



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

RECEIVED

MAR 05 2019

SURFACE WATER  
QUALITY BUREAU

February 26, 2019

Shelly Lemon  
NMED, Surface Water Quality Bureau  
P. O. Box 5469  
Santa Fe, NM 87502-5469

Dear Shelly Lemon,

The Region 6 Quality Assurance Staff has reviewed and approved your Surface Water Quality Bureau of the New Mexico Environment Department QMP, which was assigned the QTRAK number 19-162. The date of approval is February 26, 2019, and the plan expires on February 26, 2020. I have enclosed a copy of the signature page for your records. If you have any questions or concerns please contact me at 214-665-6477, or I may be reached by email at [senkayi.sala@epa.gov](mailto:senkayi.sala@epa.gov).

Sincerely yours,

A handwritten signature in black ink that reads "Sala N. Senkayi".




Sala N. Senkayi, Ph.D.  
Acting Regional Quality Assurance Manager  
Quality Assurance Officer for Water Division

cc:

Leslie Rauscher, 6WQ-AT

**QUALITY MANAGEMENT PLAN**  
**FOR**  
**NEW MEXICO ENVIRONMENT DEPARTMENT SURFACE WATER QUALITY BUREAU**  
**ENVIRONMENTAL DATA OPERATIONS**  
**March 2019 through March 2020**

**APPROVAL PAGE**

 _____ Shelly Lemon Chief, Surface Water Quality Bureau	<u>2-11-2019</u> Date
 _____ Miguel Montoya Quality Assurance Officer, Surface Water Quality Bureau	<u>2-11-2019</u> Date
 _____ Sala Senkayi, Ph.D. Quality Assurance Manager, USEPA Region 6	<u>2/26/19</u> Date

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## **ABBREVIATIONS and ACRONYMS**

<b>ANSI</b>	American National Standards Institute
<b>ASD</b>	Administrative Services Division
<b>DQI</b>	Data Quality Indicator
<b>DFA</b>	Department of Finance and Administration
<b>DoIT</b>	Department of Information Technology
<b>DPO</b>	Direct Purchase Order
<b>DQO</b>	Data Quality Objective
<b>EPA</b>	United States Environmental Protection Agency
<b>FAM</b>	Financial and Administrative Manager
<b>FSB</b>	Financial Services Bureau
<b>FSP</b>	Field Sampling Plan
<b>GSD</b>	General Services Department
<b>ITB</b>	Invitation to Bid
<b>OIT</b>	Office of Information Technology
<b>JFA</b>	Joint Funding Agreement
<b>JPA</b>	Joint Powers Agreement
<b>MASS</b>	Monitoring, Assessment, and Standards Section
<b>MOA</b>	Memorandum of Agreement
<b>MOU</b>	Memorandum of Understanding
<b>NMED</b>	New Mexico Environment Department
<b>NMSA</b>	New Mexico Statutes Annotated
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>OGC</b>	Office of General Counsel
<b>PSRS</b>	Point Source Regulation Section
<b>QA</b>	Quality Assurance
<b>QAO</b>	Quality Assurance Officer
<b>QAPP</b>	Quality Assurance Project Plan
<b>QC</b>	Quality Control
<b>QMP</b>	Quality Management Plan
<b>RFA</b>	Request for Applications
<b>RFP</b>	Request for Proposal
<b>SLD</b>	Scientific Laboratory Division
<b>SOP</b>	Standard Operating Procedure
<b>SPD</b>	State Purchasing Division
<b>SPR</b>	Standards, Planning and Reporting
<b>SQUID</b>	Surface Water Quality Information Database
<b>SWQB</b>	Surface Water Quality Bureau
<b>WPS</b>	Watershed Protection Section
<b>WQMP/PPP</b>	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 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, applicable NMED staff, stakeholders, and the public and will do so by ensuring that its data collection efforts meet the requirements of 40 CFR 31.45.

EPA has issued Order CIO 2105.0 (formerly Order 5360.1 A2), *Policy and Program Requirements for the Mandatory Agency-wide Quality System* to implement the requirements of 40 CFR 31.45 and other federal regulations. According to the order, 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 American National Standards Institute's (ANSI's) *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs* (ANSI/ASQC E4-1994).

