which may include supplements such as Sampling and Analysis Plans (SAPs), Field Sampling Plans, or Work Plans) are developed and approved for each environmental data collection activity prior to the initiation of data and information collection. Each of these documents will be referenced in relevant QAPPs or supplemental documents.

2. Intended use(s) and data quality objectives (DQOs) of environmental data and information are identified prior to collection of the data in the appropriate QA planning document(s).

3. Implementation of projects and tasks involving environmental data and information generation, or use conforms to information provided in approved QA planning documents, which reference all internal procedures, processes, and Standard Operating Procedures (SOPs). Each of these documents shall follow and reference applicable EPA guidance.

4. Final QA oversight of data collection activities is performed by the QAM, who is not directly engaged in these activities; the QAM ensures that any identified deficiencies are promptly corrected.

5. Programs and projects that use existing data or data from secondary sources must have an approved QAPP (or equivalent QA document). The QAPP or QA document shall specify the quality system that will be used to determine the suitability of the data for the proposed use.

6. Programs and projects that use samples collected by contractors or through partnerships to be analyzed by E&E laboratories must be identified through Memorandums of Agreement

(MOUs) or equivalent documentation and must have QA documentation to specify collection procedures except when circumstances require immediate emergency response to protect human and environmental health. Upon these circumstances, documentation shall be written after initiation of collection as soon as possible, documenting both emergency and possible ongoing procedures.

7. It is E&E policy that all environmental data and information collected and/or used in the process of decision-making are of known and documented quality, suitable for its intended use, with all aspects of collection and analysis thoroughly documented; such documentation being verifiable and defensible. All documents related to EIO shall be readily available upon request or, in the case of EIO conducted internally, E&E is in the process of developing a QA webpage allowing easy access to QA documents. This policy applies to all data collected under environmental operations and environmental technology activities performed directly by or for E&E including, but not limited to, federal, state, and local partners under interagency and financial assistance agreements; contractors funded by E&E; regulated entities; and potentially responsible parties. The E&E Secretary, Senior Manager, and Chief Administrators ensure adequate allocation of resources to achieve E&E's quality policy.

# Section 8: QA Field Activities

All field activities covering environmental information operations are included in the appropriate Office's QAPP. Specific QA/QC requirements are defined, documented, and referenced within each of the QAPPs. Offices may develop and utilize Quality Assurance Plans (QAPs) for specific projects. Each QAP will be developed as a companion document to the respective QAPP. QAPs will clearly reference their companion QAPPs including the applicable version number.

# Section 9: Computer Hardware and Software

Overall, computer hardware and software are acquired according to the E&E Agency Information Technology Budget & Expenditure Plan, available upon request. Each biennium, this plan is approved by the Department of Finance and Administration, Office of Intergovernmental Services, and Department of Information Systems. The E&E Information Systems (ITS) manager is ultimately responsible for all purchased and/or modified software. Specialty hardware and software may be purchased or developed for specific projects or equipment. For instance, the water and air monitoring laboratories are responsible for purchasing and maintaining the software and hardware needed by laboratory instrumentation. ITS will be consulted or used to complete the purchase of the hardware or software. However, the respective Office laboratory managers are responsible for writing and reviewing the specifications for the purchase and testing the item to determine if it meets the specifications.

ITS is responsible for the computer and network infrastructure as well as all E&E software needs. All E&E hardware is replaced on a three to five-year equipment lifecycle. Individual users may request software or services for specific projects, but those requests must be approved by the ITS manager and meet the technical and quality requirements and directives from management. Upon approval by the ITS manager, ITS will work with the user throughout the bid process to secure the needed software or services. All software will be installed by ITS. The user will work with ITS to determine if the program is functioning properly and meets the specifications of the project.

ITS is responsible for developing and/or maintaining many of the large databases that E&E uses in its environmental programs or uses to carry out its administrative functions. ITS reviews and updates the programs to ensure each meets the state and federal technical and quality requirements. E&E database servers are located in-house. ITS also supports data submission to EPA-required programs (Air Quality System (AQS), Emissions Inventory System (EIS), Facility Identification (FacID), Central Data Exchange (CDX), ICIS-NPDES, and RCRA Info) and operates the node that provides data to the Water Quality Exchange (WQX). ITS maintains and upgrades these servers to ensure that user needs are met, data integrity is maintained, and backup data systems are functioning.

