

**NEW ENGLAND INTERSTATE  
WATER POLLUTION CONTROL COMMISSION  
QUALITY MANAGEMENT PLAN**

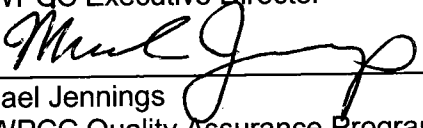
**Revision No. 3  
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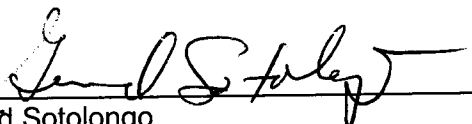
  
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12/12/06  
Date

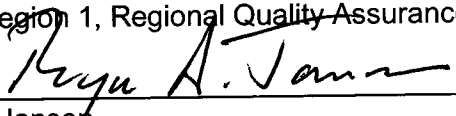
  
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## LIST OF ACRONYMS

<b><u>Word</u></b>	<b><u>Acronym</u></b>
Data Quality Objectives	DQOs
Environmental Protection Agency	EPA
Local Area Network	LAN
New England Interstate Water Pollution Control Commission	NEIWPCC
Quality Assurance	QA
Quality Assurance Program Manager	QAPM
Quality Assurance / Quality Control	QA/QC
Quality Assurance Project Plan	QAPP
Quality Control	QC
Quality Management Plan	QMP
Quality Management System	QMS
Quality Management Steering Committee	QMSC
Quality Objectives	QOs
Request for Proposal	RFP
Standard Operating Procedures	SOPs

## 1.0 BACKGROUND

The US Environmental Protection Agency (EPA) has developed a mandatory Agency-wide Quality Assurance Program that requires all organizations performing work for EPA 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 on behalf of EPA through contracts, financial assistance agreements, and interagency agreements.

This document outlines the quality management system of the New England Interstate Water Pollution Control Commission (NEIWPCQ) and has been prepared for approval in EPA Region 1. NEIWPCQ's quality management system is based on the principles and required elements stipulated by EPA, which are then applied to all environmental data collection and manipulation activities conducted by or on behalf of the Commission – regardless of geographic location, EPA region, or source of funds. In all data collection activities, it is the Commission's intent to provide procedures that ensure the highest level of quality assurance that is appropriate to the intended use of the data.

## 2.0 MANAGEMENT AND ORGANIZATION

The New England Interstate Water Pollution Control Commission (NEIWPCQ) was established in 1947 and is made up of representation by the states of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont.

### 2.1 NEIWPCQ Mission

The New England Interstate Water Pollution Control Commission, a not-for-profit interstate agency established by an Act of Congress, serves and assists its member states individually and collectively by providing coordination, public education, research, training, and leadership in water management and protection in the New England region and New York State.

### 2.2 NEIWPCQ Vision

The NEIWPCQ will, in consultation with the states,

“take a proactive leadership role on regional and national issues while developing and implementing water programs complementary to and supportive of the statutes, goals, and programs of our member states, EPA, and other federal, state, and local entities.”

*Relative to:*

- *Water Quality - High levels of water quality will have been established and member states are achieving the goals of all relevant statutes in balance with a healthy economy.*

- Coordination - Strong coordination among those with water quality, public health and environmental interests will be regularly accepted as commonplace.
- Communication - All concerned will recognize that NEIWPCCC provides a perspective on national and regional issues that individual states cannot easily obtain and in which they can have confidence is in their collective best interest.
- Relationships - States, EPA and other organizations will recognize NEIWPCCC as being complementary to state programs, value NEIWPCCC for what it is and accomplishes, and solicit NEIWPCCC's participation in their initiatives.
- Staff - NEIWPCCC staff will be universally recognized and respected by their peers and the public as being professional, knowledgeable, committed, articulate and responsive.
- Training Programs - NEIWPCCC will regularly conduct a full range of broad-based training programs that add value for participants and their employers.