To comply with 40 CFR 31.45 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.

This *Quality Management Plan for New Mexico Environment Department Surface Water Quality Bureau Environmental Data Operations* is based on the ten (10) elements listed in *EPA Requirements for Quality Management Plans*, EPA QA/R-2, March 2001. Following the organization of *EPA Requirements*, Element 1 describes the SWQB's quality policy, the scope of the quality system and the responsibilities of management. Element 2 lists the quality system components. Elements 3 through 10 document the SWQB's quality system. The processes for each element are described in the text. Roles, responsibilities, and authorities for each element are summarized in two tables: Responsibility/Authority Table 1 for Elements 3 through 6; and Responsibility/Authority Table 2 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* requires 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 quality system are to ensure quality in the work processes and products of the SWQB. 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.

The planned and systematic actions that ensure environmental data operations are of sufficient quality to meet customer requirements are called Quality Assurance (QA). Quality Assurance 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.

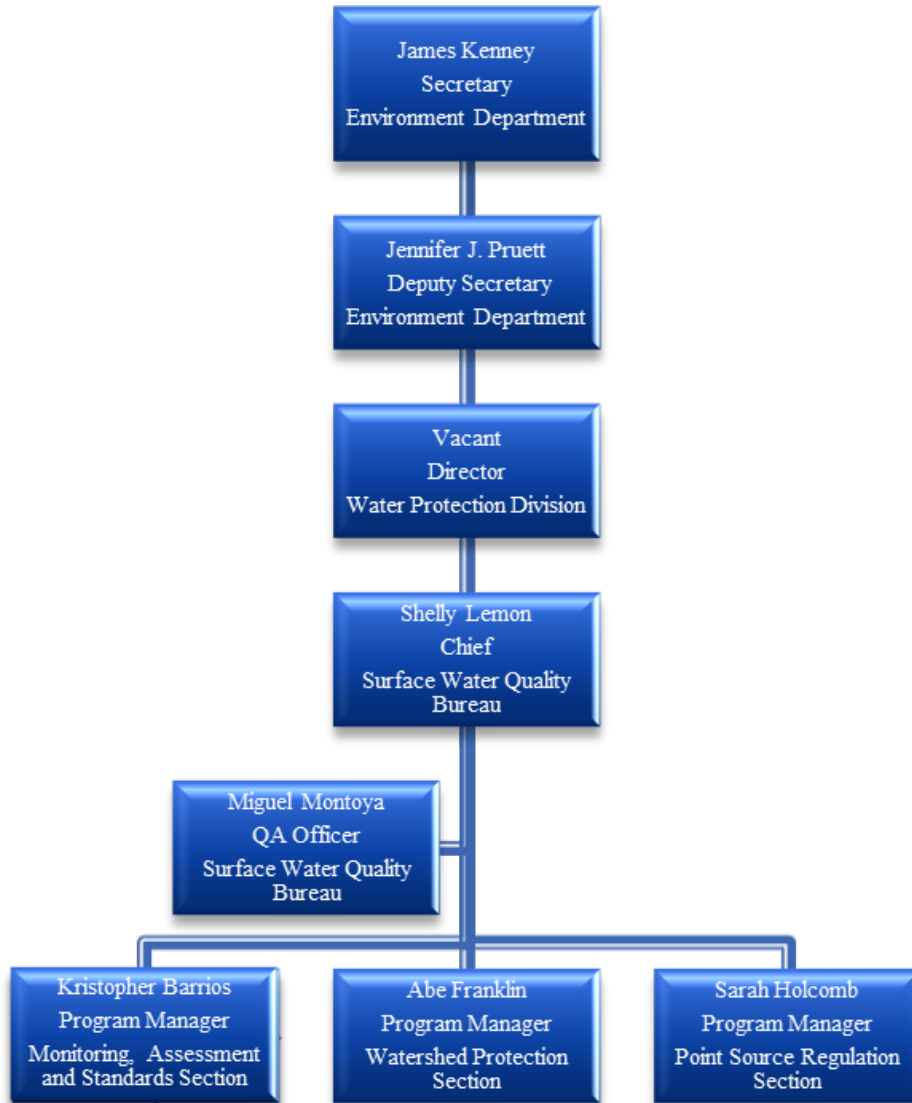
### **Policy on Quality Assurance**

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**

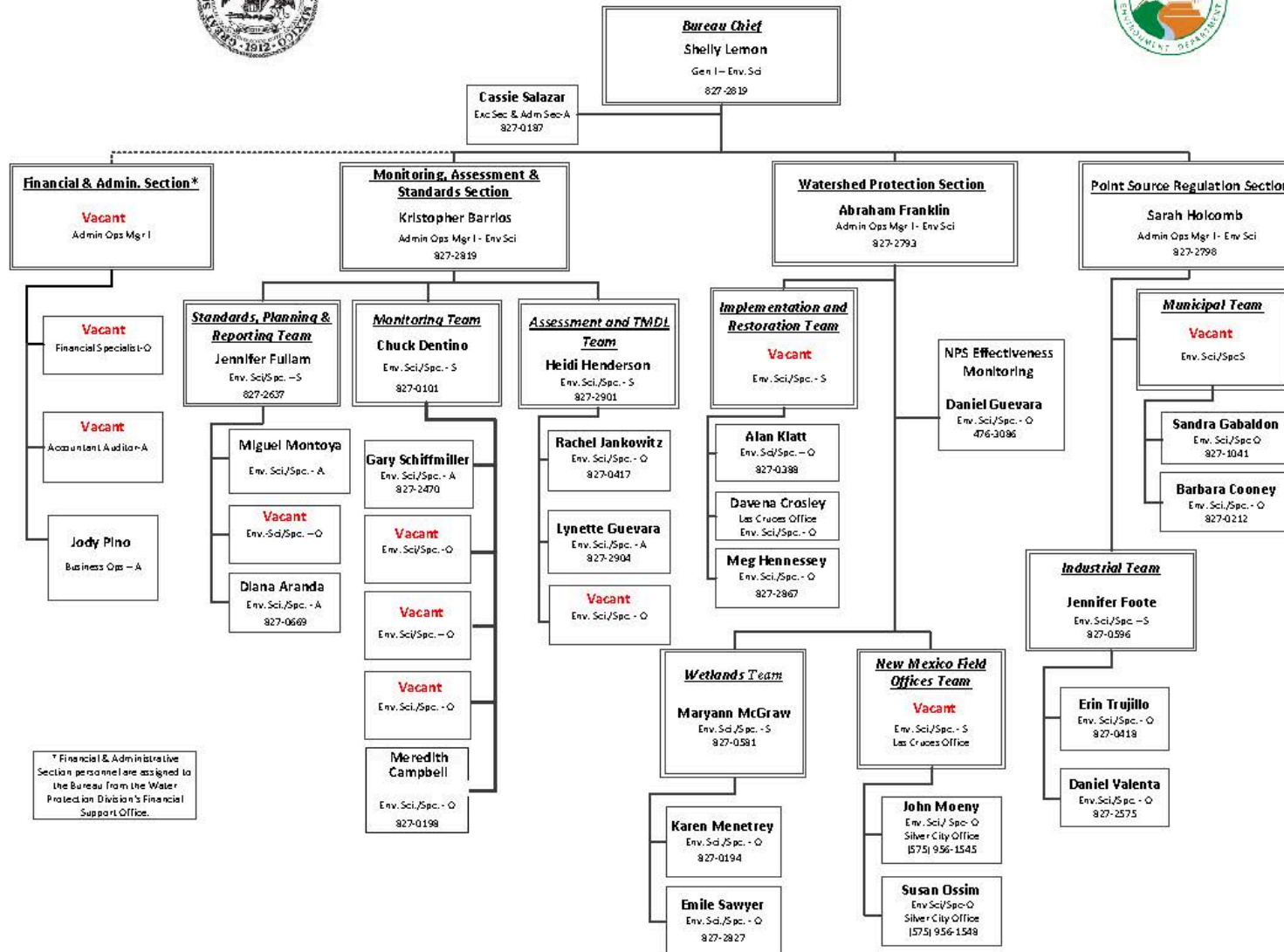
Figure 1.1 shows the management structure of the SWQB in relationship to the NMED and documents the independence of the QA Officer (QAO) from SWQB sections which generate data. Figure 1.2 shows the SWQB organizational structure including staff positions assigned to offices outside of Santa Fe.

