SUSQUEHANNA RIVER BASIN COMMISSION
QUALITY MANAGEMENT PLAN

Document Control Number SRBC - QA001
(Revised 9/2/2010)

Paul O. Swartz
Executive Director

David W. Heicher
Manager, Research and Grants
(Quality Assurance Coordinator)

Susquehanna River Basin Commission
1721 North Front Street
Harrisburg, PA 17102-2391
Phone (717) 238-0426
Fax (717) 238-2436

APPROVAL:

Executive Director _____ Date: _____
Paul O. Swartz

Deputy Director, Technical Programs _____ Date: _____
James Richenderfer

Quality Assurance Coordinator _____ Date: _____
David W. Heicher

CONCURRENCE:

EPA Regional Quality Assurance Manager _____

EPA Project Officer _____

BACKGROUND

The U.S. Environmental Protection Agency (USEPA) has developed a mandatory Agency-wide Quality Assurance Program that requires all organizations performing work for USEPA to develop and operate management processes for assuring that data or information collected are of the needed and expected quality for their intended use. It also requires that environmental technology used for pollution control or waste remediation is designed, constructed, and operated according to defined specifications and protocols. These requirements apply to all organizations that conduct environmental data operations in behalf of USEPA through contracts, financial assistance agreements, and interagency agreements.

This document states the Quality Management Plan (QMP) for the Susquehanna River Basin Commission (Commission) and requires that the Quality Management Program have sufficient resources and authority to support the USEPA national program effort.

MANAGEMENT AND ORGANIZATION

Goal

The goal of the Quality Management Program is to ensure that all environmental data obtained by the Commission will be scientifically valid, defensible, and of known and acceptable precision and accuracy. This goal can be achieved by ensuring that adequate quality assurance (QA) steps and procedures are used throughout the entire monitoring process (from initial study planning through data usage).

Policy

It is the policy of the Commission that:

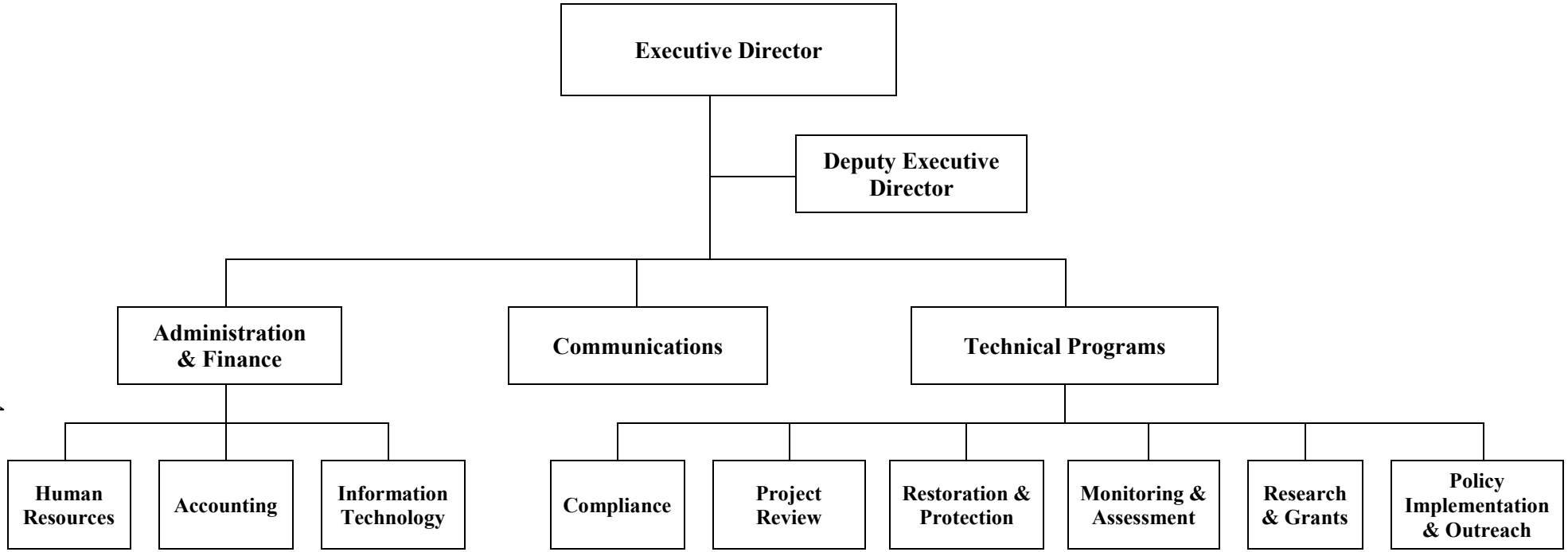
- All environmental data generated for the USEPA will be of known and acceptable quality. This quality, and the associated level of effort of the required QA activities,