### 2.3 Core Values

At NEIWPCCC, we strive to achieve our vision by focusing on four functional areas: regional coordination; service to our member states; research; and training, education and public information. We base our decisions and day-to-day work on the following core values:

- Regional Coordination - We believe the benefits from coordination among our member states are significant and accrue to the states both collectively and individually. We conduct activities that enhance opportunities for communication and coordination among our member states, EPA and other federal, state and local entities.
- Serve and Assist Member States - The Commission's very reason for existence is to serve and assist its member states in their work of protecting and enhancing their waters. We seek to do this proactively rather than merely reactively. We maintain an extensive communication network with our states and with others who impact their programs in order to assure that we accurately assess, anticipate and respond to state needs.
- Research - We believe in the value of scientific research that expands understanding and awareness. By conducting and supporting water-related research, we seek to deepen the knowledge of our region's water challenges and foster the development of solutions.
- Training, Education, Public Information - We believe that our mission is most effectively accomplished by delivering, supporting and encouraging training, education and public information.

### 2.4 Goal

The goal of the quality management system is to ensure that all environmental data obtained by, and for, NEIWPCCC 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 project implementation process (from initial study planning through data usage).

## 2.5 Policy

It is the policy of NEIWPCCC that:

- a. All environmental data generated for the EPA and the States 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 information developed for all environmental data will be documented and available.
- b. 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.
- c. All NEIWPCCC environmental data collection and manipulation activities will ensure that acceptable QA requirements are included and implemented in all applicable extramural procurements.
- d. All Commission programs or activities that generate environmental data will be part of an effective Quality Assurance program. Each program or activity that generates, compiles, or makes use of environmental data will develop and implement a QA Project Plan (QAPP) and/or Standard Operating Procedures (SOPs) which specifies the detailed procedures required to assure production of quality data. These QAPPs shall be prepared by the originating program manager or project coordinator, then reviewed and approved by an authorized QA representative prior to the start of any data collection effort. A list of current NEIWPCCC QAPP's will be submitted annually to EPA with the QMP review.
- e. All projects that support externally generated environmental data through contracts, grants or interagency agreements will ensure that acceptable QA requirements are included in the appropriate agreement documents, and that these external parties follow acceptable quality management practices.
- f. Any project or activity that accepts externally generated environmental data for use in decision-making shall ensure that the party supplying the data has followed acceptable quality management practices.

## 2.6 NEIWPCCC Management

Pursuant to the authority vested in NEIWPCCC's Executive Director, the organization is divided into three (3) programmatic units referred to as divisions: the Water Quality Division, the Drinking Water Division, and the Wastewater and On-Site Programs Division. According to organizational by-laws, NEIWPCCC's top manager is the Executive Director. The Deputy Director oversees day-to-day operations of the organization as a whole, and directs management of programmatic activities. Each division has a top manager, referred to as a Division Director, who reports directly to the Deputy Director. The individuals holding each of these management positions are fully authorized to direct the actions of their staff within the scope of the staff member's employment.

All managers are responsible for maintaining QA/QC for the personnel and projects within their area of responsibility. As such, commitment to and direct responsibility for the quality objectives and operations detailed in this QMP and any Quality Assurance Project Plan (QAPP) or Standard Operating Procedure (SOP) in place at NEIWPCCC begins with the Executive Director and continues through all levels of management and staff. QA/QC requirements consistent with

this QMP and any QAPP or SOP will be part of each manager's annual performance appraisal. Likewise, managers will include appropriate responsibility for maintaining QA/QC in the performance expectations and review of their staff.

## 2.7 Organization

Refer to the attached Organization Chart contained in Appendix A. Key staff can be reached at: NEIWPCC, Boott Mills South, 116 John Street, Lowell, Mass 01852, 978/323-7929, 978/323-7919 (fax).

## 2.8 Quality Assurance Management

The NEIWPCC views its QMP as encompassing, and applicable to, all aspects of its operation. To accomplish this holistic approach to ensuring quality, the NEIWPCC has adopted a practical approach to QA/QC/SOP functions that includes this QMP as the guidance for implementing its Quality Management System (QMS). QA/QC/SOP functions are carried out by personnel throughout the NEIWPCC who, pursuant to the provisions contained throughout this QMP, are fully informed of and trained in their quality related responsibilities. The quality controls promulgated by NEIWPCC – QMP, QAPPs, and SOPs – are applied as necessary after Quality Objectives (QO) commensurate with project needs have been defined.