Most E&E computers use Microsoft Windows 7 or 10 as their operating system but will soon be transitioning to a newer operating system to ensure better security, performance, and support. All personal computers have Microsoft Office installed as the basic software package. Microsoft Office is presently the State's standard office suite product. Other programs may be purchased or developed to suit the individual user's needs. All programs must be approved by the ITS manager before purchase and installation.

Data security and integrity are always a security concern. Use of Next Generation firewalls, spam firewalls, encryption, and other internal security practices help to protect E&E data. The datacenter is equipped with a large Uninterruptible Power Supply system and generator that supports both ITS infrastructure and the respective office laboratory work areas. An off-site Disaster Recovery site is used to maintain a backup and image of data housed at the E&E headquarters.

ITS is compliant with the following EPA CIO policies and procedures:

- EPA CIO 2122-P-03.1 Enterprise Architecture IT Standards Procedure
- EPA CIO 2104.1 IT/IM Directive Policy Software Management and Piracy Policy
- EPA CIO 2104-P-01-0 Software Management and Piracy Procedure

# Section 10: Information Quality Guidelines

Per EPA's QMP Standard (CIO-2105-S-01.0), Section 10 is only required for EPA organizations and is not applicable to this QMP.

# Section 11: Organization Competence

E&E evaluates all personnel for competency by establishing specific job requirements in the job descriptions of all positions within E&E. All job descriptions are required to include specific knowledge, skills, education, training, and experience in the job. Sections of job postings include:

- Position Summary
- Position Functions
- Knowledge, Skills, and Abilities
- Minimum Qualifications
- Licenses
- Preferred Qualifications

Arkansas Department of Transformation and Shared Services Office of Personnel Management (OPM) has the statutory responsibility of administering the State's Personnel System and establishing personnel policies, procedures, and regulations to ensure system uniformity across state government in accordance with state and federal law.[1] OPM has established a procedure for reviewing an applicant's qualifications that do not meet or exceed the position's required minimum qualifications, but may substitute for the required qualifications. OPM reviews the class specification to ensure the accuracy or the description of the assigned duties. OPM also reviews minimum requirements necessary to perform these duties, which maintain a valid relationship between the requirements and the duties and responsibilities of the job. Further, OPM assists agencies in identifying, developing, and maintaining training and resource programs.

OPM maintains policies related to personnel to which all state agencies adhere. Specific policies include but are not limited to: Classification and Compensation Overview, Advertising a Job and Filling a Position, and Minimum Qualifications. These policies are available on the OPM webpage at https://www.transform.ar.gov/personnel/resources/policy/.

Hiring officials can tailor specific needs for each position in the "Preferred Qualifications" section of the posting. E&E's Human Resources Office is responsible for screening applications to determine which applicants meet the minimum qualifications. The list of applicants who meet the minimum qualifications is then sent to the hiring official. The hiring official reviews the applications and determines which applicants to interview.[2] Applicants are asked a series of position-specific questions and are scored based on answers provided. Questions, answers, and scores are documented and submitted to Human Resources when the hiring request is made. Hiring officials can re-advertise the position if they determine that none of the candidates have the required skillset.

[1] See OMP Policy Number 1, Classification and Compensation Overview: https://www.transform.ar.gov/wp-content/uploads/2021/09/1-Classification-and-Compensation-Overview-9.20.2021.pdf
[2] See OMP Policy Number 8, Advertising a Job and Filling a Position: https://www.transform.ar.gov/wp-content/uploads/8-Advertising-a-Job-and-Filling-a-Position-11.17.2022-1.pdf

# Section 12: Personnel Training

Job descriptions of the E&E personnel are written to select only those personnel that have received education, training, or experience in their respective fields to perform this function. Their job descriptions require that they possess at least the equivalent of a bachelor's degree in their field of expertise or related field (or suitable work experience). For example, chemists must have at least a bachelor's degree in chemistry or related field or suitable work experience; engineers must have at least a bachelor's degree in engineering from an accredited engineering program; and an engineer supervisor must have at least a bachelor's degree in engineering and be licensed as a Professional Engineer by the Arkansas State Board of Licensure for Professional Engineers and Land Surveyors.

