QUALITY MANAGEMENT PLAN

FOR

NEW MEXICO ENVIRONMENT DEPARTMENT SURFACE WATER QUALITY BUREAU

ENVIRONMENTAL DATA OPERATIONS

Approval Page

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Abbreviations and Acronyms

ANSI	American National Standards Institute
ASD	Administrative Services Division
BFM	Bureau Financial Manager
CALM	Comprehensive Assessment and Listing Methodology
DPO	Direct Purchase Order
DFA	Department of Finance and Administration
DoIT	Department of Information Technology
DQI	Data Quality Indicators
DQO	Data Quality Objective
EPA	United States Environmental Protection Agency
FSP	Field Sampling Plan
GSD	General Services Department
ITB	Invitation to Bid
OIT	Office of Information Technology
MASS	Monitoring, Assessment, and Standards Section
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMSA	New Mexico Statures Annotated
NPDES	National Pollutant Discharge Elimination System
OGC	Office of General Counsel
OIT	Office of Information Technology
PSRS	Point Source Regulation Section
QA	Quality Assurance
QAO	Surface Water Quality Bureau Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	Quality Control
QMP	Quality Management Plan
RFA	Request for Applications
RFP	Request for Proposal
RFQ	Request for Quotes
SFA	Solicitation for Applications
SLD	Scientific Laboratory Division
SOP	Standard Operating Procedure
SPD	State Purchasing Division
SPR	Standards, Planning and Reporting
SQUID	Surface Water Quality Information Database
SWQB	Surface Water Quality Bureau
WPS	Watershed Protection Section
WQMP/CPP	Water Quality Management Plan and Continuing Planning Process

Introduction

The mission of the New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") is to preserve, protect, and improve New Mexico's surface water quality for present and future generations.

To accomplish its mission and to meet the national requirements of the Clean Water Act, the SWQB conducts environmental data operations, primarily the collection and evaluation of data to monitor the condition of New Mexico surface waters. Much of this work is funded by federal grants provided by the Environmental Protection Agency ("EPA"). The SWQB is committed to developing and maintaining a quality system that meets the needs of EPA, NMED staff, stakeholders, and the public and will do so by ensuring that its data collection efforts meet the requirements of EPA's Chief Information Officer (CIO) order 2105.1 *Environmental Information Quality Policy* and 2 CFR 1500.12 *Quality Assurance.*

The EPA issued CIO 2105-P-01.1, *Environmental Information Quality Procedure* to implement the requirements of CIO 2105.1 and 2 CFR 1500.12. According to the order (CIO 2105.1), it is EPA policy that all environmental programs performed by EPA or directly for EPA, through EPA-funded extramural agreements, shall be supported by individual quality systems that comply fully with the Quality Management Systems for Environmental Information and Technology Programs (ASQ/ANSI E4 2014). Therefore, to comply with 2 CFR 1500.12 and meet the requirements of EPA order CIO 2105.0, organizations funded by EPA are required to have a quality system that is documented in a Quality Management Plan ("QMP").

The QMP describes the organization's quality system for planning, implementing, documenting, and assessing the effectiveness of activities supporting environmental data operations and other environmental programs. The requirements of the QMP apply to all environmental programs funded by EPA that acquire, generate, compile, or use environmental data and technology.

The QMP for the New Mexico Environment Department Surface Water Quality Bureau's *Environmental Data Operations* is based on the ten (10) elements listed in *EPA Requirements for Quality Management Plans* (EPA QA/R-2). Following the organization of EPA requirements, Element-1 describes the SWQB quality policy, the scope of the SWQB quality system and the responsibilities of SWQB management. Element-2 lists the SWQB quality system components. Elements 3 through 10 document the SWQB quality system. The processes for each element are described in this QMP. Roles, responsibilities, and authorities for each element are summarized in two tables: Table 3 for Elements 3 through 6; and Table 4 for Elements 7 through 10.

According to EPA Region 6 policy, the QMP is valid for a period of one year from the date of approval by EPA. However, *EPA Requirements for Quality Management Plans* (EPA QA/R-2) directs the recipient to modify the QMP if any of the following occur:

- major changes in mission and responsibilities, such as changes in the delegation status of a program;
- re-organization of existing functions that affect programs covered by the QMP; or
- EPA-issued assessment findings requiring corrective actions and response.

Element 1. Management and Organization

Purpose: To document the overall policy, scope, applicability and management responsibilities of the SWQB's quality system.

The general objectives and goals of the SWQB quality system are to ensure the quality of the work processes and products. The quality system includes planning, implementing, documenting, and assessing work performed by the SWQB. The SWQB is committed to maintaining a quality system that provides confidence that the products generated by its environmental data operations meet the requirements of internal and external customers.

Quality Assurance is the planned and systematic actions that ensure environmental data operations are of sufficient quality to meet customer requirements. Quality Assurance ("QA") includes Quality Control ("QC"), which is the system of technical activities, including data verification and validation procedures, which measures the attributes and performance of a process, item, or service against defined standards.

Policy on Quality Assurance

It is the policy of the SWQB that the level of QA shall be sufficient to provide confidence that the products of environmental data operations meet the requirements of internal and external customers and that sufficient resources shall be available to develop and maintain the quality system.

Organizational Structure

Figure 1 shows the management structure of the SWQB in relationship to the NMED and documents the independence of the QA Officer ("QAO") from SWQB sections that generate data. Figure 2 shows the SWQB organizational structure including staff positions assigned to offices outside of Santa Fe.