### 2.81 QA/QC/SOP Staff

The NEIWPCC organizes and oversees agency-wide QA/QC/SOP functions with a Quality Management Steering Committee (QMSC). Four (4) management-level individuals comprise the QMSC, with at least one (1) representative being from each division and one (1) member being from senior management. The QMSC meets periodically to review quality issues and initiatives. Oversight of QMS activities by the QMSC assures that quality issues are integrated throughout the NEIWPCC and that all levels of our management are consistently apprised of and accessible to take action on such issues.

NEIWPCC's Quality Assurance Program Manager (QAPM) serves as the Commission's designated QA/QC/SOP contact with EPA and other state and federal agencies. The QAPM coordinates organization-wide quality assurance activities. Each NEIWPCC employee is responsible for planning the work that is done, documenting all work, and ensuring that the quality of work completed meets or exceeds the Quality Objectives (QOs) for the activity. Managers will work collaboratively with staff to ensure that decisions made when performing assigned tasks or making policy for the NEIWPCC are based on quality.

The authority and responsibility for directing QA activities within NEIWPCC are delegated to the designated Quality Assurance Program Manager (QAPM), who reports to the Deputy Director, and includes all areas covered by this QMP.

#### A. Responsibilities of the QAPM

1. The QAPM is responsible for and will oversee all aspects of QA activities and will keep upper level management and the EPA Regional Quality Assurance Office informed of QA needs, problems, and overall status.
2. The QAPM will be the official point of contact for all QA matters and will coordinate for NEIWPCC with EPA and other state and federal agencies.

3. The QAPM will be responsible for identifying and responding to QA needs, problems, and requests. The QAPM will provide technical QA assistance or obtain technical assistance from appropriate sources as necessary. This assistance will include help in preparing detailed QA plans, contracts or other extramural procurement packages needing QA, designing QA programs for new studies, etc.
4. The QAPM will review and approve all Quality Assurance Project Plans (QAPPs) and QA related sections of all procurement packages.
5. The QAPM will be responsible for maintaining documentation for all QA plans and communications with EPA.
6. The QAPM will periodically assess a portion of ongoing environmental data operations projects to verify QAPP adherence.
7. The QAPM will work with the project manager and other NEIWPC management to take appropriate corrective action when, where and however needed. This includes providing additional resources needed to correct a deficiency as determined by the QAPM.

**B. Responsibilities of Project Managers and Technical Staff**

1. Project managers will act as the Project QA Officer and coordinate with the QAPM 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.
2. Project managers are responsible for including appropriate QA requirements in all projects.
3. Project managers are responsible to assure all environmental data gathered or generated for their project is sufficiently reviewed and/or validated to assure its usefulness for the project, and that it meets the data quality objective stated in the QA project plan.
4. Technical staff will coordinate and review QA requirements with the appropriate project managers to ensure that all environmental data utilized meets the needs of the project.

**C. 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 NEIWPC. The QAPM will have direct access to the Executive Director, Deputy Director, division directors, and project managers on specific QA matters as problems arise. It is important that the QAPM keep the division directors, Deputy Director, and the Executive Director 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 QAPM) and to ensure their resolution. All personnel that are involved in environmental data operations will review this QMP in order to be aware of NEIWPC policy and requirements. The QAPM will submit a QA status report to the Executive Director by October 1<sup>st</sup> of each year and forward a copy of the report to the EPA Region I Quality Assurance Office as an attachment to the next year's grant application.

### **3.0 QUALITY SYSTEM AND DESCRIPTION**

The quality demands of a specific program function or project should be defined prior to undertaking activities when a Quality Assurance Project Plan (QAPP) or Standard Operation Procedure (SOP) will be developed. By defining the Quality Objectives (QOs) of a function or project prior to taking action, the NEIWPC believes its processes will operate as efficiently and effectively as possible while at the same time creating results that are appropriately informative, and legally and technically defensible.