The QAM and QACs are required to participate in the EPA Region 6 Quality Assurance Training Course https://www.epa.gov/quality/r6-qa-training-grantees-and-other-qa-personnel within one year of starting their positions and to renew the training every two years. Non-QA and monitoring personnel receive training from their QAC, supervisors, or other experienced staff on the proper use, maintenance, and repair of equipment at the beginning of their employment and throughout their employment, as necessary. Training is documented and retained by supervisors and is available upon request. Staff are also instructed on the current procedures used to maintain QA and QC. All staff performing EIO shall be familiar with this QMP and other relevant QA documentation. Each year, employees are held to performance standards developed by OPM. Each of the personnel are scored based on their ability to perform each of the standards, ensuring that a high quality of work is maintained. If employees are not meeting expectations, they are put on a performance improvement plan (PIP) to correct inadequacies. Failure to adhere to the PIP will result in termination of employment. Staff are subject to evaluation by their supervisor, the QAC, or the QAM to maintain acceptable standards of performance and QA.

Branch managers, section supervisor, or appropriate QAC will outline specific training requirements for new and existing personnel. Training requirements shall also be laid out in each applicable QAPP. Branch managers or supervisors will assign new employees to apprentice with an employee experienced in the needed skills. The new employee is also required to read and understand the QMP and applicable QA documentation. Each branch manager should document and retain a record of the employee's understanding of the QA system until agency-wide tracking software is implemented. Each Office offers training with respect to their personnel and project needs. E&E Office of Operations has a Professional Development Manager or other staff available to assist in documenting training and education requirements and completion in personnel files, the online learning management system, or both.

As available, courses are offered to employees to enhance skills. Chemists are offered courses on specific instrumentation, when available. Water field inspectors are trained utilizing the NPDES Compliance Inspection Manual, EPA resources, and in-house training on sampling, equipment maintenance, and equipment operation. Hazardous waste inspectors are trained in safety considerations and inspections. All employees are offered QA courses from EPA when available. Management will provide resources to E&E personnel utilized as trainers to obtain

additional training when needed or available. Employees are encouraged to seek out applicable training opportunities and present them to supervisors for consideration.

Each branch manager or delegated employee will assess training effectiveness when reviewing project and personnel performance. If performance is determined to be inadequate, branch managers or delegated employees develop training programs to correct problems discovered during project and personnel reviews. The results of these reviews and any needed corrective actions will be documented and retained.

Budget Liaisons in each Office will ensure E&E personnel responsible for grant applications or related grant duties participate in the EPA Grants Management Training for Applicants and Recipients. As a recipient of EPA grant funding, E&E is committed to ensuring that its grant management for its programs meet the highest management and fiduciary standards and further E&E's mission.

# Section 13: Procurement of Items and Services

E&E has established procedures for the purchase of equipment, expendables, and services. In all instances, these procedures must be followed to ensure purchases can be made quickly. The personnel responsible for purchasing items and services vary depending on the Office. The employee requesting the items should provide detailed specifications for the items or services to be obtained. Items shall meet the QA specifications as laid out in the EPA extramural agreement, contract, or equivalent document which shall reflect the quality-related requirements in the Federal Acquisitions Regulations. Employees requesting the purchase are consulted to make sure that all items on the Purchase Order (PO) meet the specifications.

Printing, Stationery, and Supplies used to produce stationery is subject to the Arkansas Constitution, Amendment 54, and may be purchased only by the Office of State Procurement (OSP) or designee, regardless of cost. The designee must have a printing delegation order on file with the OSP.

> "Printing" means the process of transferring images, using standard industrial type printer ink, upon documents such as letterhead, envelopes, pamphlets, booklets, and forms.
>
> "Stationery" means imprinted letterhead and envelopes used to identify a n individual department, agency, commission, etc.

Commodities and services, expendable supplies, software, small equipment, equipment repair and/or parts, in which the cost is below $20,000 can be handled within E&E. Employees develop Purchase Requests (PR) for the items based on cost. These items must entail supplier's documentation on how the technical and quality requirements will be met. The PR must be approved and signed by the Office's Associate Director or designated employee(s) and the office's Budget Liaison. Upon manager approval, the PR is submitted to E&E's Fiscal Services.

Once all approvals are obtained, a PO is created and returned to the Office's Budget Liaison for order placement with the applicable vendor/supplier. The Budget Liaison may send the PO to the employee who originally requested the purchase for order placement but must give explicit instruction to do so. The items and any quality-related documents must be inspected by the employee who made the original request upon receipt to ensure there are no damaged or missing items. Specifications must be reviewed to ensure that all items meet the requirements of any applicable standards required by the specific program or project QAPP.