**Figure 1.1 Management Structure of the SWQB**





## New Mexico Environment Department Surface Water Quality Bureau





## **Authorities 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-related training. The QAO is 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 requirements in proposals, work plans, and contracts; and to require persons or organizations that collect environmental data, including contractors, to conform to the applicable QAPP.

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, and 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.

### **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 2.1. The primary positions that are responsible for the implementation of the quality system components are also listed in Table 2.1. 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 Standard Planning and Reporting Team (SPR). 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* and reviews project-specific QAPPs.

**Table 2.1 Quality System Components**

<b>Quality System Component</b>	<b>Implementation Tool</b>	<b>Responsible Position</b>
Quality Planning	QMP, QAPPs	QA Officer
Quality Training	Training Plan	QA Officer, Subject Matter Expert(s)
Quality Implementation	Assignment of Tasks	Bureau Chief, Program Manager(s), Project Manager(s), and Team Supervisors
Quality Documentation	SOPs	QA Officer, Program Manager(s), and Subject Matter Expert(s)
Quality Assessment	Quality System Assessments	QA Officer

### **ELEMENT 3. PERSONNEL QUALIFICATION AND TRAINING**

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

It is the policy of the SWQB that personnel who perform environmental data operations have sufficient training and qualifications to accomplish their work. This is generally acquired through internal and external training and certification and, for all newly hired personnel, a period of apprenticeship by experienced staff in data collection efforts.

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 be seeking certification in Quality Project and Program Management from EPA or a certification of equivalent measure. The QAO documents that personnel are familiar with the requirements of the SWQB's QMP and the *QAPP for Water Quality Management Programs* 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 *QAPP for Water Quality Management Programs*.

Personnel are encouraged 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* and the *State of New Mexico Ground and Surface Water Protection* regulations, as appropriate to their respective job duties and cross-training opportunities, to ensure proper implementation of surface water quality management programs.

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

The need for training or retraining to maintain quality-based qualifications is identified by communication with staff, observation of work processes, and QA assessments or audits. An annual training for field data collection is organized by Program Manager(s) or Project Manager(s) with oversight from the QAO. The training focuses on specific chapters of the SWQB SOP 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 quality of procured products and the quality and integrity of the procurement process. For all procurements, if there are quality requirements 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 may involve the participation of three other departments: the Department of Finance and Administration (DFA), the General Services Department (GSD), and the Department of Information Technology (DoIT). Within NMED, procurements may need the review and approval of the Administrative Services Division (ASD), the Office of Information Technology (OIT) 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 annotated, 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 Financial and Administrative Manager (FAM) works with the Bureau Chief, Program Manager(s), and Project Manager(s) to ensure that grant applications meet both EPA and SWQB requirements. Some of the grant objectives and outcomes described in the work plan are completed by the SWQB and some 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 (PO), 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 award ("sub-grant") to another entity for the purpose of 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 describe environmental monitoring supported by EPA funds shall indicate that the work will be conducted under an EPA-approved QAPP. If the project includes monitoring not described in the SWQB's *QAPP for Water Quality Management Programs*, then the sub-grant recipient or contractor must develop or provide a project-specific QAPP for EPA approval.