Figure 1. Management Structure of the NMED-SWQB

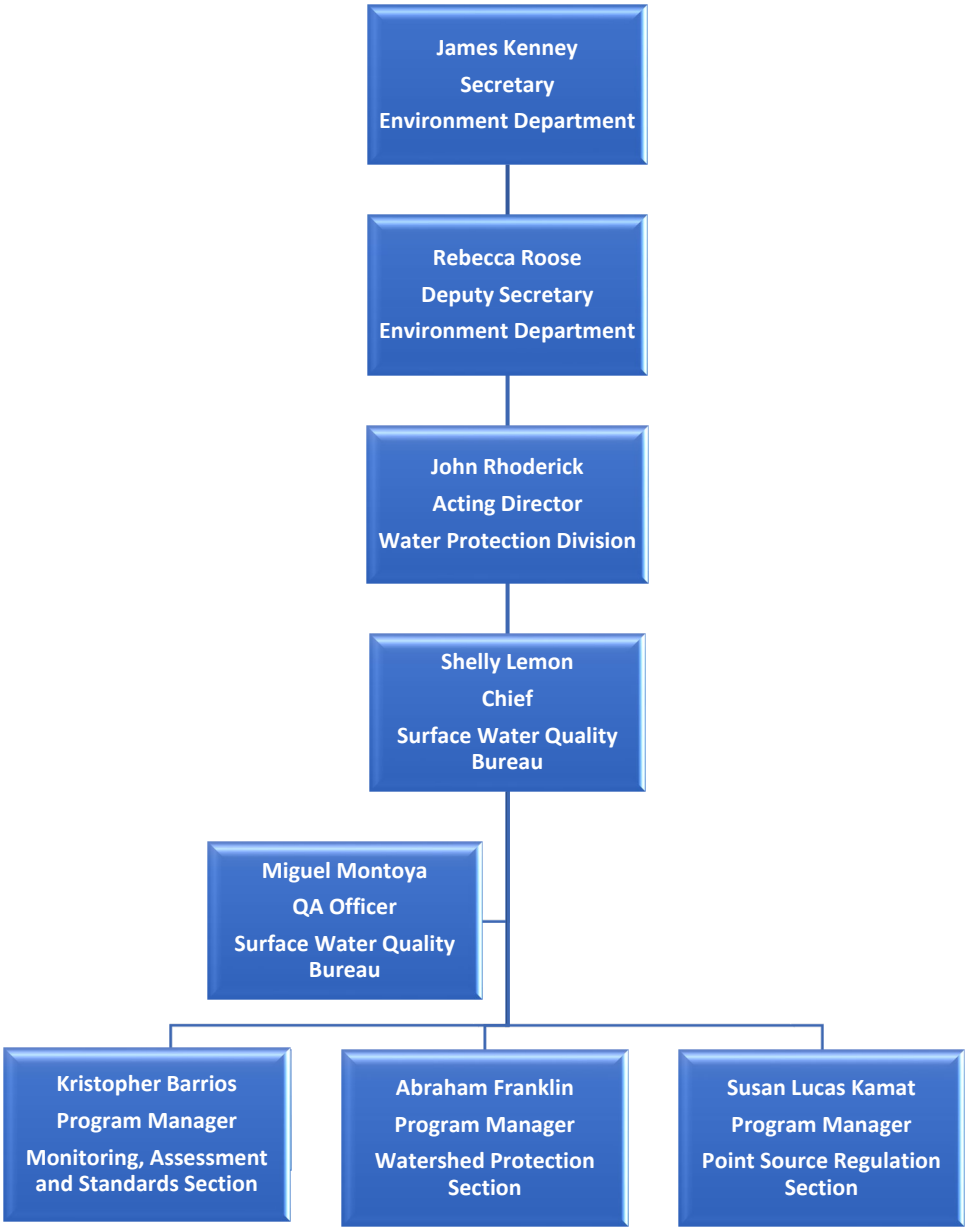
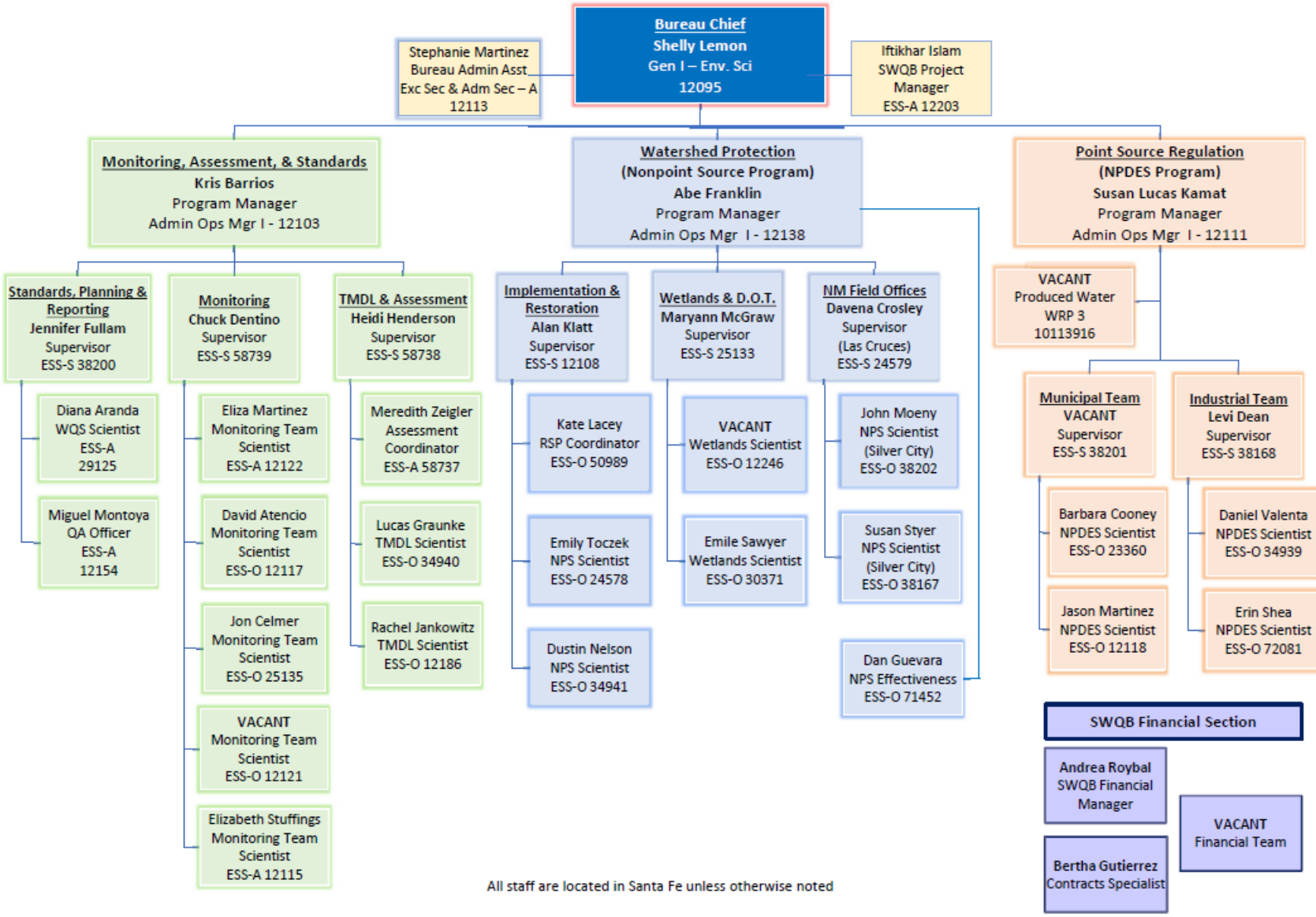


Figure 2. Organizational Structure of the SWQB



Authorities and Responsibilities of QA Officer

The SWQB QAO has the authority for planning, assessing, and improving the SWQB's quality system. The QAO is responsible for the preparation, approval, and distribution of the QMP, and Quality Assurance Project Plans ("QAPPs"). The QAO has the authority to require quality assurance related training. The QAO is also responsible for ensuring the proper review of data and for the review of new or of alternative methods and procedures for conducting environmental data operations. The QAO will use Data Quality Objectives ("DQOs") to conduct data quality assessments to ensure data being used meet the data quality indicators ("DQIs") of the SWQB's quality system. The QAO has the authority to ensure implementation of work processes according to approved procedures, conduct quality system assessments, and implement quality system improvement activities.