Commodities and services, expendable supplies, software, small equipment, equipment repair and/or parts, in which the cost is between $20,000 and $75,000, requires quote bids obtained by E&E for purchase or a valid contract with the State. The most efficient method of purchasing these items is to obtain three quote bids from vendors via phone, fax, mail, or e-mail. The preferred method for obtaining the quotes is by email, fax, or mail. Only vendors who sell the type of commodity or service to be procured shall be contacted. Bidding solicitation language shall include the QA requirements for the items and services. Suppliers shall document

how the technical and quality requirements will be met. The PR and detailed specifications for the equipment is then submitted to E&E's Fiscal Services with a list of potential bidders. Fiscal Services will submit the PO to the OSP. The OSP will ensure the State and Federal procurement procedures are followed. Solicitations will be processed through the ARBuy eprocurement system administered through OSP at https://arbuy.arkansas.gov/bso/. The competitive bid tabulation must be completed and signed when bids are received, and quality assurance requirements are verified. Any purchases greater than $75,000 are generally handled by OSP.

The employee who submitted the PR reviews and selects the most appropriate bid based on required specifications. After review and notification, the OSP will award the bid. The end user of the instrument or equipment should check to make sure that the instrument or equipment operates properly and meets the specifications of the bid and any applicable standards required by the specific program or project QAPP. If specifications are not met, the end user must contact the vendor to correct the issue.

Computer hardware and software purchases must be approved by the ITS manager before submitting the PR to Fiscal Services. ITS has developed contracts for computer hardware, some peripherals, and some software. Personnel purchasing these items work with ITS to ensure the correct pricing is obtained for that item. Contracts to procure information technology products or services with a total project contract amount, including any amendments to or possible extensions of the contract, of at least one hundred thousand dollars ($100,000); or a purchase of information technology products or services made under a cooperative purchase agreement under Ark. Code Ann. § 19-11-249 require involvement of the OSP. The staff member must prepare a PR for Senior Manager approval. The PR must include an estimated cost of the item to be bid including the service for installation of the item, if necessary. Computer hardware and software purchases must be approved by the ITS manager and may be handled by that Office.

Offices may develop open contractual agreements with vendors to meet their specific needs. For example, the E&E's OWQ Laboratory has developed contractual agreements with vendors for many expendable items used in day-to-day laboratory or field activities. These open contracts reduce the time to order needed consumables. Open contracts are reviewed by the applicable Office management and business manager (budget liaison), Office of Chief Counsel, as necessary; ITS, as necessary; Fiscal personnel, as necessary; and other appropriate personnel to ensure that items meet or exceed the specifications required by E&E and EPA extramural agreements, contracts, or equivalent documentation. As with all other purchases, employees must verify that items received meet QA specifications laid out in QAPPs, extramural agreements, or other related documents.

Procurements of services, such as contractor and sub-contractor sampling, analysis or other services must include appropriate QA documentation including QMPS, QAPPs, and other applicable documentation. Bids must include completed documents or a statement regarding intent to complete documents before services begin. Project managers for the requested projects will review the QA documents before sending to the QAM for review or approval.

E&E is committed to procuring commodities and services in the most efficient and transparent manner, and in compliance with all State and Federal Procurement Laws and Rules, Policies, and Guidelines. The OSP makes available the tools and resources necessary for compliance on its website.[3]

[3] Office of State Procurement: https://www.transform.ar.gov/procurement/agencies/.

# Section 14: Document and Record Processes

All. documents will be processed and stored according to E&E's SOPs and in accordance with relevant state and federal requirements. The maintenance of documents, from records of public hearings to confidential industrial process information, is covered by the E&E's SOPs for document management. Many of these procedures are documented through E&E's internal document submission and tracking platform (ePortal). E&E's SOPs for document management are integrated with E&E's processes for development of EIO-related data and documents, such as inspections, enforcement actions, permitting decisions, rulemakings, and other actions necessary to implement E&E's federally delegated programs. Changes to these E&E's SOPs are approved by the appropriate Program Manager or Senior Manager. These approvals are tracked in ePortal. Some aspects of certain E&E's SOPs can only be changed through rulemaking. E&E's SOPs for document management also include processes for maintaining E&E's EIO-related documents in a way that provides public access to those documents. For example, E&E's EIO-related documents that are publicly accessible include permit related documents such as applications, public comments and responses, and the final permitting decision. As technology improves and money is made available, E&E is continually working to improve document tracking, transparency, and data integration. Current contracts are underway to implement a more robust DEQ-wide document tracking and data management system. All employees must be familiar with the document management SOPs and acknowledge their understanding of the procedures.