### **Procurement of Services – Contracts**

The SWQB may need to procure professional or general services to achieve its mission. If the proposed service 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 will be for less than \$50,000 for professional services or less than \$60,000 for general services, informal competitive proposals are solicited. The contract must be routed through the SWQB finance team and ASD for processing, and the contract will require final approval by DFA for professional services or SPD for general services. Procurement for professional service contracts equal to or over \$50,000 is conducted by NMED and procurement for general services contracts equal to or over \$60,000 is conducted by SPD through a formal RFP process with sealed competitive proposals. Other methods of procurement exist such as emergency (13-1-127), Sole Source (13-1-126), Existing Contracts (13-1-129),

and Exceptions (13-1-98). All such procurements are routed through the SWQB finance team and ASD for processing.

In most cases, the Program Manager(s) or the Project Manager(s), the FAM or the Contract Specialist, and if necessary the QAO 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), the proposed contract is routed through the contractor, the Program Manager(s), the Contract Specialist, the FAM, the Bureau Chief, and the Department's ASD and OGC for approval by the Secretary of Environment, prior to approval by DFA. If SPD conducts the RFP (i.e. for general services), the final contract will be routed through the contractor, the Program Manager(s), the Contract Specialist, the FAM, the Bureau Chief, and the Department's ASD and OGC for approval by the Secretary of Environment, prior to approval by SPD. Purchase documents must be approved by DFA.

Upon receipt of the contract deliverables and draft invoice, technical personnel review the deliverables to assure that contract requirements are met. If the deliverables do not meet contract requirements, the contractor is notified in writing of the deficiencies of their invoice or deliverables. If the deliverables meet the contract requirements, the technical staff member provides a 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 finance 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 \$20,000, the purchase can be completed using a direct Purchase Order (PO) based on the evaluation of three bids, with final approval from NMED's Administrative Services Division, as well as DFA if over \$5,000. If the cost \$20,000 or greater, the State Purchasing Division (SPD) of GSD issues an Invitation to Bid (ITB) and provides final approval. In some cases, Statewide Price Agreements may be available for use by NMED.

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 FAM that payment should be approved.

**Table 4.1 Summary of the Procurement Process**

Type	Description	\$ Range	Approving Agency			Process	Examples	For Use By
			NMED	GSD	DFA			
Items*	Small Purchase	< 20K	X		X	PO (3 Quotes)	Furniture	Bureau
Items*	Large Purchase	≥ 20K	X	X	X	ITB	Equipment ≥ \$20K	Bureau
Items* & Services	Ongoing Price Agreement	Unlimited		X			Office Supplies, Contract Laboratory Services	Multiple Agencies
Services	Small Professional Services Contract	< 50K	X		X	PO (3 Quotes)	One-time Contract Sampling	Bureau
Services	Small General Services Contract	< 60K	X	X		PO (3 Quotes)	One-time Field Crew Training	Bureau
Services	Professional Services Contract	≥ 50K	X		X	RFP	One or Multiple Vendors	Department
Services	Professional Services Contract	≥ 50K	X		X	RFP	One or Multiple Vendors	Multiple Agencies
Services	General Services Contract	≥ 60K	X	X		RFP	Tetra-Tech, River Stewardship Program Contracts	Multiple Agencies

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

### Sub-grant Agreements

The SWQB also conducts competitive project development processes using Solicitations for Applications (SFAs) in which public agencies and community-based organizations may submit applications for sub-grants. Sub-grant 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 committee. Finalist applicants are asked to submit revised applications addressing any concerns of the evaluation committee. Revised applications are adapted into project work plans for review and approval by EPA and for attachment to a resulting sub-grant agreement. Sub-grant agreements are routed through the sub-grant recipient, the Program Manager(s), the Contract Specialist, the FAM, the Bureau Chief, and OGC for final approval by the Cabinet Secretary. The SWQB currently awards sub-grants for watershed-based planning projects and watershed implementation projects supported with Clean Water Act Section 319 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 finance 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. 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 and 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-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-related documents include the QMP, QAPPs, documents for planning sample collection such as FSPs, and associated SOPs and protocols, and quality assurance elements found in some contracts. Quality-related documents may also include documents from customers and suppliers.