The QAO has the authority to ensure quality documentation in the procurement of products; and to require the inclusion of quality assurance requirements in proposals, work plans, and contracts; and to require persons or organizations that collect environmental data, including contractors, to develop and to conform to the applicable QAPPs.

The QAO is directly supervised by the Standards, Planning, and Reporting ("SPR") Team Supervisor. SPR Team members support the QAO as needed. For the purposes of quality assurance, the QAO reports to the Bureau Chief.

The QAO shall maintain independence in all QA matters and has the ability to directly and independently interact and initiate communication with technical staff and management. This direct access allows the QAO to independently elevate critical quality-related issues to the attention of the Bureau Chief at his/her discretion without challenge or section approval. The QAO communicates with NMED senior management through the Bureau Chief.

Technical activities or programs that require quality management

The SWQB is comprised of three technical sections: the Monitoring, Assessment, Standards Section ("MASS"), the Watershed Protection Section ("WPS"), and the Point Source Regulation Section ("PSRS"). All of the sections and teams that acquire, generate, compile, or use environmental data require quality management. For the purposes of quality management, the QAO helps to coordinate the activities of the technical sections and teams.

In addition, all environmental data operations funded directly or indirectly through the EPA, require an EPA-approved QAPP specific to project objectives.

Management process for assuring that the elements of the quality system are understood and implemented in all environmental programs

Program Manager(s), with the assistance of the QAO, periodically assess the level of understanding and implementation of the quality system; evaluate the effectiveness of the quality system in satisfying customer requirements and expectations; and monitor the need for improvement of the quality system. Further details on the processes for assessing the implementation of the quality system are provided in Element 9, Assessment and Response.

Element 2. Quality System Components

Purpose: To document how the SWQB manages its quality system and to define the primary responsibilities for managing and implementing each component of the system.

The quality system is intended to ensure quality in work processes and products. It includes planning, implementation, documentation, and assessment.

The principal components of the quality system and the tools for implementing the components are the QMP and QAPPs. These and other components are listed in Table 1. The primary positions that are responsible for the implementation of the quality system components are also listed in Table 1. Additional details of the roles and implementation responsibilities are listed in each QMP Element.

The QAO develops the QMP with the assistance of members of the SPR Team and recommendations from SWQB staff. The QMP describes the quality system for planning, implementing, documenting, and assessing the effectiveness of activities supporting the programs administered by the SWQB. The QMP is reviewed and approved by the Bureau Chief, QAO, and EPA. The QAO also develops the SWQB's QAPP for *Water Quality Management Programs* (NMED/SWQB 2021) and reviews project-specific QAPPs.

Table 1. Quality System Components

Quality System Component	Documented Quality Component	Responsible Position
Quality Planning	WQMP/CPP, QMP, QAPPs	Bureau Chief, QA Officer
Quality Training	QAPPs, and SOPs	QA Officer, Program Manager(s), Subject Matter Expert(s)
Quality Implementation	QAPPs, SOPs, FSPs, Comprehensive Assessment and Listing Methodology ("CALM"), Hydrology Protocol, Antidegradation Policy Implementation Procedures, Inspections, Spill/Incident Response	All SWQB Staff
Quality Documentation	Reports, Publications, Certifications, and Rulemakings	Bureau Chief, Program Manager(s), Project Manager(s), and QA Officer
Quality Assessment	Quality System Assessments, Technical System Audit Procedure	Bureau Chief, QA Officer

Element 3. Personnel Qualification and Training

Purpose: To document the process for assuring that all personnel performing operations involving environmental data have the necessary skills to effectively accomplish their work.

It is the policy of the SWQB that personnel who perform operations involving environmental data have sufficient training and qualifications to accomplish their work. This is generally acquired through internal and external trainings and, for all newly hired personnel, a period of apprenticeship conducted by experienced staff. Newly hired personnel are provided with an onboarding presentation that explains the details and requirements of the SWQB Quality System components (e.g., QMP, QAPPs, SOPs, and FSPs).

The QAO is required to oversee the quality assurance mechanisms in place supporting the SWQB's quality system. Therefore, the QAO must have or must attain certification in Quality Project and Program Management from EPA or a certification of equivalent measure within three years of hire date. The QAO documents that personnel are familiar with the requirements of the SWQB's QMP and the *QAPP for Water Quality Management Programs* (NMED/SWQB 2021) either with documented training or with a signed "SWQB Acknowledgement Statement" that acknowledges receipt and understanding of the documents. Also, at appropriate intervals, the QAO may conduct training to familiarize Program Manager(s), Team Supervisors, Project Manager(s) and staff with changes to the SWQB's QMP and the most recent QAPP for *Water Quality Management Programs.*

Personnel are to be familiar with other related documents, such as the Statewide *Water Quality Management Plan and Continuing Planning Process* ("WQMP/CPP"), the State of New Mexico *Standards for Interstate and Intrastate Surface Waters* (20.6.4 NMAC), and the State of New Mexico *Ground and Surface Water Protection regulations* (20.6.2 NMAC) to ensure proper implementation of surface water quality management programs.

Program Managers whose job responsibilities require actively conducting or participating in procedures identified in the SWQB QAPP are required to seek certification in Quality Project and Program Management from EPA or a certification of equivalent measure. The certification is required to ensure Program Managers have the ability to understand the quality assurance requirements for EPA funded projects; comprehend the value and benefits of an effective quality assurance program; recognize in detail the elements of a QAPP and their requirements; and evaluate and determine the approvability of a QAPP.

The Program Manager(s), Team Supervisors, and Project Manager(s) are responsible for ensuring that personnel who acquire, generate, compile, or use environmental data are familiar with quality assurance requirements and for verifying that technical staff members are trained in applicable SOPs and the proper use of sampling equipment.

The need for training or retraining to maintain quality assurance-based qualifications is identified by communication with staff, observation of work processes, and QA assessments or technical system audits. Training for field data collection is organized by the Program Manager(s), Team Supervisor, or the Project Manager(s) with oversight from the QAO. The training focuses on specific chapters of the SWQB's SOPs and should be led by the Subject Matter Expert(s). Subject matter experts are SWQB staff that are familiar with the purpose and procedure for completing a task.

Element 4. Procurement of Products

Purpose: To document the processes for the procurement of products (items and services) that affect the quality of environmental programs.

The SWQB procures products (items and services) in order to provide the materials and capabilities needed to accomplish its mission. The SWQB uses multiple processes and levels of approval to assure the accuracy, quality, and integrity of the procurement process. If the procurement requires a quality component or if the product will influence the quality of environmental programs or data, the QAO will be consulted.

