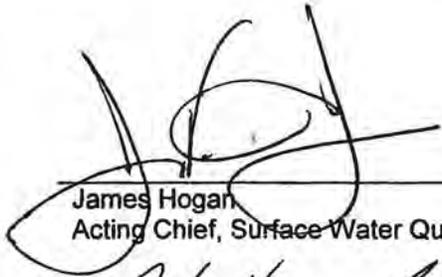


QUALITY MANAGEMENT PLAN
FOR
NEW MEXICO ENVIRONMENT DEPARTMENT SURFACE WATER QUALITY BUREAU
ENVIRONMENTAL DATA OPERATIONS
2013

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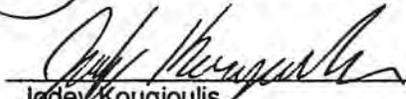
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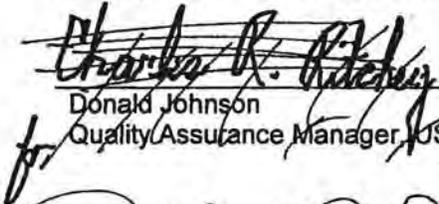
James Hogan
Acting Chief, Surface Water Quality Bureau

6.13.12
Date



Jodey Kougioulis
Quality Assurance Officer, Surface Water Quality Bureau

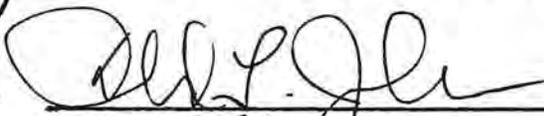
6/13/12
Date



Donald Johnson
Quality Assurance Manager, USEPA Region 6

~~June 18, 2012~~
Date

Approved



Donald Johnson
Quality Assurance Manager - US Region 6

7/10/12
DATE

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INTRODUCTION

The mission of the New Mexico Environment Department Surface Water Quality Bureau 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 Surface Water Quality Bureau (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). Both because of the Bureau's need to ensure that its data collection efforts meet the requirements of the EPA and other customers, and because of requirements found at 40 CFR 31.45, the SWQB is committed to developing and maintaining a quality system.

EPA has issued 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 Standard ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*.

To comply with 40 CFR 31.45 and meet the requirements of EPA Order 5360.1 A2, 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 elements listed in *EPA Requirements for Quality Management Plans*, EPA QA/R-2, March 2001. Following the organization of *EPA Requirements*, element one describes the Bureau's quality policy, the scope of the quality system and the responsibilities of management. Element two lists the quality system components. Elements three through ten document the Bureau's quality system. The processes for each element are described in the text. Roles, responsibilities, and authorities for each element are shown in two tables: Responsibility/Authority Table 1 for elements three through six; and Responsibility/Authority Table 2 for elements seven through ten.

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;
- reorganization 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 Surface Water Quality Bureau's quality system.

The general objectives and goals of the quality system are to ensure quality in the work processes and products of the Surface Water Quality Bureau. The quality system includes planning, implementing, documenting, and assessing work performed by the Bureau. The Bureau 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 Surface Water Quality Bureau 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 Surface Water Quality Bureau in relationship to the New Mexico Environment Department (NMED). Figure 1.2 shows the Bureau organizational structure including staff positions assigned to offices outside of Santa Fe.