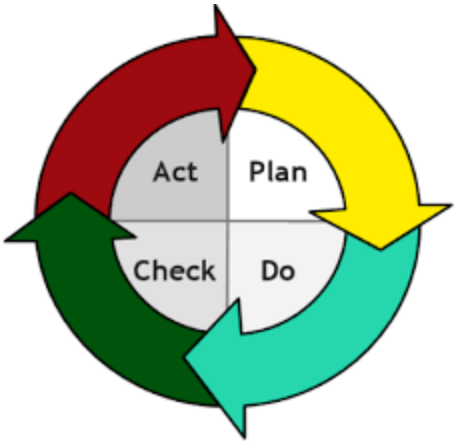
All records pertaining to QA controlled data, (e.g. QAPPs, QMPs, SOPs, and EIO-related data and documents) are maintained through the department-wide computer system, employee intranet, and ePortal. All documents generated through word processing are stored in this system on E&E's servers with daily, weekly, monthly, quarterly, and annual backup onsite and offsite. In addition, hard copy files may be maintained onsite. The department-wide computer system and the onsite and offsite backups ensure that these files are retained, protected from damage and deterioration, and accessible. Each respective Office also ensures that its EIO-related data and documents are retained in accordance with the appropriate record retention schedules required by EPA for each program.

For analytical data and related documentation, the reports are stored in the aforementioned manner, but the data is also stored in the Laboratory Information Management System (LIMS) with its redundant storage mechanisms. The full documentation of each datum is stored within the computer data systems attached to the instruments. Chain of custodies (COCs) are required for each sample submitted to E&E. For example, analytical labs performing analysis required to demonstrate compliance or noncompliance with a permit must use and maintain COCs for tracking and evidentiary record keeping. For samples collected by E&E staff, employees must follow the E&E Chain-of-Custody Procedures available to all employees on the intranet. Requests for confidentiality of EIO-related documentation is governed by federal law and Arkansas law, including Arkansas' Freedom of Information Act.

QA project plans and other QA documentation are maintained by each of the respective Offices and the QAM. The documents are generated through the QAC and Program Manager for each project, with the oversight of the Senior Manager and the approval of the QAM. The QAC and Program Managers are responsible for updating documents should there be any needed changes. Revised documents should be indicated with a version number. A document is considered a new version when it moves outside E&E for review or approval. Copies of original files will be kept reflecting QA documentation during the onset of the project. The QAM verifies conformance to applicable requirements. Each Program Manager and QAC shall ensure that reports reflecting completed work are submitted in a timely manner and are retained in a manner compliant with the E&E SOP for document management. Any QA documents involving more than one Office will require the approval of the respective associate directors. A file of approved QA documents will be retained by the QAM. All quality related files will be kept according to EPA IT/IM Directive CIO 2155.5 Records Management Policy. Federal grant documents and fiscal records will be kept for a minimum of five years by Arkansas Administrative Statewide Information System (AASIS). Personnel records will be kept for a minimum of five years by OPM. Laboratory documents will be kept for a minimum of seven years by the respective offices. However, E&E will strive to retain pertinent records in perpetuity if there is space on the department wide system.

# Section 15: Plan, Do, Check, Act (PDCA) Quality Model

Plan, Do, Check, Act Model in E&E's Quality System




E&E has adopted the PDCA quality model as the foundation of its Quality System. The PDCA quality model is an iterative four-step approach for managing, planning, implementing, and administering continuous improvement over the lifecycle of any E&E activity, including all work processes and work products.

The elements of the PDCA quality model are summarized below.

| | |
|---|---|
| PLAN | Establishes the objectives and processes necessary to deliver results in accordance with the desired output or goals. Planning includes project organization, securing resources, and roles and responsibilities of participants. |
| DO | The implementation or execution of the planned activity, following standard protocols or procedures for direct data acquisition, acquisition of data from existing or other sources, and modeling. |
| CHECK | Monitors and measures the process performance through the assessment of the project to identify any differences or deviations from the implementation of the plan and the expected results, targets, objectives or goals established in the planning phase. |
| ACT | The corrective action taken for significant differences between actual and planned results. This step includes a root cause analysis to determine where to apply the changes that will create improvement of the process or product. |

Application of the PDCA quality model is appropriate for all E&E environmental operations, administrative activities, and external and interagency agreements.