The NMED is a Cabinet-level Department within New Mexico State government. The procurement process often requires the involvement and oversight of three other state departments: the Department of Finance and Administration ("DFA"), the General Services Department ("GSD"), and the Department of Information Technology ("DoIT"). Within NMED, procurement may need the review and approval of the Administrative Services Division ("ASD"), the Office of Information Technology ("OIT") and/or the Office of General Counsel ("OGC").

SWQB follows procurement procedures in accordance with the New Mexico Procurement Code, Chapter 13, Sections 13-1-1 through 13-1-199 NMSA 1978 , and GSD - State Purchasing Division Procurement Code Regulations 1.4.1 NMAC and 2.40.2 NMAC. The purpose of the procurement code is to provide for the fair and equal treatment of all persons involved in public procurement, to maximize the purchasing value of public funds and to provide safeguards for maintaining a procurement system of quality and integrity.

Procurements Using Grant Funding

The SWQB submits grant applications to EPA that include work plans describing the work to be accomplished using Clean Water Act grant funding. The Bureau Financial Manager ("BFM") works with the Bureau Chief, Program Manager(s), and Project Manager(s) to ensure that grant applications meet both EPA and NMED requirements. Some of the grant objectives and outcomes described in the work plan are completed by the SWQB and others are completed by the Ground Water Quality Bureau, sub-grant recipients, or contractors.

Depending on the cost and type of procurement, SWQB may issue a Direct Purchase Order ("DPO"), Solicitation for Applications ("SFA"), Request for Proposals ("RFP"), or Request for Quotes ("RFQ"). The SWQB conducts SFAs to pass-through a portion of the grant of award ("sub-grant") to another entity for the purpose of providing programmatic effort on the project. Sub-grant recipients are ultimately responsible for the successful completion of the grant project, or portion of the project, in their sub-grant agreement. The SWQB conducts RFPs and RFQs to buy goods or services for the benefit of the project. The vendor or contractor provides the specified goods or services to the SWQB.

Project work plans and scopes of work that involve the use of environmental data for use in decision making supported by EPA funds either directly or indirectly shall indicate that the work will be conducted under an EPA-approved QAPP specific to project objectives.

Procurement of Services – Contracts

The SWQB may need to procure professional or general services contracts to achieve its mission. If the proposed service(s) could influence the quality of environmental programs or data, technical staff, the Project Manager(s), Program Manager(s) and the QAO must be involved in the procurement.

If the contract is less than $60,000 for professional or general services, SWQB solicits formal quotes for best obtainable price. The contract must be routed through the SWQB financial team and ASD for processing, and the contract will require final approval by DFA for professional services or State Purchasing Division ("SPD") for general services. NMED-SWQB conducts procurement for *professional services* contracts equal to or over $60,000 through an RFP process, whereas SPD conducts procurement for *general services* contracts equal to or over $60,000 through a formal RFP process. Both procurements (i.e., professional services and general services) require sealed competitive proposals, unless goods or services are procured under a State-wide Price Agreement. Other methods of procurement exist such as Exceptions (13-1-98), Sole Source (13-1-126), Emergency (13-1-127), and Existing Contracts (13-1-129). All such procurements are routed through the SWQB financial team and ASD for processing.

In most cases, the Program Manager(s) or the Project Manager(s), the BFM or the Contract Specialist, and the QAO (if necessary) participate in the preparation and technical evaluation of the RFP. The technical evaluation shall ensure that the RFP and any resulting agreements and contract documents are complete and accurate, clearly describe the services needed, describe the associated technical and quality requirements, describe the quality system elements for which the supplier is responsible, and provide the criteria by which the supplier's conformance to quality requirements will be verified.

If NMED conducts the RFP (i.e. for professional services procurements), the proposed contract is routed through the contractor, Program Manager(s), Contract Specialist, BFM, SWQB Bureau Chief, ASD, OGC, and the NMED Cabinet Secretary or designee, prior to approval from DFA. If SPD conducts the RFP (i.e., for general services procurements), the final contract will be routed through the contractor, Program Manager(s), BFM, SWQB Bureau Chief, ASD, OGC, and the NMED Cabinet Secretary or designee, prior to approval from SPD. All purchase orders must be approved by DFA.

Upon receipt of the contract deliverables and draft invoice, Project Manager(s) review the deliverables to assure that all contract requirements have been satisfied. If the deliverables do not meet contract requirements, the contractor is notified in writing of the deficiencies of their invoice and/or deliverables. If the deliverables meet the contract requirements, the Project Manager provides written certification of acceptance to the contractor and requests an official invoice from the contractor. The invoice is then routed, with proper documentation, to the SWQB financial team for processing.

Procurement of Items

The SWQB purchases items needed to accomplish the Bureau's mission. If the use of the item could influence the quality of environmental programs or data, then consultation with other technical staff, the Project Manager(s), Program Manager(s) and the QAO should occur when specifications are being developed. After developing technical specifications and cost estimates, the proposed purchase is sent to the Program Manager(s) and Bureau Chief for approval. The Program Manager(s) or the Bureau Chief may determine that the specifications for the proposed purchase need further review by the QAO. If the proposed purchase meets technical requirements and cost limitations, the Program Manager(s) and the Bureau Chief may approve the purchase.

If the cost is less than $5,000, the purchase can be procured using a DPO based on the evaluation of two bids, with final approval from ASD. If the cost is greater than $5,000 but less than $60,000, there are several options for procurement (Table 2). In some cases, Statewide Price Agreements may be available for use by NMED (more information below).

Technical personnel evaluate the received item for conformance to requirements and specifications. If the item conforms to the technical requirements and specifications, the technical staff member communicates to the FAM that payment is approved. The item will be used or placed in operation within

the warranty period to assure that it operates as intended and meets the technical specifications and requirements.

Ongoing Procurements of Items and Services – Price Agreements

The SWQB may require the ongoing procurement of products, including items and services. Depending on the procurement, the SWQB may be involved in the development of the requirements or specifications for a contract with vendors for products. If the use of the product could influence the quality of environmental programs or data, then consultation with technical staff, the Project Manager(s), Program Manager(s) and the QAO is required as the specifications are being developed. If the items or services will be purchased through an ongoing Price Agreement (which allows the products listed in the agreement to be available for purchase by other state agencies), the SPD will issue an ITB for the items or services. Depending on the procurement, representatives of the SWQB including the QAO may participate in the technical evaluation of the responses to the ITB. After technical and administrative review, the SPD will issue a Price Agreement for the products that were described in the ITB.

Upon receipt of the products, technical personnel evaluate the products for conformance to requirements and specifications. If they conform to the requirements and specifications, the technical staff member communicates to the BFM that payment should be approved.