will meet the needs of each program's intended use of the data. The data quality information developed for all environmental data will be documented and available.

- An acceptable and cost-effective program of QA activities will be developed and implemented at the onset of each environmental data operation to help ensure that the necessary level of data quality is achieved.

- All Commission monitoring activities will ensure that acceptable QA requirements are included and implemented in all applicable extramural procurements.

Organization



Quality Assurance Management

The Executive Director has the overall responsibility for implementation of USEPA's QA requirements. The authority and responsibility for directing QA activities within the Commission are delegated to the designated Quality Assurance Coordinator (QAC) and include all areas covered by this QMP. The QAC is not and will not be directly involved in generating, compiling, and evaluating raw environmental data.

Responsibilities of the QAC

The QAC is responsible for and will oversee all aspects of the Commission's QA activities and will keep upper level management and USEPA Region III's Office of Analytical Services and Quality Assurance (OASQA) informed of QA needs, problems, and overall status. The QAC will be the official point of contact for all QA matters and will coordinate with USEPA regarding QA matters. The QAC will be responsible for identifying and responding to QA needs, problems, and requests. The QAC will provide technical QA assistance or obtain technical assistance from OASQA when necessary. This assistance will include help in preparing detailed Quality Assurance Project Plans (QAPPs), contract or other extramural procurement packages requiring QA, designing QA programs for new studies, and other activities, as needed. The QAC will review and approve all QAPPs and QA-related sections of all procurement packages. The QAC will be responsible for maintaining documentation for all QAPPs and communications with USEPA. Finally, the QAC will work with the project managers and other Commission staff to take appropriate corrective action when, where, and however needed. This includes providing additional resources needed to correct a deficiency as determined by the QAC.

Responsibilities of Project Managers and Technical Staff

Project managers will coordinate with the QAC on QA requirements to satisfy the data quality needs of the project. The project manager is responsible for ensuring that field personnel are adequately briefed on the QAPP and making periodic checks for compliance with the QA requirements. Technical staff will coordinate and review QA requirements with the appropriate project managers to ensure that all environmental data obtained meet the needs of the study.

Communication/Reporting

Lines of communication and reporting of QA program status/needs will be maintained to ensure that an effective QA program is implemented within the Commission. The QAC will have direct access to the Executive Director, Deputy Director of Technical Programs, Director of Administration and Finance, program managers, project managers, and the laboratory directors on specific QA matters as problems arise. It is important that the QAC keep the Executive Director, Deputy Director of Technical Programs, Director of Administration and Finance, and program managers informed of the performance of the data production systems and of any problems and needs. It is also important for the responsible management to adequately respond to identified program problems and needs (including needs for resources as determined by the QAC) and to ensure their resolution. All personnel that are involved in environmental data collection and operations will review this QMP in order to be aware of the Commission's policy and requirements. The QAC will submit a QA status report to the Executive Director by May 1 of each year and forward a copy of the report to the OASQA as an attachment to the next year's Section 106 grant application.

SRBC Program Managers meet weekly and discuss QA issues on an as-needed basis. SRBC staff is encouraged to make suggestions for quality improvement on an ongoing basis, and suggestions are solicited during SRBC's annual field orientation exercise as well as during annual project QA audits by the QA Coordinator.

Applicability

The provisions of this QMP are applicable to the following Commission programs, as they are partially funded by USEPA:

1. Subbasin Surveys, Year-1 and Year-2;
2. Water Quality Monitoring of Interstate Streams;
3. Chesapeake Bay Nutrient and Suspended Sediment Monitoring; and
4. Large River Assessment Project.