PLAN

The scientific method is used to develop the systematic planning process where Program Managers and project personnel identify a problem statement, type of information needed and how the information will be used to support the project's goals and objectives. The planning process for

environmental data collection activities is based on the elements of Systematic Planning listed in EPA CIO 2105-P-01.4, which state the following:

- Identification and involvement of the project manager, sponsoring organization and responsible official, project personnel, stakeholders, scientific experts, etc.;
- Description of the project goal, objectives, and questions and issues to be addressed;
- Identification of project schedule, resources (including budget), milestones, and any applicable requirements (e.g., regulatory requirements, contractual requirements);
- Identification of the type of information needed and how the information will be used to support the project's objectives;
- Determination of the quantity of information needed and specification of performance criteria for measuring quality;
- Description of how, when, and where the information will be obtained (including existing information) and identification of any constraints on information collection;
- Specification of needed QA and QC activities to assess the quality performance criteria (e.g., QC samples for both the field and laboratory, audits, technical assessments, performance evaluations, sensitivity analysis of models, etc.);
- Description of how the acquired information will be analyzed, evaluated (i.e., QA review, validation, verification), and assessed against its intended use and the quality performance criteria.

Each QAPP must specify the goals, objectives, questions, issues to be addressed, projected schedule, and acceptance or performance criteria for quality control limits that must be achieved. QAPPs must thoroughly define the type of information needed and how it will be used to support the objectives of the project. QAPPs must, at a minimum, reference and adhere to E&E SOPs. If the plan is not being written as a QAPP (i.e. rather a QAP under the umbrella of an over-arching QAPP), it must reference and adhere to the applicable EPA and QAM-approved QAPP(s). Any additional procedures not described in established SOPs including how, where, and when the information will be obtained will be thoroughly documented in the QAPP.

Criteria such as, but not limited to, precision, accuracy, representativeness, comparability, completeness, sensitivity (PARCCS), and statistical confidence will be determined for lab and field procedures, if applicable, during the project planning stage. Cost considerations will be used to determine how many and what type of samples can be collected. It will be the responsibility of the QAC to schedule and document DQO planning meetings with appropriate people including the project manager, scientific experts, and sampling and analysis personnel. The DQOs will be determined and documented for each project independently. For unplanned sampling events the level of data quality will be determined and documented at the earliest possible time.

Data generated by or for E&E will be determined to be within or out of allowable project plan limits of testing for accuracy, precision, completeness, and representativeness by the appropriate QAC. The data will be reviewed for adherence to the project plan to prevent loss due to errors in collection, reduction, calculation, and transcription. The determination will be made before the data is released or used. Project personnel will follow the project plans sampling requirements and

procedures when sampling. Any samples collected by non-E&E samplers will meet all the requirements listed in the approved project plan covering the type of sampling and sampling procedures, or the samples will be analyzed and reported "for information only". The QAM shall review the plan before work is conducted to ensure adherence to E&E QA policies.

DO

Once environmental data collection activities are planned according to the project plan, it is the responsibility of the Project Manager to ensure, and QAC to require, that the data collection operations described in the QA documents are performed accordingly. Any necessary deviations needing to be made before sampling and analysis is conducted from the approved and applicable QA documents (e.g., QMPs, QAPPs, or SOPs) must be approved by the Program Manager and QAC prior to implementation and must adequately describe how data are measured and analyzed. Procedures for deviations needing to be made extemporaneously are stated further on in this document. All field and lab personnel must be familiar with applicable QA documents and will verify that quality controls and performance standards, such as PARCCS, are passing the defined specifications. Any sampling and analysis not meeting performance standards will be flagged and investigated for procedural errors.