#### **3.1 Quality Management Plan**

This QMP is the guidance the Commission uses to design, document, and implement its QMS. The QMS includes the process of planning implementing and assessing the QA/QC/SOP operations. The Executive Director, Deputy Director and Senior Management team review and approve this QMP at the time of its original composition and designate the QMSC to review and approve subsequent changes. The QMP will be reviewed every five (5) years or when significant changes have been made to its program elements, whichever comes first. The QMSC annually evaluates this QMP as part of its regular functions.

#### **3.2 Quality Assurance Project Plan**

Adequate Quality Assurance/Quality Control (QA/QC) must be applied throughout the entire project implementation process to ensure that the data used or 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 process (as appropriate).

QAPPs are project specific plans that establish the method by which QOs will be met or exceeded. A QAPP dictates the minimum requirements for project management, data measurement, data acquisition, assessment, oversight, data validation and data usability. The QAPP should include the main elements listed in EPA's guidance documents: to include: *EPA New England Quality Assurance Project Plan Guidance*, April 2005; *Requirements for Quality Assurance Project Plans*, EPA QA/R-5, March 2001; and *Guidance for Quality Assurance Project Plans*, EPA QA/G-5, February 1998. An additional tool to be utilized in QAPP development and approval is NEIWPC's *Guide for Development and Approval of Quality Assurance Project Plans*, March 2006.

The specific requirements and level(s) of effort applicable to these QA elements will be described in the QAPP, which will be prepared as warranted. The QAPP will specify the mechanism by which timely corrective action can be taken if data quality becomes degraded. Assistance in establishing data quality objectives (DQOs) can be found in EPA's *Guidance for the Data Quality Objectives Process*, EPA QA/G-4, EPA/600/R-96/055, August 2000.

#### **3.3 Standard Operating Procedures (SOPs)**

SOP's 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 SOP's will be written by the technical personnel who are trained in those procedures and will be reviewed and approved by project managers and the QAPM. When certain procedures used by other agencies, (e.g., EPA and USGS) are adopted by NEIWPC, the agencies' publications describing the procedures will be kept on file for all staff to review. Guidance for preparing SOP's can be found in EPA's *Guidance for the Preparation of Standard Operating Procedures (SOP's)*, EPA QA/G-6, EPA/240/B-01/004, March 2000.

SOPs developed by the appropriate technical staff are reviewed and approved by the Quality Management Steering Committee as necessary. These products are maintained in the Commission's central filing systems with updated copies provided to the Division Directors, Deputy Director and Executive Director. All outdated versions are archived.

### 3.4 QA 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.

#### A. Review of QA Program and Project Plans

The QAPM will review all existing programs, future program plans, project plans and extramural procurements as warranted 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.

#### B. Annual Employee Self-Assessment

NEIWPC is implementing an annual self-assessment process to collect information on the performance of the quality management system. The self-assessment process will consist of a series of screening questions incorporated into the annual employee performance evaluation and a follow-up questionnaire (see Appendix B) utilized to collect additional information from NEIWPC employees involved with environmental data operations.

#### C. Internal Review/Audits of Performance

The QAPM may accompany field personnel to observe adherence to the QAPP or make unannounced checks to observe compliance with the QAPP. These field assessments will be documented on a Field Assessment Data Sheet (see Appendix C). Corrective actions will be taken, as necessary, immediately by the QAPM and project manager. The QAPM will submit a report of findings and the corrective actions taken, if any, to the QMSC. Major deficiencies (i.e., defective equipment, need for additional training or resources, etc) will be reported to the division director and the Executive and Deputy Director along with recommendations for corrective actions. The division director will take immediate action on the QAPM's recommendations or take other appropriate actions to correct the problem.

#### D. 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.

## **4.0 PERSONNEL QUALIFICATIONS**

All NEIWPC employees receive training in quality assurance pertinent to their responsibilities and work assignments. NEI provides, or arranges for, additional Quality Management training as needs are identified by the QMSC on the basis of any audit results, management review, and/or information received from the Division Directors.

### 4.1 Qualifications

The NEIWPC determines and maintains the classification system for positions needed by the Commission based upon the employee contract associated with its host state (the Massachusetts Organization of State Engineers and Scientists (MOSES)). Each classification is defined by a minimum set of requirements including experience, education, and/or certification. Personnel hired by the NEIWPC must meet these minimum requirements to qualify for a certain position. The NEIWPC Human Resource Manager is responsible for review of job classifications and for audits of existing positions as requested, to ensure employees are classified correctly. The Human Resource Manager also maintains position descriptions specifying the general and quality assurance knowledge and skill required for job tasks.