Figure 1.1 Management Structure of the SWQB

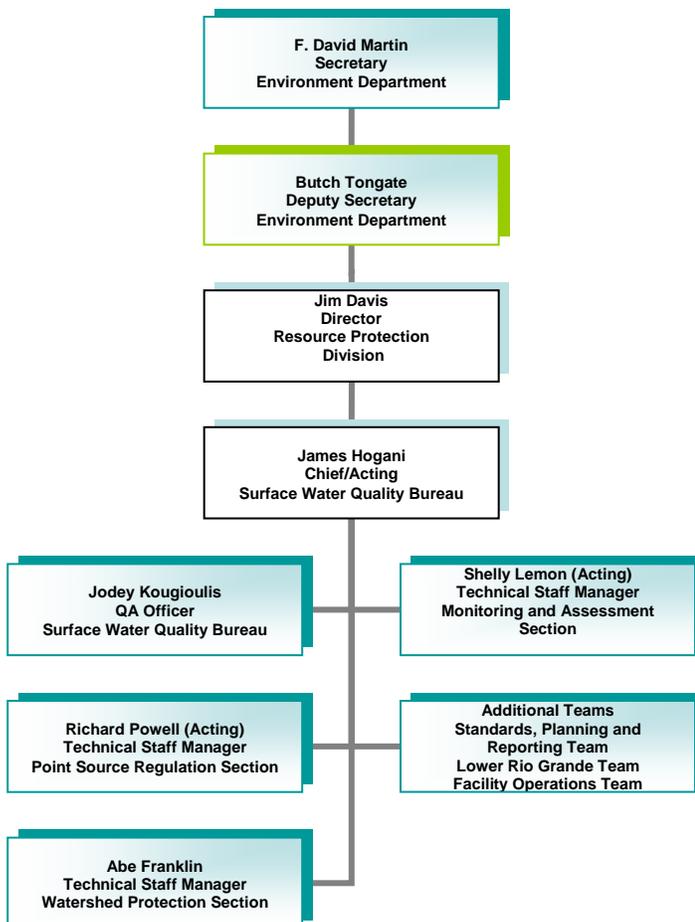
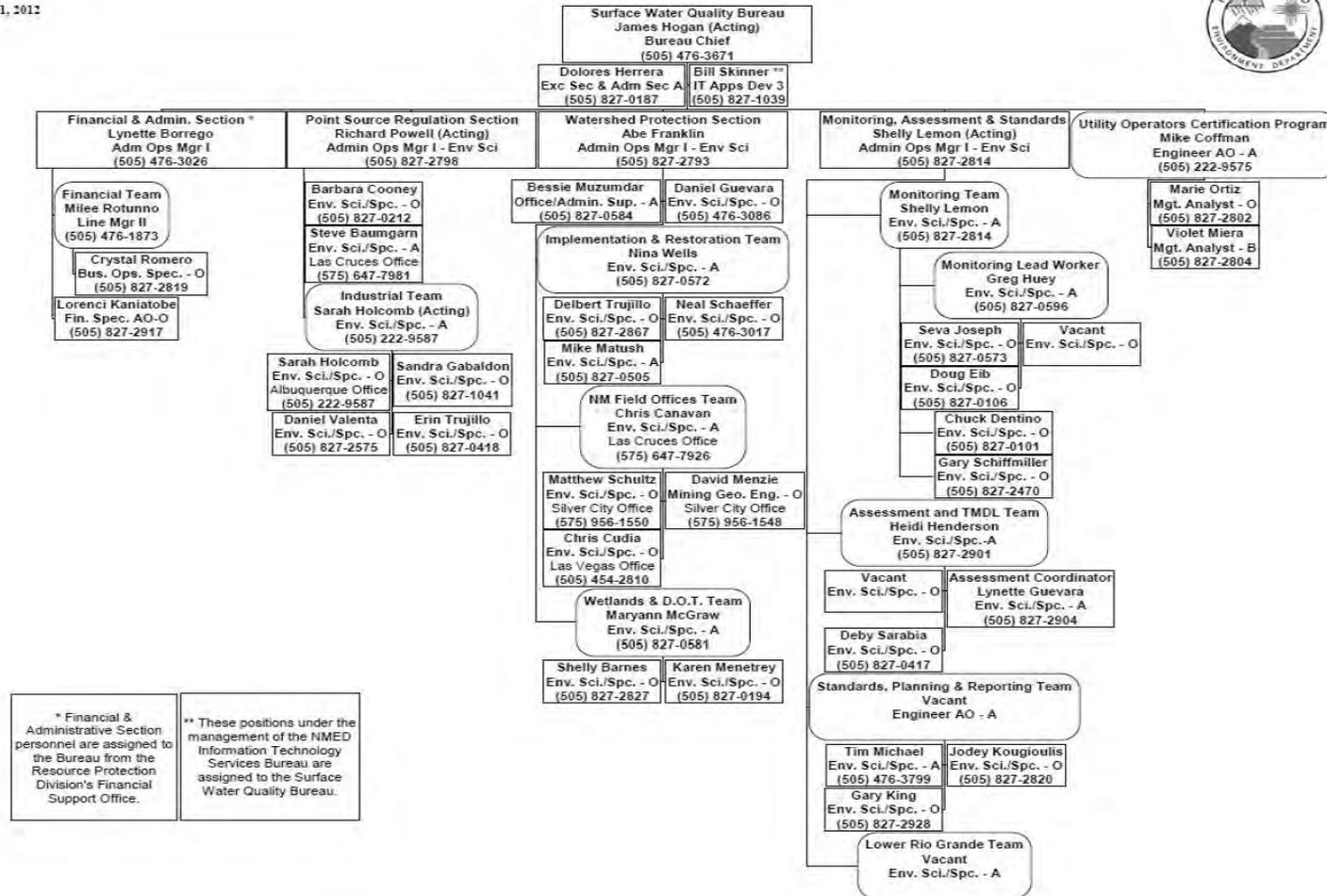