Other Commission programs may be deemed applicable as determined by the Executive Director, QAC, Deputy Director of Technical Programs, and appropriate SRBC Managers.

These programs may include, but are not limited to: monitoring for Total Maximum Daily Load development, public water supply monitoring, aquatic resource surveys, and low flow monitoring plan.

QUALITY SYSTEM DESCRIPTION

Quality Management Plan

The Commission's QMP provides the policy and requirements for establishing a QA program to ensure that all environmental data collection and data usage conform to the goal and policy set forth in the Management and Organization Section. This plan is to be prepared by the QAC, reviewed by appropriate SRBC management, and then submitted for approval by the Executive Director, Deputy Director of Technical Programs, USEPA Regional Quality Assurance Manager, and USEPA Project Officer. The QMP will be accessible on the Commission's web site (www.srbc.net).

Quality Assurance Project Plan

Adequate Quality Assurance/Quality Control (QA/QC) must be applied throughout the entire monitoring process to ensure that the data collected are of known and acceptable quality. The intended use(s) and quality of the data will be defined before data collection begins and will take into account the needs of secondary users as appropriate. It is important that data quality objectives (DQOs) are established at the inception of a project and that essential QA elements are incorporated into the monitoring process, as appropriate.

Those QA elements which will be incorporated into monitoring activities (both in-house and extramurally procured) by all programs are outlined in USEPA's guidance documents "EPA Requirements for Quality Assurance Project Plans," EPA QA/R-5, March 2001, and "Guidance for Quality Assurance Project Plans," EPA QA/G-5, December 2002. The specific requirements and level(s) of effort applicable to these QA elements will be described in the QAPPs, which will be prepared for each monitoring program. The QAPPs will specify the mechanism by which timely corrective action can be taken if data quality becomes degraded. The QAPPs must be reviewed and approved by USEPA prior to initiation of any data collection activity. Assistance

in establishing DQOs can be found in USEPA's "Guidance on Systematic Planning Using the Data Quality Objectives Process," EPA QA/G-4, February 2006. All Commission QAPPs will be accessible on the Commission's web site (www.srbc.net).

Standard Operating Procedures (SOPs)

SOPs are effective tools for ensuring that all individuals conduct routine and repetitive procedures in the same way. These procedures include, in part, sampling procedures and calibration of field meters and equipment. These SOPs will be written by the technical personnel who are trained in those procedures and will be reviewed by project managers and the QAC. The QAC must approve all SOPs before they are implemented. When certain procedures used by other agencies are adopted by the Commission, the agencies' publications describing the procedures will be kept on file for all staff to review. Guidance for preparing SOPs can be found in USEPA's "Guidance for Preparing Standard Operating Procedures (SOPs)," EPA QA/G-6, April 2007. All SOPs will be accessible on the Commission's web site (www.srbc.net).

Quality Assurance Program Review and Audit

Several activities are necessary to ensure an adequate system of QA program operation, review, audits, and QA plan approval. These are outlined below.

Review of QA Program and Project Plans

The QAC will review all existing programs, future program plans, project plans, and extramural procurements to ensure that acceptable QA/QC activities and requirements are included, that proper QA was considered at the project's inception, and that the project will be able to produce data of required quality in a reliable and cost-effective manner.

External Reviews/Audits of Performance

Effective management of the QA activities requires periodic program assessment on which corrective actions can be based. Therefore, the Commission will allow its internal and extramural monitoring programs to be subjected to external reviews or audits of performance. These audits will assess the adequacy of, and adherence to, the respective QA plans.

All personnel who collect data will participate in annual performance audits conducted by the U.S. Geological Survey. The results of these audits will be reported to the QAC. Any individual failing an audit will be required to repeat the test. Failure of the retest will result in retraining, usually through on-the-job training with personnel that are proficient in their work. The need for additional formal training will be determined by the Program Manager, project manager, and/or the QAC and will be required as the opportunity arises.