Specific types of work, or specific projects, require specific skills. Project Managers, supervisors and managers identify skill needs. Typically, NEIWPC's existing staff has the required skills. If not, management identifies the necessary resources, and initiates the procedures to hire or contract for the needed skills.

### 4.2 Professional Development and Training

Management identifies needs at the NEIWPC for professional development, learning new techniques, and qualifying for / maintaining required certifications (e.g., 40 hour Occupational Safety and Health Administration training). Commission management policy encourages staff to seek advanced degrees or professional training as needed to ensure that the Commission's mission is fulfilled and its objectives met. Employees participate in, regional and national professional conferences and workshops relevant to their job responsibilities. The Commission's evaluation system requires the identification of individual development objectives at the beginning of each employee year, and the accomplishment of these objectives is a part of performance review.

The NEIWPC's Human Resource Manager is responsible for identifying training needs, planning and implementing in-house training, and assisting employees in planning professional development.

All internal classes are based on pre-defined learning objectives documented in the professional development/training archives. Training and professional development activities, both internal

and external, including those related to QA/QC/SOP, are tracked and individual training records kept (beginning in the 1990s) in staff personnel files.

All NEIWPCCC employees are trained in the following areas:

- NEIWPCCC Orientation;
- Core training for managers and supervisors;
- Computer software;
- Sexual harassment awareness; and
- Job-required safety and health, when applicable.

Each division provides additional training as needed to ensure that new staff members understand and can carry out job requirements. Resources for training and professional development are allocated by the Deputy Director, based on program-specific funding availability.

Assessment of the status and adequacy of existing training and professional development programs, and identification of future training needs, is made annually as part of NEIWPCCC's evaluation process and upon review of the Commission's 5-year Operating Plan.

#### 4.3 Training for Quality

All NEIWPCCC employees are required to read this QMP. Division and/or program managers annually review the QMP with staff, including specific aspects pertaining to the work of that unit.

All data-related programs requiring QAPPs have, within those documents, standards and procedures for assuring that program staff receives training in QA/QC related to their activities, and maintain proficiency in the QA/QC requirements of that program. In other programs and activities, supervisors and program managers are responsible for assuring such training. Individual programs conduct workshops and training activities specific to their needs to assure quality, test employee proficiency, etc.

The QAPM is responsible for managing and implementing the NEIWPCCC's quality management system. Therefore, it shall be required that the QAPM receive up-to-date training from EPA in relation to Quality Management Plans, Data Quality Objectives, Quality Assurance Project Plans, along with any other available training in relation to quality system management. Additionally, the QAPM will conduct quality management system training in conjunction with the annual NEIWPCCC All-Staff meeting, as appropriate.

## **5.0 PROCUREMENT OF ITEMS AND SERVICES**

NEIWPCCC procures a variety of commodities and services for environmental data collection needs through various vendors, including laboratories and technical firms. The procurement of items and services will be controlled and documented to assure conformance with specified quality management requirements. These requirements will be included or referenced in procurement documents. The acceptability of purchased items and services will be verified and documented by the individual who has requested the goods or services.

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

QA. It is the Commission's policy that all Extramural Agreements and Procurement involving environmentally related measurements or data generation require suppliers (i.e., contractors, subcontractors, or financial assistance recipients) to have a Quality Management System in accordance with EPA requirements (EPA QA/R-2). Subsequently the organization must submit a Quality Assurance Project Plan (QAPP) for Commission staff review and approval before any environmental measurements or data collection activities can be performed.