Figure 1.2 SWQB Organizational Chart
June 2012

May 21, 2012

Surface Water Quality Bureau



* Financial & Administrative Section personnel are assigned to the Bureau from the Resource Protection Division's Financial Support Office.

** These positions under the management of the NMED Information Technology Services Bureau are assigned to the Surface Water Quality Bureau.

Authorities of QA Officer

The SWQB QA Officer (QAO) has the authority for planning, assessing, and improving the Bureau'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 QC data and for the review of new or of alternative methods and procedures for conducting environmental data operations. 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 leader of the Standards, Planning, and Reporting (SPR) Team. SPR Team members support the QAO as needed. For the purposes of quality assurance, the QAO reports to the Bureau Chief. The QAO communicates with New Mexico Environment Department senior management through the Bureau Chief.

Technical activities or programs that require quality management

The Surface Water Quality Bureau is comprised of three technical sections: the Point Source Regulation Section (PSRS), the Watershed Protection Section (WPS) and the Monitoring and Assessment Section (MAS). Three additional teams report directly to the Bureau Chief: the Standards, Planning and Reporting Team, the Lower Rio Grande Team, and the Facility Operations Team. 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

Technical staff managers, 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 the table below. The primary positions that are responsible for the implementation of the quality system components are also listed in the table. 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. The QMP describes the quality system for planning, implementing, documenting, and assessing the effectiveness of activities supporting the programs administered by the bureau. The QMP is reviewed and approved by the Bureau Chief, Technical Staff Managers (TSMs), and EPA. The QAO also develops the Bureau QAPP and reviews project QAPPs.

Table 2.1 Quality System Components

Quality System Component	Implementation Tool	Responsible Position
Quality Planning	QMP, QAPPs, PQAPP's	QA Officer
Quality Training	Training Plan	QA Officer
Quality Implementation	Assignment of Tasks	Bureau Chief, TSM
Quality Documentation	QMP	QA Officer
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 Surface Water Quality Bureau 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 documents that personnel are familiar with the requirements of the QMP and the QAPP either with documented training or with a signed "SWQB Acknowledgement Statement" that acknowledges receipt and understanding of the documents. Also, at appropriate intervals, the QA Officer may conduct training to familiarize managers, Team Leaders, Project Coordinators and staff with changes to the QMP and the QAPP.