Internal Review/Audits of Performance

The QAC will develop and implement a quarterly blind field spike and duplicate program when appropriate. The QAC will accompany field personnel at least once a year to observe adherence to the QAPPs. On occasion, the QAC may make unannounced checks to observe compliance with the QAPPs. Corrective actions will be taken, as necessary, immediately by the QAC and project manager. The QAC will submit a report of findings and the corrective actions taken, if any, to the Executive Director, Deputy Director of Technical Programs, and appropriate program manager. Major deficiencies (i.e., defective equipment, need for additional training or resources, etc.) will be reported, along with recommendations for corrective actions. The program manager, Deputy Director of Technical Programs, or Executive Director will take immediate action on the QAC's recommendations or take other appropriate actions to correct the problem. Additionally, an annual field update session, attended by the QAC, is held to review, discuss, and demonstrate all sampling and data collection protocols. Outside agencies will be included when necessary to elucidate specific aspects of protocols or to provide additional training opportunities for Commission staff. Any deficiencies noted during this session will be documented by the QAC. Corrective action will be taken immediately, as necessary, by the QAC and will be reported to the Executive Director and appropriate management.

PERSONNEL QUALIFICATIONS

All QA personnel must have adequate education, training, and experience, both in the area of their technical expertise and in QA to meet their designated responsibilities. All other monitoring personnel shall possess adequate experience and knowledge to perform satisfactorily all technical tasks assigned.

The QAC will receive training on USEPA requirements for QMPs, the DQOs process, and QAPPs. Generic versions of several of these training courses can be downloaded from the Internet at http://www.epa.gov/quality1/trcourse.html. USEPA periodically offers free training conferences. Information about these conferences can be accessed at http://www.epa.gov/quality1/train.html.

The Director of Administration and Finance will coordinate with the program managers, Deputy Director of Technical Programs, and the QAC to establish the educational, technical, and experience requirements for personnel filling positions requiring environmental data collection and usage. The program manager, in coordination with the Director of Administration and Finance, will be responsible for identifying any statutory, regulatory, or professional certification required to perform certain operations. Technical and managerial staff will be given the opportunity to attend available technical and QA training courses in order to maintain proficiency. The Director of Administration and Finance will maintain training records in the personnel files. All new personnel will go through a period of on-the-job training by working with an individual that is proficient in the assigned tasks. All Commission employees are evaluated every six months; every employee involved in data collection or compilation is required to adhere to QA requirements and is evaluated appropriately. During the evaluation, training needs are discussed, and all employees are urged to obtain training during the year.

The Commission's Administrative Manual states the following with regard to employee training:

> "To encourage excellence in its staff by affording opportunities for professional growth and development, the Commission will maintain an ongoing program to provide for specialized work-related training requirements for all employees and training needs shall be outlined as part of the annual employee evaluation."

PROCUREMENT OF ITEMS AND SERVICES

The Director of Administration and Finance will coordinate with the QAC and ensure that appropriate QA/QC requirements are included in all contracts for procurement of services and items that require QA.

Laboratory Services

The Commission will ensure that the contractor maintains the following:

1. Appropriate analytical instrumentation to perform the analyses required.

2. Acceptable facilities (e.g., lighting, ventilation, temperature, noise levels, etc.) in its laboratory.

3. Acceptable utility services (e.g., electricity and voltage control, purity, pressure and supply of water and air, etc.) in its laboratory.

4. Acceptable general laboratory equipment (e.g., air conditioners, furnaces, generators, refrigerators, incubators, laboratory hoods, sinks, counters, etc.) in its laboratory.

5. Acceptable monitoring equipment.

The QAC will ensure that the contract laboratory has a quality system that is documented in a Laboratory Quality Manual. The QA/QC plan must be acceptable and adequate to meet the QA objectives for Commission projects. The laboratory must demonstrate its ability to perform the required analyses. The QAC and project manager will ensure that the analytical data submitted by the laboratory meet all of the QA requirements included in the contract.

The Commission QAPPs will specify what actions (i.e., duplicate samples, blanks, etc.) field personnel will take to provide a check on the validity of laboratory results.

Equipment and Other Items

Project managers procuring field equipment will ensure that the specifications meet the needs of current and future projects and DQOs. The QAC will review and approve the specifications before any purchases are made.