### 5.1 Documents

All procurements are defined in writing in one or more procurement documents (purchase orders, requests for proposals, procurement contracts, and other agreement documents). Routine commodity purchases are made through the use of a purchase order. A Request for Proposal (RFP) is sometimes developed for procurement of services and stipulates requirements of NEIWPCQ. The nature of the work, the location, and the anticipated cost are factors that contribute to the determination of when an RFP is necessary. Quality assurance requirements of all potential contractors are clearly identified within the RFP and are a requirement of all contract documents. Program managers determine such quality assurance requirements, with the assistance of quality assurance staff. An RFP has a set of screening criteria that ensure the potential contractors meet the quality requirements. A designated group is responsible for review of proposals, for scoring the proposals by preset criteria, and for selecting the contractor(s). The NEIWPCQ notifies the successful contractor(s) and contracts are established.

### 5.2 Laboratory Services

The QAPM or the NEIWPCQ project manager will review the laboratory's internal QA/QC plan and Laboratory Quality Manual to ensure that it is adequate to meet the QA objectives for NEIWPCQ projects.

NEIWPCQ's QAPPs will specify what actions (i.e., duplicate samples, blanks, etc.) project personnel will take to provide a check on the validity of laboratory results.

### 5.3 Acceptance of Items and Services

Items and services affecting quality received from suppliers are evaluated upon delivery against acceptance criteria (task and product specifications and technical, quality, administration and other requirements) contained in procurement documents. Program managers, or their designates, determine whether acceptance criteria have been met and whether items and services are adequate and appropriate for use.

Items and services that do not meet acceptance criteria are not accepted for use. Corrective actions are initiated in accordance with state requirements, contract provisions, and procurement procedures. Corrective actions may range from repair or replacement of defective deliverables to return of unacceptable items or refusal of payment for goods or services rendered.

The Finance Department coordinates resolution of disputes regarding quality through use of one of several acceptable accounting methods available.

#### 5.4 Extramural Data Collection

Contracts for extramural data collection or analysis will be reviewed by the QAPM to ensure that adequate QA requirements have been included in the contract. The requirement that the NEIWPCC QAPM will review the contractor's QA plan for consistency with EPA and NEIWPCC requirements also will be included.

### **6.0 DOCUMENTS AND RECORDS**

Each division at the NEIWPCC is responsible for establishing and implementing procedures for controlling, filing, storing, protecting, and accessing documents and records in conformance with Commission policy.

#### 6.1 Document and Record Development and Identification

Documents that specify quality-related requirements and instructions include:

- NEIWPCC Quality Management Plan;
- Program guidance documents;
- Quality assurance project plans (QAPPs); and
- Technical standard operating procedures (SOPs);

Program guidance documents are proposed, reviewed, and approved by staff and managers of relevant areas of the department. Revisions to guidance documents are made as necessary and reviewed in the same manner as new guidance documents. New guidance documents and revisions to existing guidance documents are uniquely identified. The division director or the management team approves each new or revised guidance document, prior to issuance.

All technical guidance documents and SOP's will be prepared and reviewed by project managers, technical personnel and appropriate division directors to ensure that the procedures are valid. The QAPM also will review the guidance documents and SOP's to ensure that they meet the needs of current and future projects.

All QAPPs written by the project managers will be reviewed and approved by the QAPM and then submitted to any other appropriate approval authority prior to data collection, for review and approval.

It is the responsibility of program managers and division directors to determine whether other records are required to reflect the achievement of required quality for completed work and to fulfill any statutory, regulatory, or contractual requirements for environmental programs. If such records are required, it is the responsibility of program managers and division directors to ensure these records are identified, verified, authenticated, handled, retained, and disposed of so that the records are accessible and protected from damage or deterioration. Project-specific quality assurance records are identified in quality assurance project plans (QAPPs).

The Quality Assurance Program Manager maintains quality assurance records relating to NEIWPCC's quality system that are not otherwise identified. Program managers and division directors maintain quality assurance records relating to their respective programs that are not

otherwise identified. Project managers maintain quality assurance records relating to their respective projects that are not otherwise identified. Each of these individuals specifies the location of and procedures for identifying, verifying, authenticating, handling, retaining and disposing of these records. These individuals also keep a current listing of all types of quality assurance records that relate to their respective areas of responsibility.

## 6.2 Document and Record Storage

Document and record storage at the Commission is the responsibility of individuals charged with performing the tasks associated with this function. NEIWPC has established a controlled-access central file system. All NEIWPC employees have access to Commission files during normal business hours.