Table 2. Summary of the Procurement Process

Type	Description	$ Range	Approving Agency			Process	Examples	For Use By
			NMED	SPD	DFA			
Goods/Services	Small Purchase	$0 - $5K	X		X	DPO, ITB or RFQ (2 Quotes)	Furniture	Bureau
Goods/Services	Small Purchase	$5K - $60k	X	X	X	DPO, ITB or RFQ (3 Quotes)	One-time Contract Sampling Equipment ≥ $20K	Bureau
Sub-Grant	Sub-Grant Agreement	Unlimited	X		X	DPO, SFA	programmatic support for Bureau's 319 grant	Bureau
Goods/Services	Statewide Price Agreement	Unlimited	X		X	DPO (No Quotes)	Office Supplies, Contract Laboratory Services	Multiple Agencies
Professional Services	Professional Services Contract	$60K +	X		X	RFP	One or Multiple Vendors	Department
General Services	General Services Contract	$60K +	X	X	X	RFP	One or Multiple Vendors Tetra-Tech, River Stewardship Program Contracts	Department

*Computer-related items may require review by NMED OIT or the Department of Information Technology (refer to Element 6)

NMED = New Mexico Environment Department; SPD = State Purchasing Division; DFA = Department of Finance and Administration

DPO = Direct Purchase Order; ITB = Invitation to Bid; RFQ = request for Quotes; SFA = Solicitation for Applications; RFP = Request for Proposals

Sub-grant Agreements

The SWQB also conducts competitive project development processes using SFAs in which public agencies and community-based organizations may submit applications for a sub-grant award. Applications are reviewed and scored by an evaluation committee. In most cases, the Program Manager(s) and other technical staff, and if necessary, the QAO participate in the evaluation and selection of applicants. Finalists are asked to submit revised applications addressing any concerns of the evaluation committee. Revised applications are then submitted to EPA for review and approval prior to issuing a sub-grant agreement.

Sub-grant agreements are routed through the sub-grant recipient, the Program Manager(s), Contract Specialist, BFM, Bureau Chief, OGC and final approval by the NMED Cabinet Secretary or designee. The SWQB currently awards sub-grants for watershed-based planning projects and watershed implementation projects, wetlands restoration projects, and water quality management planning supported with Clean Water Act Section 319, Section 104(b)(3), and Section 604(b) funds. If any of these agreements or the products of these agreements may influence the quality of environmental programs or environmental data, then the agreements will be reviewed by the QAO.

Other Agreements

The SWQB may also engage in a Memorandum of Understanding or Memorandum of Agreement ("MOU" or "MOA") with another governmental agency. For example, the SWQB maintains an agreement for analytical services with the State Laboratory Division ("SLD") of the New Mexico Department of Health. The agreement with SLD does not go through the procurement process. However, the contract is routed through the SWQB financial team for finalization. The SWQB and the SLD, as representatives of agencies of the State of New Mexico, communicate their requirements through annual negotiations and interim meetings. Similarly, components of Wetlands Programs projects are funded through MOAs, for example Rapid Assessment Method development by the University of New Mexico's Natural Heritage program. A MOU may be used to share resources that mutually benefit the agencies and/or public. A MOA may be used to fund specific projects that benefit two agencies. These agreements may require review and approval by the Department's ASD, OGC and Cabinet Secretary, including review and approval by the other governmental agency. If any of these agreements or the products of these agreements may influence the quality of environmental programs or environmental data, then the agreements will be reviewed by the QAO.

Element 5. Documents and Records

Purpose: To document appropriate controls for quality-related documents determined to be important to the mission of the organization.

A quality assurance related document lists, describes, establishes, or specifies how products meet or shall meet either the requirements of the SWQB or the requirements of its customers; or it documents the procedures or plans for meeting those requirements. Quality assurance related documents include the QMP, QAPPs, FSPs, SOPs and protocols, and quality assurance elements found in contracts and work plans. Quality assurance related documents may also include documents from customers and suppliers.

The QAO is responsible for identifying quality assurance related documents. For procedures, protocols, contracts, and work plans, the QAO works with the Program Manager(s), Project Manager(s), or the BFM to identify required quality-related documents.

The QAO develops and prepares updates to the SWQB's QMP and QAPP for *Water Quality Management Programs* as needed based on effective timeframes, major changes in mission and responsibilities, actions that affect the programs covered by these quality documents, or any findings by EPA that require corrective action. These updates are done in consultation with the applicable Program Manager(s) and staff. The QMP is reviewed yearly and is approval by the Bureau Chief and the QAO. A signed copy of the QMP is forwarded to the EPA Quality Assurance Manager for review and approval. The SWQB QAPP *for Water Quality Management Programs* is reviewed and approved by the Bureau Chief, QAO, and EPA. QAPPs can be approved for up to 36 months. Project-specific QAPPs developed by the SWQB or their sub-grantees or contractors are review and approved by applicable Program Manager, Project Manager, and the QAO before being forwarded to appropriate EPA staff for review and approval. Should there be any changes that affect the quality of data at any time, a revised QAPP must be resubmitted to EPA for review and approval.

The QAO reviews and approves SWQB data collection activities applicable to QAPPs, FSPs, and SOPs (developed internally as well as externally). The QAO may also review supplier-provided quality assurance documentation, such as the SLD QAPP. The QAO and the appropriate Program Manager(s) or Project Manager(s) work together to review applicable sample collection planning documents, procedures, and assessment protocols to ensure documents meet the SWQB DQI.

As described in Element 4, contracts and other agreements are reviewed by: the Program Manager(s), Contract Specialist, the BFM, and the Bureau Chief. If there are any quality assurance requirements, the QAO will also review those documents. The appropriate Program Manager(s) and the Bureau Chief are responsible for technical approval of RFPs, RFQs, SFAs, ITBs, and DPOs and resulting contracts and other agreements.

The QAO distributes the quality assurance-related documents such as the SWQB's QMP and the *QAPP for Water Quality Management Programs* to all appropriate staff. The QAO verifies and maintains receipt and understanding of the SWQB's QMP and the *QAPP for Water Quality Management Programs* through acknowledgment forms.

The QAO maintains the original approved version of the SWQB QMP, QAPPs, SOPs and FSPs. These documents are maintained on the NMED server, which is backed up daily. The quality related documents are also posted on the SWQB's website.

Generally, the process for ensuring that records and documents accurately reflect completed work is described in Element 9, Assessment and Response.

Element 6. Computer Hardware and Software

Purpose: To document how the SWQB ensures that computer hardware and software satisfies its requirements.

The SWQB works with DoIT and OIT to ensure that computer hardware and software meet procurement, security and quality assurance, and control requirements.

Computer hardware and software purchases must meet the requirements of the statewide Information Technology Plan. The majority of computer hardware and software products are commercial products that are purchased from suppliers according to the procedures described in Element 4. The OIT communicates requirements to suppliers through the RFP process and evaluates whether the purchased products meet the requirements of the purchase contract and the user. After purchasing hardware or software, the user may advise OIT regarding its suitability for use. The suitability of special-purpose software is evaluated by technical staff members based on their experience and requirements.