The QAO is responsible for identifying quality-related documents. For procedures, protocols, and some contracts, the QAO works with the Program Manager(s), Project Manager(s) or the FAM to identify 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, or upon major changes in mission and responsibilities or 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 applicable Program Manager(s) and staff. After review and approval by the Bureau Chief and the QAO, a signed copy is forwarded to the EPA Quality Assurance Officer for review and approval.

The QAO reviews, and approves applicable QAPPs, FSPs and SOPs (both internal as well as external) for data collection activities for the SWQB. The QAO may also review supplier-provided quality 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.

As described in Element 4, contracts and other agreements are reviewed by the Program Manager(s), the Contract Specialist, the FAM, and the Bureau Chief. If there are quality requirements, the QAO also reviews these documents. The appropriate Program Manager(s) and the Bureau Chief are responsible for technical approval of RFPs, RFQs, SFAs, ITBs and direct POs and resulting contracts and other agreements.

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

The QAO maintains a physical hard copy and electronic copy on the NMED server, which is backed up daily, of all quality related documents. 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 the Department of Information Technology (DoIT) and Office of Information Technology (OIT) of NMED 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 purchase of the 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. Access to SQUID is restricted only to staff with permission as approved by the database manager. Most of the processes for accomplishing this are controlled by OIT through the NMED network. Managers and staff are responsible for using the software, and becoming familiar with any updates or changes to the software applications. Raw instrument data files, ancillary field observations, photographs and other forms of data not stored in SQUID 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.

Program Manager(s) and 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 Quality Manual for Environmental Programs* (CIO 2105-P01-0). The *Planning Process* identifies and describes the process for the involvement 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 objectives.

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;
- 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 FSP, QAPP or SAP.

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

For most data collection activities, a planning process is implemented to identify the needs and scope of work to be conducted and to identify the applicable quality assurance and quality control mechanisms. The SWQB has identified the elements required for the planning process in the SWQB's *QAPP for Water Quality Management*, the *SOP for Field Sampling Plan Development and Execution* as well as in the *Planning Process* section of this QMP. The SWQB's *QAPP for Water Quality Management Programs* is reviewed and approved by the Bureau Chief, QAO and EPA. The QAPP can be approved for up to 36 months, however, should there be any changes which affect the quality of data at any time, a revised QAPP must be submitted to EPA for review and approval.

For water quality ambient/assessment monitoring, watershed protection projects and effectiveness monitoring, the SWQB *QAPP for Water Quality Management Programs* requires an FSP. The quality of the data collected under the FSP is assured by following the SWQB's established SOPs and the *QAPP for Water Quality Management Programs*.

Monitoring for enforcement purposes and incident-spill response do not require an FSP because details of the planning process are outlined in *SWQB QAPP for Water Quality Management Programs*. Although an FSP is not required, it must be verified with the QAO that the SWQB's *QAPP for Water Quality Management Programs* and SWQB SOPs cover the specific data collection activities to assure the quality of the data that is being planned to be collected.

Data is also collected during National Pollutant Discharge Elimination System (NPDES) permit compliance evaluations without an FSP. Each year EPA coordinates with the PSRS to identify inspections that will be conducted by the PSRS or EPA. NPDES compliance inspections are carried out in accordance with the SWQB *QAPP for Water Quality Management Programs* and EPA's *NPDES Compliance Inspection Manual* which is an inspection support tool. See the Sampling Design Process section of the *QAPP for Water Quality Management Programs* for additional information on the PSRS planning process.

Data collection activities pertaining to Hydrology Protocol surveys are done in accordance with the SWQB *QAPP for Water Quality Management Programs*, 20.6.4.15 NMAC and Appendix C of the SWQB WQMP/CPP.

Data collected for purposes other than those described in the *QAPP for Water Quality Management Programs* or from other sources that might not have the same quality controls as data collected under the *QAPP for Water Quality Management Programs* are evaluated based on the intended use. The QAO is authorized to make a determination regarding whether or not the data quality is adequate for the proposed use or decision.