Extramural Data Collection

Contracts for extramural data collection will be reviewed by the QAC to ensure that adequate QA requirements have been included in the contract. The Commission QAC also will review the contractor's QA plan for consistency with USEPA and Commission requirements.

DOCUMENTS AND RECORDS

Adequate precautions must be taken during the reduction, manipulation, and storage of data in order to prevent the introduction of errors, loss of data, or misinterpretation of the data. To this end, the QAC will ensure the following:

1. All quality related documents will be assigned a document control number.

2. The QMP will be reviewed annually by the QAC and appropriate revisions will be made to reflect changes in the Quality Management System. The revised QMP will be reviewed by the appropriate management staff and submitted for final approval by the Executive Director.

3. All technical guidance documents and SOPs will be prepared and reviewed by project managers, technical personnel, and appropriate management staff to ensure that the procedures are valid. The QAC also will review and approve the guidance documents and SOPs to ensure that they meet the needs of current projects.

4. All QAPPs written by the project managers will be reviewed by the appropriate program managers and approved by the QAC. The QAPP will then be submitted to OASQA, as

part of the USEPA grant application process, for review and approval. For non-USEPA related projects that require a QAPP, the above steps will be followed, except for submittal to USEPA.

5. All biological, habitat, water quality, morphology, and discharge data will be organized into a standard format in a centralized Access computer database. The formatting will be compatible with other USEPA format (i.e., Chesapeake Bay Program data format or USEPA's Water Quality Exchange) so that data transfers and usage can be accomplished with minimal reformatting. All appropriate data will be transferred to USEPA's Water Quality Exchange annually.

6. An Access database with SQL tables will be used for environmental data storage. This system will be capable of: receiving all properly reduced data; screening and validating data to identify and reject outliers, errors, or otherwise unacceptable data; preparing, sorting, and inputting all acceptable data into the data storage files; providing all stored data points with associated QA "labels" when USEPA guidance is provided; and making all data readily available to potential users.

7. Proper checks will be made at all data handling points from the laboratory analyst to the individual entering the data into the data storage system. These checks include:

A. All data must be recorded clearly and accurately on all field sheets. Duplicate copies of all field sheets must be turned in to the project manager.

B. Laboratory results will be sent to the project managers, who will match the laboratory reports with the duplicate copies of the field sheets to ensure that all samples are accounted for.

C. All data must be transferred from field sheets and laboratory reports completely and accurately. The individual entering data into the database will check each data entry. A separate printout of the new data entries will be made and checked by the project manager to ensure that the data are entered correctly.

D. A back-up of the database will be made daily.

8. All revised QMPs, guidance documents, and SOPs will be identified by placing the word "Revised" and date of revision next to their Document Control Number. Revised QAPPs also will be identified by placing the word "Revised" and the date of revision next to the Document Control Number. All QAPPs will be maintained electronically on the Commission's server. The QMP and all QAPPs and SOPs will be placed on the Commission's web site, along with the Commission's "Elements of a Monitoring Strategy" document (currently in revision). The Commission has initiated work on a document retention policy but does not currently have a written policy in place.

9. All field notes and laboratory reports will be kept on file for at least two years before being disposed of.

10. Results of external performance audits will be kept on file by the QAC for a period of five years to provide sufficient data to evaluate any trends in individual performances.

11. The QAC's and project managers' reports on quality checks will be kept on file for two years.

COMPUTER HARDWARE AND SOFTWARE

The Manager of Information Technology is responsible for maintaining, upgrading, and replacing all equipment. The Manager of Information Technology also ensures that proper hardware and software are in place for the Commission and works closely with the end users to ensure that they have the proper computer tools to perform their work. When certain specialized software (e.g., Geographic Information System software) is obtained, an individual that is proficient in the use of the software will be designated as responsible for maintaining and updating the software and supporting documentation. The QAC and/or appropriate management staff will review and approve any purchase requests for computer equipment and software before final approval is given by the Executive Director or Director of Administration and Finance, according to the provisions of the Commission's administrative manual.

When upgrading or replacing equipment, the Manager of Information Technology will coordinate with the QAC, project managers, and the end users involved in environmental data operations in order to establish the needs and requirements of the project managers and end users, and the technical specifications of the proposed hardware. The Manager of Information Technology will evaluate the specifications to determine compatibility with the existing network specifications and the needs of other network users, research several options, and make recommendations to the program managers and the Executive Director or Director of Administration and Finance for final approval and purchase.