Personnel are also required to be familiar with the *Statewide Water Quality Management Plan* and *Continuing Planning Process* and the *State of New Mexico Standards for Interstate and Intrastate Surface Waters*.

The TSMs and team leaders 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.

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 Surface Water Quality Bureau procures products (items and services) in order to provide the materials and capabilities needed to accomplish its mission. The Bureau 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 should be consulted.

The New Mexico Environment Department (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 Information Technology Division (ITD) and the Office of General Counsel (OGC).

SWQB follows procurement procedures in accordance with the New Mexico Procurement Code, Sections 13-1-28 through 13-1-199 NMSA 1978. 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 grant funding. The Financial and Administrative Manager (FAM) works with the Bureau Chief, TSMs, and Project Coordinators to ensure that grant applications meet both EPA and SWQB requirements. Some of the deliverables described in the workplan are completed by the SWQB and some are completed by contractors or outside organizations.

Requests for Proposals and project workplans that describe environmental monitoring supported by EPA funds should indicate that the work will be conducted under an EPA-approved QAPP. If the work includes monitoring not described in the SWQB QAPP, then the contractor will develop or provide a QAPP for EPA approval.

Procurement of Items

The SWQB purchases items needed to accomplish the Bureau mission. If the item is new or involves a change to the specifications of an existing item, and if the use of the item could influence the quality of environmental programs or data, it may be necessary to communicate with other technical staff, the TSM and the QAO as the specifications are being developed. After developing technical specifications and cost estimates, the proposed purchase is sent to the TSM and Bureau Chief for approval. The TSM or the BC 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 TSM 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 (DPO) based on the evaluation of three bids, with final approval from the Administrative Services Division of NMED. If the cost \$20,000 or greater, the State Purchasing Division of GSD issues an Invitation to Bid (ITB) and provides final approval.

Technical personnel evaluate the received item for conformance to requirements and specifications. If it conforms to the technical requirements and specifications, the technical staff member communicates to the TSM or the FAM that payment should be approved. The item should 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

The Bureau may require the ongoing procurement of products, including items and services. Depending on the procurement, the Bureau 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, it may be necessary to communicate with technical staff, the TSM and the QAO 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 State Purchasing Division will issue an Invitation to Bid (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 State Purchasing Division 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 contract requirements, the technical staff member communicates to the TSM or the FAM that payment should be approved.

Procurement of Services

The Bureau may require contractual services in order to accomplish its mission. If the proposed service could influence the quality of environmental programs or data, technical staff, the TSM and the QAO should be involved in the development of the contract.

If the contract will be for less than \$50,000, the Bureau can prepare DPO, based on the evaluation of three bids from suppliers of the service. The contract will require the final approval of DFA. If it is for \$50,000 or more, NMED can either conduct a Request for Proposal (RFP) or ask the State Purchasing Division to conduct the RFP. The State DFA can also conduct the RFP.

In most cases, the TSM or the Project Coordinators, the FAM and if necessary the QAO participate in the preparation and technical evaluation of the RFP. The technical evaluation should 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 for verification of the supplier's conformance to quality requirements.

If NMED conducts the RFP, the proposed contract is routed through the TSM, the Bureau Chief and the Department Administrative Services Division (ASD) for approval. The contract must be approved by DFA. The contract will be available for use by all agencies within NMED.

If the State Purchasing Division conducts the RFP, the final contract will be issued between NMED and the contractor and the contract may be available for multiple agencies. Purchase documents must be approved by DFA.

Upon receipt of the contract deliverables, technical personnel review the deliverables to assure that contract requirements are met. If the deliverables do not meet contract requirements, the contractor should be notified in writing or by email. If the deliverables meets the contract requirements, the technical staff member communicates to the TSM or the FAM that payment should be approved.