The SWQB stores surface water quality data within the Surface Water Quality Information Database ("SQUID") which is managed by OIT in cooperation with SWQB staff. With the exception of special-purpose software, OIT is responsible for installing, testing, maintaining, controlling, and documenting software. NMED staff must acquire permission from the SWQB database manager before access is granted to SQUID by OIT. Managers and staff are responsible for using the software and becoming familiar with any updates or changes to the software applications. Raw water quality instrument data files, ancillary field observations, photographs, and other forms of data are not stored in SQUID but are maintained on the NMED server and backed up daily. OIT and Program Manager(s) evaluate changes to user requirements and evaluate the effects of changes in hardware and software on the performance of users.

SWQB staff, using application programs, enter data for storage either on a local computer or on a network server. They may also produce new data using other approved applications or programs such as Microsoft Word or Microsoft Excel, often based on the synthesis or evaluation of analytical results.

Element 7. Planning

Purpose: To document how individual data collection operations are planned within the SWQB to ensure that data or information collected meets the requirements of the SWQB and its customers.

The "*Planning Process*" for environmental data collection activities is based on the elements of "Systematic Planning" listed in the *EPA Environmental Information Quality Procedure* (CIO 2105-P01.1). The *Planning Process* identifies and describes the process for the participation of the customers and suppliers that are involved with the study as well as project goals and objectives. The project team, through the *Planning Process*, identifies and prioritizes the questions that the project will be designed to answer and the decisions that can be made as a result of the project. It identifies the type and quantity of data needed and how the data will be used to support the project DQOs. The Planning Process also identifies specification of needed QA and QC activities to assess the project DQIs and describes how the acquired information will be analyzed, evaluated, and assessed against its intended use and the quality performance criteria.

The earlier in the data collection process that the *Planning Process* is applied, the better. Ideally, the *Planning Process* should be used as a work plan is being developed. If a work plan is already in place, or if the project is directed by other documents, then the project will still be planned according to this planning process.

The *Planning Process* is intended to:

- identify and involve the project manager, sponsoring organization and responsible official, project personnel, stakeholders, scientific experts, etc. (e.g., all customers and cooperators).
- identify the question that is intended to be answered or the decision that is intended to be made;
- identify specification of needed QA and QC
- ensure that the planned data collection activities will provide data that are sufficient to answer the question or make the decision; and
- ensure that the planned data analysis, evaluation and assessment will answer the question or support the decision.

The SWQB *Planning Process* for data collection operations are documented in project planning documents such as the QAPPs, FSPs or SAPs.

Application and Relationship to the SWQB QAPP for Water Quality Management Programs

The SWQB QAPP for Water Quality Management Programs (NMED/SWQB 2021) identifies data collection types that require a *Planning Process* and goes on to further explain data collection activities that require an approved FSP prior to data collection. The quality of the data collected under SWQB FSPs is assured by following established SOPs and the most recent *QAPP for Water Quality Management Programs*.

Monitoring for enforcement purposes and incident responses do not require an FSP. Although an FSP is not required, it must be verified with the QAO that the SWQB's *QAPP for Water Quality Management Programs* (NMED/SWQB 2021) and SWQB SOPs cover the specific data collection activities to assure the quality of the data that are planned to be collected.

Each year EPA coordinates with the PSRS to identify permit compliance inspections that will be conducted by the PSRS and/or EPA. NPDES permit compliance inspections are carried out in accordance with the SWQB *QAPP for Water Quality Management Programs* (NMED/SWQB 2021) and EPA's *NPDES Compliance Inspection Manual* (EPA 2017). The EPA manual is an inspection support tool utilized by PSRS staff when

conducting permit compliance inspections. The Sampling Design Process section of the *QAPP for Water Quality Management Programs* (NMED/SWQB 2021) contains additional information for NPDES permit compliance inspections conducted by the PSRS.

Data collection activities pertaining to Hydrology Protocol surveys are done in accordance with the SWQB *QAPP for Water Quality Management Programs* (NMED/SWQB 2021), 20.6.4.15 NMAC, and the Statewide WQMP/CPP.

Data collected for purposes other than those described in the *QAPP for Water Quality Management Programs* (NMED/SWQB 2021) or from other sources that might not have the same quality controls as data collected under the *QAPP for Water Quality Management Programs* (NMED/SWQB 2021) are evaluated independently based on the proposed use. The QAO is the only individual authorized to make a determination regarding whether or not the data quality is adequate for the proposed use. Any environmental data being used for a purpose outside those identified must seek approval from the QAO prior to proceeding with use of that data.

Element 8. Implementation of Work Process

Purpose: To document how work processes are implemented within the SWQB to ensure that data or information collected meet the requirements of the SWQB and its customers.

Once environmental data collection operations are planned according to the SWQB's *QAPP for Water Quality Management Programs* (NMED/SWQB 2021), Element 7 of this QMP, and the SOP for *Field Sampling Plan Development and Execution* (SOP 2.1), if applicable, it is the responsibility of the Project Manager(s) to ensure that the data collection operations described in the quality assurance documents are performed accordingly. Any required deviations from the approved and applicable quality assurance documents (e.g., QMPs, QAPPs, FSPs or SOPs) must be approved by the Program Manager(s) and QAO in coordination with the Subject Matter Expert (if applicable) prior to implementation. The QAO and Program Manager(s) will ensure applicable staff update the quality assurance document(s) in accordance with the SWQB's approved process.

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, removing obsolete documentation, and verifying that work is done as prescribed.

Element 9. Quality Assessment and Response

Purpose: To document how the SWQB determines the suitability and effectiveness of the implemented quality system and the quality performance of the environmental programs to which the quality system applies.

The QAO will assess a portion of the quality system periodically as resources allow. The assessment may be either a management or technical assessment. The QAO may use assessment tools, including, but not limited to: quality systems audits, management systems reviews, peer reviews, technical reviews, performance evaluations, data quality assessments, readiness reviews, technical system audits, and surveillance. The Technical System Audits SOP ensures the process is standardized and effectively evaluates the implementation of the quality system documents (e.g., QMP, QAPP, SOPs).

Once the specific management or technical area to be assessed has been identified, the specific tool, the frequency of assessments, and the roles and responsibilities of the assessors will be selected. The QAO has the necessary authority to conduct assessments of the SWQB, including access to programs and managers, access to documents and records, and freedom to pursue quality-related issues for the Bureau. The QAO will be either competent or will actively seek training for the purposes previously listed. The QAO will ensure they have no real or perceived conflict of interest, and no direct involvement or responsibility for the work being assessed. The results of the assessment will be reported to the Bureau Chief, applicable Program Manager, and Project Manager.

The Bureau Chief, Program Manager, and Project Manager will review the corrective action(s) and will respond to assessment findings and deficiencies. For the resolution of disputes, the Bureau Chief, Program Manager, and Project Manager will develop the specifics for resolution as the issue(s) is developing.

Element 10. Quality Improvement

Purpose: To document how the SWQB improves its quality system.