The QAC and Program Manager will ensure applicable staff update the QA document(s) in accordance with the approved process. All work must be documented. When work requiring a procedure is conducted, the person(s) conducting the work is responsible for ensuring that the most current procedures and field forms are being used, and verifying that work is done as prescribed. Chain of custodies (COCs) for each sample must be thoroughly filled out and retained for reference. SOPs for appropriate routine, standardized, special, or critical operations that have not already been developed will be created for operational procedures such as sampling and analytical analyses. Any deviations from the SOP that must be made without prior approval due to field or other unforeseen conditions must be documented on the COC and made available when accessing the data. SOPs will be reviewed on an annual basis for adequacy. SOPs for sampling will be written by the QAC of the project following the guidelines given in their QAPP or QAP. All processes for instrument and model calibration applicable to the project shall be documented in the QAPP or QAP. Environmental information derived from sources outside E&E must adhere to rigorous quality standards and be accompanied by clear quality assurance documentation reflective of the data.

CHECK

Throughout this section, the terms "audit" and "assessment" or "auditor" and "assessor" may be used interchangeably.

E&E is committed to assessing its quality system to produce quality data in an efficient and transparent manner. E&E is in the process of developing robust standardized audits for each of the following processes:

1) Lab audits conducted by the QAM/Laboratory Accreditation Manager (LAM).

- These audits are intended to take place once per year for each of Arkansas's accredited laboratories.

2) QAPP/SAP audits conducted by the QAM or designated appointee.
   - These audits are intended to take place every year for each Office's ongoing projects as documented in QAPPs or SAPs.
3) Internal audits
   - E&E operates two in-house labs for water quality and air quality. Occasionally samples for the OLR will be analyzed in house. Internal audit processes and frequencies are described in the respective QA manuals. Each external Arkansas accredited lab is expected to have an internal audit procedure documented in their QA manual, which is required for laboratory accreditation. Internal audit documentation shall be available upon request.

Resource availability and number of projects or labs seeking accreditation will ultimately dictate the frequency of audits. An audit schedule will be documented for each of these processes. Any audits that could not be conducted within the calendar year will be prioritized for the following year. The QAM/LAM and field assessors will develop an auditing schedule at the beginning of the calendar year. Each completed audit will be documented on the schedule throughout the year and assessed for completeness at the end of the year. Labs/projects that were missed within the year will be scheduled first for the following year.

Assessors/auditors shall have full access to quality system documents and staff involved in quality system implementation. The purpose of the audit is to identify possible quality issues and help develop solutions to those issues so work may continue accurately. Auditors should be able to independently verify that quality systems are being implemented. Auditors may propose solutions to quality issues, but it is ultimately up to the auditee to develop corrective action plans (CAPs). E&E must send the audit report to the auditee no longer than five business days after the audit. CAPs must be submitted to E&E ten business days after the audit report is sent to the auditee. E&E auditors will have five business days to approve or make recommendations on the CAP. CAPs should be implemented immediately upon approval. The lab/project manager is responsible for implementing the CAP and reporting to the field assessor or QAM. Failure to comply with the CAP will result in a stop-work order. In some cases, auditors find that violations are not significant enough for a CAP and may make recommendations for improvement. Recommendations will be documented on the audit report and used to document trends for continuous improvement in future audits.

Audits conducted by the QAM will be used by the QAC and appointees to ensure work is performed according to SOPs and each respective QAPP. Audits performed by the field assessors, and E&E's internal lab audits will be submitted to the QAM for approval and record-keeping. E&E is in the process of developing standardized auditing checklists for lab and field audits. Checklists will reference the adherence to approved QMPs, QAPPs, SAPs, and related documents, among other standards. Once developed and utilized, completed checklists will be kept on file and will be a major component of the audit report.

In addition to completing the Region 6 QA training requirements, the QAM/LAM will attend the Environmental Laboratory Assessments – Basic Assessor Training Course offered through The NELAC Institute (TNI), when available as well as any other applicable training. In addition to completing the Region 6 QA training requirements, the field assessors will attend the Quality Control for Field Operations Course offered through TNI, when available as well as any other applicable training.

Senior management will approve auditing/assessment procedures and checklists or can delegate these tasks to the QAM. Any previous reviews that are applicable to the most current audit will be documented to reflect continuous improvement trends and if corrective actions were needed and properly conducted. Checklists and audit processes will be reviewed yearly to address any needed updates from EPA guidance or needs determined during the audits, themselves. Reports and other relevant information will be documented on the department-wide computer system until agency-wide tracking software is developed.

Procedures and plans that are required by each QAPP are as follows for field sampling:

- Procedures for calibration of field equipment.
- Decontamination of field equipment between sites.
- All field quality assurance steps required such as duplicates, spikes, and trip/field blanks.