Other Agreements

The Bureau may also engage in a Joint Powers or Joint Funding Agreement (JPA or JFA) or a Memorandum of Understanding or Memorandum of Agreement (MOU or MOA) with another governmental agency. 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. The SWQB and the SLD, as representatives of agencies of the State of New Mexico, communicate their requirements through annual negotiations and interim meetings. The Bureau maintains a JFA with the US Geological Survey. Requirements are determined at the initiation of the JFA and reviewed annually. 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 Secretaries or their designees. If any of these or agreements or the products of these agreements may influence the quality of environmental programs or environmental data, then the agreements should be reviewed by the QAO.

Table 4.1 Summary of the Procurement Process

Type	Description	\$ Range	Approving Agency			Process	Examples	For Use By
			NMED ¹	GSD ²	DFA ³			
Items	Small Purchase	< 20K	X		X	DPO (3 Quotes)	Furniture	Bureau
Items	Large Purchase	≥ 20K	X	X	X	ITB	Equipment ≥ \$20K	Bureau
Items & Services	Ongoing Price Agreement	Unlimited		X		ITB / RFP	Office Supplies, Contract Laboratory Services	Multiple Agencies
Services	Small Professional Services Contract	< 50K	X		X	DPO (3 Quotes)	One-time Contract Sampling	Bureau
Services	Professional Services Contract	≥ 50K	X	X	X	RFP	One or Multiple Vendors	Department
Services	Professional Services Contract	≥ 50K	X	X	X	RFP	One or Multiple Vendors	Multiple Agencies
Services	Professional Services Contract	≥ 50K	X	X	X	RFP	Tetra-Tech, RERI Contracts	Multiple Agencies

¹NMED/ASD (Administrative Services Division)

²GSD/SPD (State Purchasing Division)

³DFA (Department of Finance and Administration)

*Computer-related items may require review by NMED ITD or the Department of Information Technology

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 should meet either the requirements of the Bureau 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 and associated procedures and protocols, and some contracts. Quality-related documents may also include documents from customers and suppliers.

The QAO is responsible for identifying quality-related documents. For procedures, assessment protocols, and some contracts, the QAO works with the TSMs or the FAM to identify quality-related documents.

The QAO develops, reviews, and approves the QMP and the QAPPs. The QAO may review supplier-provided quality documentation, such as the SLD QAPP. The QAO and the appropriate TSM work together to review sample collection planning documents, procedures, and assessment protocols.

As described in Element 4, RFPs and resulting contracts are reviewed by the TSM and the FAM. If there are quality requirements, the QAO also reviews these documents. The appropriate TSM and the Bureau Chief are responsible for approval of RFPs and resulting contracts.

Quality-related documents are revised as required (annually in the case of the QMP and the QAPP) based on the review and comment from the QAO, the TSMs and appropriate staff members.

The QAO prepares the QMP and the Bureau QAPP, based on consultations with management 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 process for the preparation and approval of QAPPs is similar.

The QAO distributes the QMP and the QAPP to all TSMs and staff and evaluates conformance to QMP and QAPP requirements. The QAO documents receipt and understanding of the QMP and the QAPP.

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 Information Technology Division (ITD) of NMED to ensure that computer hardware and software meet 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 ITD 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 ITD 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 does not develop computer software. In the past, SWQB staff developed a database (the SWQB Water Quality Database) in Microsoft Access which has since been replaced with the Environmental Database Analysis System (EDAS) which now stores surface water quality data. At the present time, ITD has taken over development and management of the database. With the exception of special purpose software, ITD is responsible for installing, testing, maintaining, controlling and documenting software. Most of the processes for accomplishing this are controlled by ITD 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. ITD and TSMs evaluate changes to user requirements and evaluate the effects of changes in hardware and software on the performance of users.

TSMs 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 application programs. New data may include a new document produced using an application such as Microsoft Word, or new spreadsheet using an application such as 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.