At least annually or as resources allow, the QAO will review quality-related deficiencies, nonconformances, and programmatic improvements, and advise management of any significant trends.

All personnel working on environmental programs are encouraged to proactively identify, plan, implement, and evaluate quality improvement activities for their areas of responsibility. Personnel will prevent quality problems wherever possible and report opportunities for improvement as well as quality problems as they are identified.

Deficiencies and nonconformances by staff or observed by staff will be reported to the QAO and appropriate Project Manager(s). The QAO ensures that the deficiencies and nonconformances are documented and forwarded to the appropriate Program Manager(s) or the Bureau Chief.

If necessary, the QAO and the appropriate Program Manager(s) and Project Manager(s) will develop a plan for corrective action. The corrective action plan documents':

- root cause(s);
- programmatic impact;
- required corrective action(s), including action(s) needed to prevent recurrence;
- means by which corrective action completion will be documented and verified;
- timetable(s);
- individuals responsible for implementing corrective action; and
- mechanism to re-evaluate and adjust the corrective action and adjust timelines, as appropriate.

The Project Manager(s) shall ensure that corrective actions are effectively implemented in a timely manner.

Managers, supervisors, and the QAO are responsible for encouraging staff at all levels to establish communications between customers and suppliers, identify process improvement opportunities, and identify and propose solutions to problems.

Table 3. Responsibilities/Authority (Elements 3 through 6)

	PERSONNEL QUALIFICATIONS AND TRAINING ELEMENT 3		PROCUREMENT OF PRODUCTS ELEMENT 4		DOCUMENTS AND RECORDS ELEMENT 5		COMPUTER HARDWARE AND SOFTWARE ELEMENT 6	
Position/Role	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**
SWQB Chief	Ensuring that personnel are trained and qualified.	Require training.	Ensuring the quality of procured products and the quality and integrity of the procurement process.	Approve purchases and contracts for professional services (with the exception of on-going price agreements) and sub-grant agreements.	Ensuring that quality-related documents are identified and controlled.	Approve quality-related documents.	Ensuring that computer hardware and software meet requirements.	Require that computer hardware and software meet requirements.
QA Officer	Documenting that personnel have received the QMP and QAPP; conducting and documenting quality system training; identifying need for training or retraining in cooperation with SME.	Require and provide training.	Ensuring quality requirements are included in proposals and contracts.	Require quality-related documentation to be identified in proposals and contracts.	Identification and control of quality-related documents.	Approve quality-related documents, disseminate to staff, as appropriate and maintain quality related documents in hard copy and electronically.	Advising SWQB Chief of software and hardware capabilities necessary to maintain quality.	
Program Manager	Ensuring that personnel are trained and qualified in quality requirements including procedures and equipment operation.	Require and provide training.	Ensuring that procured products meet quality requirements and that the procurement process is followed.	Approve purchases and contracts for professional services (with the exception of on-going price agreements) and grant applications.	Identification and control of quality-related documents.	Approve quality-related documents and require staff to review them.	Advising SWQB Chief of software and hardware capabilities necessary to maintain quality.	
Project Manager	Ensuring that personnel are trained and qualified in quality requirements including procedures and equipment operation	Require and provide training	Ensuring that procured products meet quality requirements		Identification and control of quality-related documents.	Review quality-related documents and require staff to review them	Advising Program Manager of software and hardware capabilities necessary to maintain quality	

	PERSONNEL QUALIFICATIONS AND TRAINING ELEMENT 3		PROCUREMENT OF PRODUCTS ELEMENT 4		DOCUMENTS AND RECORDS ELEMENT 5		COMPUTER HARDWARE AND SOFTWARE ELEMENT 6	
Position/Role	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**
Bureau and Program Financial Managers	Ensuring that management, and financial and technical personnel understand the process for meeting the internal quality requirements of procurements, and understand the procurement process and other administrative processes.	Require and provide training.	Ensuring the quality and integrity of the procurement process.	Advise management and staff of the requirements of grant applications and work plan deliverables and of the procurement process, and to notify the QAO regarding the quality requirements of items or services listed in procurements.	Identification and control of quality-related documents.	Advise QAO of documents containing quality-related requirements.	Ensuring the quality and integrity of the procurement process.	Advise management and staff of the requirements of the procurement process, and to notify the QAO regarding the quality requirements of items or services listed in procurements.
Technical Staff	Participating in training and advising managers and of needed training.	Notify supervisors of needed training.	Requesting necessary products, following the procurement process and ensuring that products meet specifications and requirements.	Inform Program Manager, Project Manager and QAO when products do not meet specifications or requirements.	Review and maintain knowledge of applicable quality related documents. Identification and control of quality-related documents.	Advise QAO of documents containing quality-related requirements.	Advising Program Manager of software and hardware capabilities necessary to maintain quality.	

Table 4. Responsibilities/Authority (ELEMENTS 7-10)

	PLANNING ELEMENT 7		IMPLEMENTATION OF WORK PROCESSES ELEMENT 8		ASSESSMENT AND RESPONSE ELEMENT 9		QUALITY IMPROVEMENT ELEMENT 10	
Position/Role	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**	**Responsibility for**	**Authority to**
SWQB Chief	Ensuring the systematic planning of environmental data operations.	Require the systematic planning of environmental data operations.	Ensuring that work processes are conducted according to procedures.	Require that work processes are conducted according to approved procedures.	Ensuring the assessment of the quality system.	Require assessment and response.	Ensuring the implementation of quality system improvement activities.	Require the implementation of quality improvement activities.
QA Officer	Participating in the environmental data collection planning process. Providing input on quality related processes.	Approve FSPs, and other quality related documents such as SOPs and QAPPs. Require conformance to the QAPP and SOPs.	Identifying operations needing procedures.	Require that work processes are conducted according to approved procedures.	Implementing quality system assessments.	Conduct quality system assessments.	Identifying and planning quality system improvement activities.	Require implementation of quality system improvement activities.
Program Manager	Participating in the environmental data collection planning process. Draft QAPPs, SOPs and review FSPs in cooperation with technical staff.	Approve FSPs, and other quality related documents such as SOPs and QAPPs.	Identifying operations needing procedures, ensuring conformance to procedures.	Approve procedures and require that work processes are conducted according to approved procedures. Work under approved QMP, QAPP, FSP and SOPs	Participating in and supporting quality system assessments.	Direct staff to participate in and support quality system assessments.	Supporting quality system improvement activities.	Require staff participation in quality system improvement activities.
Project Manager	Participating in the environmental data collection planning process. Draft SOPs and FSPs in cooperation with technical staff. Advise Program Managers on changes to quality related documents such as QAPPs and SOPs.	Prepare SOPs and FSPs. Advise on updates to QAPPs and SOPs. Approve SOPs and QAPPs.	Identifying operations needing procedures, ensuring conformance to procedures.	Require that work processes are conducted according to approved procedures. Work under approved QMP, QAPP, FSP and SOPs	Participating in and supporting quality system assessments.	Direct staff to participate in and support quality system assessments.	Supporting quality system improvement activities.	Require staff participation in quality system improvement activities.
Bureau and Program Financial Managers	Advising Program Manager of grant requirements and limitations.		Ensuring conformance to administrative and procurement procedures.	Approve the release of funds for work to be conducted according to approved procedures. Work under approved				