## **ELEMENT 8. IMPLEMENTATION OF WORK PROCESSES**

**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*, 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 prior to implementing. The QAO and Program Manager(s) will update the quality assurance document as applicable 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 procedure is 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 SWQB QAO will assess a portion of the quality system periodically as resources allow. The assessment may be either a management or technical assessment. The SWQB QAO may use one of a number of assessment tools including: quality systems audits; management systems reviews; peer reviews; technical reviews; performance evaluations; data quality assessments; readiness reviews; technical systems audits; and surveillance. Whatever portion of the quality system or tool that is selected, the results of the assessment will be reported to the Bureau Chief.

Once the specific management or technical area to be assessed has been identified, the specific tool, the frequency of assessments, and roles and responsibilities of the assessors will be selected.

The level of competence, experience, and training needed for the assessment personnel will depend on the area that is assessed and tool that is used. The QAO will take steps to ensure that personnel conducting assessments have no real or perceived conflict of interest, and have no direct involvement or responsibility for the work that is being assessed. The QAO will also attempt to ensure that the personnel conducting the assessments have the necessary authority, access to programs and managers, access to documents and records, and freedom to pursue quality-related issues.

The process for management review and response, for identifying how and when corrective actions will be taken in response to assessment findings, and for the resolution of disputes will be developed as the specifics of the assessment are developed.

## **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 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 will be reported to the QAO and appropriate Project Manager(s). The QAO ensures that 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 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 1. RESPONSIBILITY/AUTHORITY (Elements 3 through 6)**

	<u>PERSONNEL QUALIFICATIONS AND TRAINING</u>		<u>PROCUREMENT OF PRODUCTS</u>		<u>DOCUMENTS AND RECORDS</u>		<u>COMPUTER HARDWARE AND SOFTWARE</u>	
	ELEMENT 3		ELEMENT 4		ELEMENT 5		ELEMENT 6	
<b>Position/Role</b>	<b>Responsibility for</b>	<b>Authority to</b>	<b>Responsibility for</b>	<b>Authority to</b>	<b>Responsibility for</b>	<b>Authority to</b>	<b>Responsibility for</b>	<b>Authority to</b>
<b>SWQB Chief</b>	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.
<b>QA Officer</b>	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.	
<b>Program Manager</b>	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.	
<b>Project Manager</b>	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	
<b>Financial and Administrative Manager</b>	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.
<b>Technical Staff</b>	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 2. RESPONSIBILITY/AUTHORITY (ELEMENTS 7-10)**

Position/Role	<u>PLANNING</u>		<u>IMPLEMENTATION OF WORK PROCESSES</u>		<u>ASSESSMENT AND RESPONSE</u>		<u>QUALITY IMPROVEMENT</u>	
	ELEMENT 7		ELEMENT 8		ELEMENT 9		ELEMENT 10	
	Responsibility for	Authority to	Responsibility for	Authority to	Responsibility for	Authority to	Responsibility for	Authority to
<b>SWQB Chief</b>	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.
<b>QA Officer</b>	Participating in the environmental data collection planning process. Providing input on quality related processes.	Approve Field Sampling Plans, 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.
<b>Program Manager</b>	Participating in the environmental data collection planning process. Draft QAPPs, SOPs and review FSPs in cooperation with technical staff.	Approve Field Sampling Plans, 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.	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.
<b>Project Manager</b>	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.	Identifying operations needing procedures, ensuring conformance to procedures.	Require that work processes are conducted according to approved procedures.	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.
<b>Financial and Administrative Manager</b>	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.				
<b>Technical Staff</b>	Advising QAO and Program Manager of changes to quality related documents such as QAPPs and SOPs. Assist with 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 SOP.	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.

## 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)** – 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.

**corrective action** – any measures taken to rectify conditions adverse to quality.

**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 of an item or activity unacceptable or indeterminate; nonfulfillment of a specification or standard.

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

**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 management structure, policies, practices and procedures are adequate for ensuring that the type and quality 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.

**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 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** – an assemblage of related elements comprising a unified whole that is intended to ensure quality in an organization's work processes and products. The quality system includes planning, implementing, documenting and assessing work performed by the organization.

**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.

**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)** – 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 of an item or activity unacceptable or indeterminate; nonconformance of a specification or standard.