Procedures and plans that are required by each QAPP are as follows for laboratory analysis:

- Procedures for calibration of laboratory equipment.
- All quality assurance steps required by the laboratory method; Sample handling and sample custody procedures; and Data management procedures.

The data quality assessment process involves both the proper entry and representativeness of the data in databases or other submission techniques and statistical analysis of data for decision making. Specific data quality validation requirements will be included in the applicable QAPPs and audited by applicable data users for each project.

ACT:

Each QAPP’s implementation activities will be tracked by the QACs. If the QAC determines that significant slippage of milestones or inability to accomplish planned activities is occurring he/she must immediately notify the QAM, their immediate supervisor, and the Associate Director of the Division. A non-routine, corrective internal audit should be conducted, documented, and submitted to the QAM immediately after QA non-conformances are identified.

Each QAPP must list how many and when audits should occur. The number of audits and when they should occur will be determined by the importance of the project and intended use of the project results. Any data resulting from QA non-conformances must be flagged in the database until corrective actions are taken and documented. It is ultimately up to the auditee to develop

CAPs. The lab/project manager is responsible for implementing the CAP and reporting to the field assessor or QAM. CAPs derived from non-routine audits will follow the same process as those developed during routine audits as described above.

CAPs must include:

- Identification of root causes of problems
- Determination of whether the problem is unique or systematic
- How issues will be corrected and prevented

Each Associate Director will determine the importance of each project. Following each audit, corrective actions will be discussed, decided upon, implemented, and documented. Corrective actions taken will be monitored for effectiveness by the auditors. The auditors will then prepare and submit to the QAM and the Associate Director a final report detailing the corrective action effectiveness. Project Managers and QACs should be diligent in looking for potential QA non-conformances and thinking about ways to continually improve processes.

# Section 16: Dispute Resolution Process

With delegation from E&E's executive management, the QAM has responsibility for oversight of E&E's QA program. Issues and questions regarding quality concerns may be raised by staff and management to the QAM. Disputes can be raised about both technical issues and how management implements the quality system. Resolution of quality-related disputes between individual program areas and the quality staff are expected to be resolved at the lowest organizational level, i.e., staff and management. Disputes that arise related to audits should first be brought up between the auditor and auditee but can be elevated if not resolvable. Quality-related disputes that cannot be resolved at the staff level will be elevated through the QAM to the Senior Manager. If disputes are not satisfactorily resolved at this level, the issues shall be elevated to the E&E Secretary for resolution. Disputes and the steps toward resolution shall be documented unless the person bringing the dispute requests otherwise.

# Section 17: Continual Improvement

The process of continuous quality improvement leads to the development of a better and more responsive quality system. All staff should feel encouraged to be looking for ways to continually improve processes and communicate them to the QAC and QAM. Several years of audits for each program will be examined for trends and conveyed to applicable staff. The QAM, auditors and QACs will work to ensure that any conditions averse to quality are identified, prevented, corrected, documented, and tracked to closure, including any resulting corrective actions. This will be accomplished by quarterly meetings to discuss current quality systems, efficiencies, and any concerns or issues that have been identified. Findings and improvement strategies will be reviewed by the Senior Manager for approval.

# Section 18: Data Review, Validation and Verification, and Data Usability Reporting

All QAPPs for environmental information operations that generate data shall outline procedures for data review to confirm that both technical and quality objectives are being met. At a minimum, supervisors, technicians, inspectors, QACs, and other staff, as appropriate, review data and record their review by either electronic or written approval. Data reviews should follow the DQOs and acceptability criteria as outlined in the QAPP. Deviations and non-conformances are noted, flagged, and corrected if possible, during this review. Data with undocumented quality will not be used for regulatory decisions but may be referenced for information or trend detection only. Final reports for each QAPP shall describe findings from data quality reviews and any steps taken to correct them.

Data collected for the purposes of one QAPP or QAP may not be appropriate for use in other projects. Before using the data collected for other purposes, staff will describe the acceptability requirements for previously collected data and familiarize themselves with QAPPs under which previous data were collected. Decisions to use or not use the data should be documented in final reports. All reports using EIO should be reviewed by peers and management before distribution. E&E will make every effort to release accurate reports but recognizes that revisions may be necessary. In the case of revision, E&E will clearly label the document revision number and any changes made.