Application and Relationship to QAPP

For most data collection activities, a Field Sampling Plan (FSP) should be prepared. For routine water quality surveys, the quality of the data collected under the FSP is assured by the Bureau QAPP. For projects that are not routine water quality surveys, a project-specific FSP and a Project QAPP (PQAPP) should be prepared. In some cases, it may be possible to combine the FSP and QAPP or PQAPP into one document. Whether or not the data collection activity is a routine water quality survey, data collection activities should be planned according to this or a similar process and the result of the planning process should be a FSP. Although the planning process described in this element and the Bureau's Standard Operating Procedure (SOP) 2.1, *Development of Field Sampling Plan* is designed to apply to data collection activities conducted by MAS as part of a water quality survey, the process applies to other data collection activities and investigations.

MAS conducts the majority of SWQB data collection operations as part of water quality surveys, although MAS may collect data for other investigations or for other sections of the SWQB. For limited scope and relatively straightforward investigations conducted by MAS, it may not be necessary to use the full planning process. However, it should be verified that the Bureau QAPP covers the non-routine investigation; that is, that the Bureau QAPP is sufficient to assure the quality of the data that is collected. If the data quality is not assured by the Bureau QAPP, then a project-specific PQAPP should be prepared.

The WPS may collect data as part of restoration activities or wetlands investigations, and the Lower Rio Grande Team may collect data for investigations of conditions in the Lower Rio Grande. The PSRS may collect data during National Pollutant Discharge Elimination System (NPDES) inspections. NPDES inspections are scheduled according to the NPDES inspection plan and are conducted according to protocols listed in the EPA *NPDES Compliance Inspection Manual*. The planning process, including the preparation of a Field Sampling Plan, applies to these data collection activities.

Water Quality Survey Planning

The planning of data collection operations for water quality surveys begins with the preparation of the project workplans, or is based on the SWQB *Surface Water Quality 10-year Monitoring and Assessment Strategy* (the *Strategy*).

Typically, project work plans list:

- the sponsoring and implementing organizations (normally the EPA and the SWQB, respectively),
- the SWQB contact,
- the project description,
- the project budget,
- the expected results and outcomes,
- the expected accomplishments and products, and
- a proposed plan for internal and external review and comment, for posting of the results on the SWQB website, or for presentation to a public audience as appropriate.

Based on the workplan, technical personnel complete the *Planning Process for Environmental Data Collection Activities* (the *Planning Process*) and prepare a Field Sampling Plan (FSP). The Planning Process and the FSP development process are described in greater detail in SOP 2.1 *Development of Field Sampling Plan*.

Data collected for purposes other than those described in a FSP or from other sources that might not have the same quality controls as data collected under a FSP is evaluated based on its intended use. The TSM and the QA officer are authorized to make a determination regarding whether or not the data quality is adequate for the proposed use or decision.

Planning Process for Environmental Data Collection Activities

The *Planning Process* is based on the Elements of Systematic Planning listed in the *EPA Quality Manual for Environmental Programs* (EPA Manual 5360 A1). The *Planning Process* identifies and describes the process for the involvement of the customers and suppliers that are involved with the study. The project goals and objectives are usually found in the project workplan or in the *Strategy*. The Project Team, through the *Planning Process*, identifies and prioritizes the questions that the study will be designed to answer and the decisions that can be made as a result of the study. 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* would be used as a workplan is being prepared. If a workplan is already in place, or if surveys or studies are directed by other documents such as the *Strategy*, then the survey or study should be planned according to this planning process.

The *Planning Process* is intended to:

- 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 results of the *Planning Process* are documented in the FSP.

ELEMENT 8. IMPLEMENTATION OF WORK PROCESSES

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

Environmental data collection operations are planned according to Element 7, Planning and SOP 2.1 *Development of Field Sampling Plan*. The result of the *Planning Process* is a FSP that documents implementation details of the data collection operations. It is the responsibility of the Project Coordinator to ensure that the data collection operations described in the FSP are performed according to FSP requirements. Problems with FSP implementation are resolved through consultation with the TSM and the QA Officer.