Computer software to be purchased for specific data operations will be reviewed by the project managers and the end users to ensure that the needs of the project will be met prior to requesting the software. When software is obtained from other agencies, the Commission project manager and/or the user will contact the other agency's user to discuss the capabilities of the program to determine whether the software will meet the needs of the project.

The Commission project manager and the end user will evaluate further the software to ensure that the needs of the project will be met. If custom software is needed, the project manager and the user will work closely with the programmer to ensure that the final product will meet the requirements. The project managers will coordinate with the project contractors to ensure that the contractual requirements and standards are met.

The technical specifications of all software purchased for use in environmental data operations will be reviewed by the QAC to ensure that the requirements of the project and the needs of the project manager are met. The Manager of Information Technology will review the specifications to ensure that the software is compatible with the Commission's hardware system.

When new computer hardware and/or software are installed, they will be tested to verify that the Commission’s specifications have been met. When the hardware and software configurations are changed, the changed configuration will be tested to ensure that the change has not impacted project and/or program objectives. The results of all testing will be documented and maintained by the Manager of Information Technology.

PLANNING

The planning process for projects must include direct communication between USEPA, appropriate local, state, regional, and federal agencies, and the Commission to ensure that there is a clear understanding of the needs and expectations of the product or result to be provided. When appropriate, the Commission's advisory committees will be included in the planning process. The QAC will oversee project planning from inception to completion and submit a report on the adequacy of the planning process to the appropriate program manager and the Executive Director.

Planning for projects involving the generation, acquisition, and use of environmental data will: identify the users of the product to be generated; identify the needs and expectations of the user both in terms of technical and quality goals; translate those needs and expectations into specifications to produce the desired result; consider cost and schedule constraints under which the project is to be performed; identify the acceptance criteria or measures of performance to satisfy the needs and expectations of the user; and document the results of the planning process in the QAPP as described above in the Quality System Description and Documents and Records Sections.

Project managers will establish the data needs and expectations, DQOs, and acceptance criteria and discuss them with any contractor that will collect environmental data for the Commission. The contractor will prepare a QAPP based on the requirements established and submit them for review and approval by the Commission project manager and QAC.

The quality of all data must be assessed after they are generated and before they are used in order to ensure that they are satisfying the data user's needs and project requirements. This assessment should focus on five basic aspects of the data:

1. Accuracy – Can the data's accuracy be determined, how was it determined, and is it acceptable for the planned use?

2. Precision – Can the data's precision be determined, how was it determined, and is it acceptable for the planned use?

3. Completeness – Are there a sufficient amount of data available for the planned use?

4. Representativeness – Generally, how well do the data represent actual conditions at the sampling location, considering the original study design, sampling methods, analytical methods, etc., which were used?

5. Comparability – Generally, how comparable is the group of data with respect to several factors, including:
   A. Consistency of reporting units;
   B. Standardized siting, sampling, and methods of analysis; and
   C. Standardized data format.

All of these factors will initially be considered when designing a study and will be addressed in all QAPPs. They will also be considered when using data generated without an approved QAPP or an equivalent planning document. Additional guidance can be obtained from USEPA's "Data Quality Assessment: A Reviewer's Guide," EPA QA/G-9R, February 2006, and "Data Quality Assessment: Statistical Methods for Practitioners," EPA QA/G-9S, February 2006.

IMPLEMENTATION OF WORK PROCESS

It is important that all work is performed according to procedures established in the QAPPs for specific projects and in SOPs. These QAPPs and SOPs will be prepared as prescribed above in the Quality System Description Section. The QAC will conduct assessments as described in the Quality System Description Section to ensure that work is being performed as planned. Project managers will ensure that all personnel assigned to the project have reviewed the QAPP and appropriate SOPs and are fully aware of the QA requirements.