	PLANNING ELEMENT 7		IMPLEMENTATION OF WORK PROCESSES ELEMENT 8		ASSESSMENT AND RESPONSE ELEMENT 9		QUALITY IMPROVEMENT ELEMENT 10	
				QMP, QAPP, FSP and SOPs.				
Technical Staff	Advising QAO and Program Manager of changes to quality related documents such as QAPPs and SOPs. Preparation of FSPs.	Prepare Field Sampling Plans. Advise on updates to QAPP and SOPs.	Conducting work according to current procedures. Identifying changes needed in procedures.	Advise the Program Manager and QAO regarding changes or improvements to work processes. Work under approved QMP, QAPP, FSP and SOPs.	Advising the Program Manager and QAO of assessment and response opportunities.	Participate in and support quality system assessments.	Supporting quality system improvement activities.	Advise the Program Manager or QAO of quality improvement opportunities.

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Terms and Definitions

assessment – the evaluation process used to measure the performance or effectiveness of a system and its elements. Assessment is an all-inclusive term used to denote any of the following: audit, performance evaluation, management systems review, peer review, inspection or surveillance.

audit (quality assurance) – a systematic and independent examination to determine whether quality assurance activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

Corrective action – any measures taken to rectify conditions adverse to quality assurance.

customer(s)- an entity, organization or person(s) effective directly or indirectly by the action of the NMED SWQB.

data quality assessment – a statistical and scientific evaluation of a data set to determine the validity and performance of the data collection design and statistical test, and to determine the adequacy of the data set for its intended use.

data quality indicator (DQI) – a qualitative or quantitative measure of the conformance of the data to the study requirements. There are two qualitative DQIs: representativeness and comparability. There are four quantitative DQIs: accuracy, precision, completeness and detection limits.

data quality objective (DQO) – a statement of the level of uncertainty (in the data) that is considered acceptable for use in answering the study question.

deficiency – a negative assessment finding (i.e., a nonconformance) that renders the quality assurance of an item or activity unacceptable or indeterminate; nonfulfillment of a specification or standard.

environmental data – any measurements or information that describe environmental processes, location, or conditions; ecological or health effects and consequences; or the performance of environmental technology. For EPA, environmental data include information collected directly from measurements, produced from models, and compiled from other sources such as databases or the literature.

environmental data operations – work performed to obtain, use, or report information pertaining to environmental processes and conditions.

environmental programs – work or activities involving the environment, including but not limited to: characterization of environmental processes and conditions; environmental monitoring; environmental research and development; the design, construction, and operation of environmental technologies; and laboratory operations on environmental samples.

field sampling plan (FSP) – planning document developed for water quality surveys that details the planning process and specific survey plan for all data to be collected as part of the survey; maintained throughout course of project to document deviations and problems and provides the basis for the development of the final water quality survey summary report.

management systems review – the qualitative assessment of a data collection operation and/or organization(s) to establish whether the prevailing quality assurance management structure, policies, practices and procedures are adequate for ensuring that the type and quality assurance of data needed are obtained.

nonconformance – a negative assessment finding of a deviation from standards, specifications, and documented practices, which may be either a deficiency or a weakness.

non-direct measurements – environmental data used in or for decision making, not directly measured or generated by the SWQB.

peer review – a documented critical review of work by qualified individuals (or organizations) that are independent of those who performed the work, but are collectively equivalent in technical expertise. A peer review is conducted to ensure that activities are technically adequate, competently performed, properly documented, and satisfy established technical and quality assurance requirements. The peer review is an in-depth assessment of the assumptions, calculations, extrapolations, alternate interpretations, methodology, acceptance criteria and conclusions pertaining to specific work and of the documentation that supports them.

performance evaluation – a type of audit in which the quantitative data generated in a measurement system are obtained independently and compared with routinely obtained data to evaluate the proficiency of an analyst or laboratory.

procedure – written instructions for performing a task.

process – a set of interrelated resources and activities that transform inputs into outputs.

program manager – An individual within the SWQB that manages a program such as the Monitoring, Assessment and Standards Section (MASS), Watershed Protection Section (WPS) or Point Source Regulation Section (PSRS). The Program Manager may be the same individual as the Subject Matter Expert.

project manager – An individual responsible for a specific project. This individual, in most cases, holds a different title within the organization. The Program Manager and Project Manager are not necessarily synonymous. The Project Manager may be the same individual as the Subject Matter Expert and can include Team Supervisors

product – an item or a service, or a combination of items and services.

quality– conformance to customer requirements.

quality assurance (QA) – the planned and systematic actions that ensure environmental data operations are of the necessary quality (that is, meet customer requirements).

quality assurance project plan (QAPP) – describes the activities of an environmental data operations project involved with the acquisition of environmental information whether generated from direct measurement activities, collected from other sources, or compiled from computerized databases and information systems.

quality control (QC) – the system of technical activities, including data verification and validation procedures, that measures the attributes and performance of a process, item or service against defined standards.

quality management plan (QMP) – a description of the SWQB's quality system for planning, implementing, documenting and assessing the effectiveness of activities supported by the programs administered by the SWQB.

quality system – a structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The quality system provides the framework for planning, implementing, documenting, and assessing work performed by the organization and for carrying out required QA and QC activities. a

quality systems audit – a systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

readiness review – a systematic, documented review of the readiness for the start-up or continued use of a facility, process, or activity. Readiness reviews are typically conducted before proceeding beyond project milestones and prior to initiation of a major phase of work.

sampling analysis plan – a document that details the procedural and analytical requirements for a one-time or time-limited project. A SAP contains all the elements of a QAPP and a FSP that must be provided to meet the requirements for any project funded by the EPA under which environmental measurements are to be taken.

standard operating procedure (SOP) – a written document that details the method for an operation, analysis or action with thoroughly prescribed techniques and steps, and that is officially approved as the method for performing certain routine or repetitive tasks.

subject matter expert (SME) – A person who is familiar with the purpose and procedure for accomplishing a task. The SME may be the same individual as the Project Manager or Program Manager.

surveillance (quality assurance) – continual or frequent monitoring and verification and the analysis of records to ensure that specified requirements are being fulfilled.

technical review – a documented critical review of work that has been performed.

technical systems audit – a thorough, systematic, on-site, qualitative audit of facilities, equipment, personnel, training, procedures, record keeping, data validation, data management, and reporting aspects of a system.

weakness – a negative assessment finding (i.e., a nonconformance) that has the potential to (but does not necessarily) render the quality assurance of an item or activity unacceptable or indeterminate; nonconformance of a specification or standard.