Operations that must be conducted in a consistent manner to meet the requirements of planning and QA documents such as a QAPP require Standard Operating Procedures. The QA Officer, working with the TSMs and technical staff, identifies operations needing procedures. Non-standard procedures, or ones developed within the Bureau, are reviewed and approved by the appropriate TSM, who provides a copy to the QA Officer. Procedures are revised or withdrawn upon approval of the TSM. Approved procedures must be used for data collection activities covered by the QAPP unless approval to use alternate procedures is given by the TSM. The QA Officer controls and documents the release, change and use of procedures.

When work requiring a procedure is done, the person conducting 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 will assess a portion of the quality system periodically as resources allow. The assessment may be either a management or technical assessment. The SWQB 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 should prevent quality problems wherever possible and report opportunities for improvement as well as quality problems as they are identified.

Deficiencies and non-conformances should be reported to the appropriate TSM and QAO. The QA Officer ensures that deficiencies and nonconformances are documented and forwarded to the appropriate manager or the Bureau Chief.

If necessary, the QA Officer and the appropriate TSM 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); and
- individuals responsible for implementing corrective action.

TSMs 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.

RESPONSIBILITY/AUTHORITY TABLE 1

	<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	
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 grant applications.	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.	Require and provide training.	Ensuring quality requirements are included in proposals and contracts.	Require quality-related documentation.	Identification and control of quality-related documents.	Approve quality-related documents.	Advising SWQB Chief of software and hardware capabilities necessary to maintain quality.	
Technical Staff 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.	Advising SWQB Chief of software and hardware capabilities necessary to maintain quality.	
Financial and Administrative Manager	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 workplan 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.		
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 TSM and QAO when products do not meet specifications or requirements.	Identification and control of quality-related documents.	Advise QAO of documents containing quality-related requirements.	Advising TSM of software and hardware capabilities necessary to maintain quality.	

RESPONSIBILITY/AUTHORITY TABLE 2

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
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.	Approve Field Sampling Plans, require conformance to the QAPP.	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.
Technical Staff Manager	Participating in the environmental data collection planning process.	Approve Field Sampling Plans.	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.
Financial and Administrative Manager	Advising TSM 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.	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.
Technical Staff	Advising QAO and TSM of changes to the FSP.	Prepare Field Sampling Plans.	Conducting work according to current procedures.	Advise the TSM and QAO regarding changes or improvements to work processes.	Advising the TSM and QAO of assessment and response opportunities.	Participate in and support quality system assessments.	Supporting quality system improvement activities.	Advise the TSM or QAO of quality improvement opportunities.

ACRONYMS

ASD	Administrative Services Division
DQI	Data Quality Indicator
DFA	Department of Finance and Administration
DoIT	Department of Information Technology
DQO	Data Quality Objective
EPA	United States Environmental Protection Agency
FAM	Financial and Administrative Manager
FSB	Financial Services Bureau
FSP	Field Sampling Plan
GSD	General Services Department
ITD	Information Technology Division
JFA	Joint Funding Agreement
JPA	Joint Powers Agreement
MAS	Monitoring and Assessment Section
NMED	New Mexico Environment Department
NMSA	New Mexico Statutes Annotated
NPDES	National Pollutant Discharge Elimination System
OGC	Office of General Counsel
PSC	Professional Services Contract
PSRS	Point Source Regulation Section
PT	Project Team
QA	Quality Assurance
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	Quality Control
QMP	Quality Management Plan
RFP	Request for Proposal
SLD	Scientific Laboratory Division
SPR	Standards, Planning and Reporting
SWQB	Surface Water Quality Bureau
TSM	Technical Staff Manager
WPS	Watershed Protection Section
WTU	Work-time Unit

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.

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) who 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.

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 Bureau.

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.

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.