ASSESSMENT AND RESPONSE

The QAC will conduct audits and assessments at least annually as described in the Quality System Description Section. Minor deficiencies will be corrected immediately. The QAC will have the authority to stop work in progress if an adverse condition that will immediately affect the quality of results is identified. Project managers will observe the activities of field personnel to ensure that the procedures established in the QAPP and SOPs are followed. Any deficiencies identified will be corrected immediately and noted on field data sheets so that all project personnel can be briefed on the correct procedures. Project managers also will have the authority to stop work in progress when an adverse condition having an immediate effect on the quality of results is identified. These deficiencies will be immediately reported to the QAC, who will take steps to correct the problem, prepare a report on actions taken, and submit the report to the appropriate program managers or Deputy Director of Technical Programs and Executive Director.

Upper level management, the QAC, and all project personnel will cooperate with the assessment/audit personnel when an external audit is being conducted. These individuals will be allowed access to all quality-related documents and records. They will be allowed the freedom to identify quality issues and problems, identify and cite noteworthy practices that may be shared with others to improve the quality of their operations, and propose recommendations for resolving quality problems. The recommendations made by the external review team will be reviewed by the QAC and appropriate management staff to take timely actions to carry out the recommendations. The QAC will prepare a report on actions taken and make recommendations on actions that require approval by the Executive Director.

Project managers and technical personnel will review all technical guidance documents and SOPs, at least annually, to ensure that they are current and correct. Revisions will be made as necessary and submitted to the QAC for approval. They will also make recommendations on new procedures that may improve the quality of results and the quality management system. The QAC will take appropriate action to incorporate the recommendations into the quality management system.

Additionally, guidance provided by USEPA's "Guidance on Assessing Quality Systems," EPA QA/G-3, March 2003, will be used, as applicable, to assess the Commission's Quality Management System.

QUALITY IMPROVEMENT

As described in the Management and Organization Section, the QAC is responsible for overseeing all aspects of QA activities within the Commission, including identifying, responding to, and resolving identified QA program problems and needs. It is important that the QAC, with sufficient support from upper management, take appropriate action when, how, and where necessary to resolve problem(s). The QAC will keep upper level management and OASQA advised of all program problems, needs, and overall status.

Each QAPP will specify system control limits that will indicate the need for corrective action when they are exceeded. The QA plan will also describe procedures and requirements for establishing and maintaining QA reporting or feedback channels to ensure that early and effective corrective action can be taken when data quality falls below required limits.

The QAC, with assistance from the project managers, is responsible for evaluating the status of current QA activities and planning and implementing quality improvement activities. In order to accomplish this task, the QAC must take advantage of the quality checks described in the previous sections of this QMP as follows:

1. The QMP, QAPPs, SOPs, and other guidance documents must be reviewed annually and revised as necessary, to ensure that the QA guidance and procedures support the DQOs. The revised documents should be discussed with the appropriate project managers and field personnel to ensure that the revisions are clearly understood.

2. Results of any external performance audits should be maintained and periodically evaluated to determine whether any trend in an individual's performance can be detected. If there are indications that an individual's performance is deteriorating, the individual should be considered for additional training.

3. The QAC will accompany project personnel at least once a year and occasionally make unannounced checks to observe adherence to the QAPP. Any variance from prescribed procedures will be corrected immediately. The QAC will discuss negative findings with the project manager and the field person, as soon as possible, to ensure that the proper procedures are understood, or whether additional training is necessary.

4. Project managers are responsible to ensure that field personnel are briefed adequately on the QAPP and to make periodic checks for compliance with the QA requirements. Any variance from prescribed procedures should be discussed with the individual and corrected immediately. Project managers will report their findings to the QAC and discuss further corrective actions, if necessary.

5. Field personnel will report any equipment problems to the project managers and discuss the need for repairs or new equipment. Project managers will report the findings to the QAC. The QAC will make appropriate recommendations to the Deputy Director of Technical Programs, Director of Administration and Finance, and/or Executive Director.

6. All personnel will be provided the opportunity to apply for additional training to improve their understanding of QA requirements and their proficiency for implementing QA procedures.

7. The QAC and project managers will maintain a record of quality checks made, the findings, and any corrective actions taken. The QAC will submit a report to the Executive Director, at least annually. Corrective actions on major deficiencies that require the Executive Director's approval will be reported immediately.