So that we may assure availability of the requested information, members of the public are required to schedule an appointment to review Commission files. All files will remain in the possession of the Commission at all times.

Confidential documents are stored in secure areas. Procedures for chain of custody and confidentiality for evidentiary documents and records are documented in all QAPPs, Sampling and Analysis Plans (SAPS) and other quality assurance plans.

File maintenance is the responsibility of all NEIWPC employees. Employees are required to file their own documents or have this task done by support staff according to Commission policy. Files are kept on-site.

## 6.3 Archival Storage

NEIWPC stores both financial and programmatic files for the appropriate length of time as determined in the Commission's Federal Assistance Agreements.

## 6.4 Requests from the General Public

In the event that a member of the general public wishes to review NEIWPC files, individuals assigned the responsibility for documents and records management follow Commission-specific procedures to assure availability of the requested material to the extent possible.

Program Managers respond to written Freedom of Information Act requests in accordance with the requirements codified in that statute.

## **7.0 COMPUTER HARDWARE AND SOFTWARE**

NEIWPC contracts with a network support company for IT support. An IT consultant visits NEIWPC's Lowell Office weekly for a four hour block of support. Additional time is scheduled for special projects and/or upgrades. The NEIWPC Computer System Coordinator is responsible for working with the IT consultant to maintain, upgrade and replace all equipment. The System Coordinator also ensures that proper hardware and software are in place and replaced on a regular basis for the Commission. The Coordinator will work closely with the end users to ensure that they have the proper computer tools to perform their work. When certain specialized software (e.g., Accounting or GIS software) is obtained, an individual that is proficient in the use of the software will be designated to be responsible for maintaining and

updating the software and supporting documentation. The Executive Director and Deputy Director will review and approve any purchase requests for computer equipment, network support, and software, based upon a review of the availability of appropriate funds for the same in the annual Commission approved budget process.

All of NEIWPC databases are maintained as Filemaker Pro or Microsoft Access databases. The majority of the Commission's databases contain mailing and contact information only. Some databases, such as the training database, track program names, dates and locations, number of attendees, payment information, etc. Other databases, such as the wastewater operator renewal database, track more sensitive information (date of birth, social security numbers, etc.). Accounting databases consist of grant tracking, accounts payable, accounts receivable, and payroll. Data integrity on these databases is maintained by restricting the use of the databases to the appropriate users.

All of NEIWPC's databases are stored on one of three file servers (NEIFS3, NEISQLNT, or NEIMAIL). Each server provides for nightly backup of all data via tape drives. Tape backups for the previous two weeks are stored on site. The backup data tapes are automatically ejected and must be replaced by an individual on a daily basis. This duty is assigned to an everyday, in-office employee with 2 alternates. As each daily tape is replaced, it is stored in a fire-proof safe on site. At the end of each month, the tape is taken off site and stored by a data security company. The last 4 month-end tapes are always stored off site and rotated back to the office.

A live state backup is run daily on the NEISQLNT and NEIMAIL servers for data, all software, and operating systems. Backups are made on one of two portable external USB hard drives. Each week, one USB hard drive is picked up by a data security company and stored in a secure, offsite location, while the second hard drive is returned. The live state backup allows for full, immediate restoration of data and operational systems in case of a catastrophic hardware failure.

The server and all of the individual workstations are protected with virus, SPAM, and anti-spyware software. The virus licenses are kept current and the latest virus definition files are downloaded and installed daily. An off site server is used to redirect all incoming email to NEIWPC where it is stored, classified as good or SPAM, and then redirected to the appropriate NEIWPC email address. All SPAM is stored off site on another company's server. The individual user is responsible for checking and deleting all SPAM via a web interface. Publicly available antispyware software is installed on each computer and it is up to the individual to regularly run this program and maintain a clean computer.

Server hardware and software is evaluated annually by NEIWPC with the support of the IT consultant. The consultant prepares and regularly updates a guidebook of the entire NEIWPC network environment. This guidebook documents all of the software versions, hardware capacity, and recommended system upgrades. Upon recommendation of the consultant, NEI upgrades hardware and software accordingly. Individual workstations are reviewed annually for replacement based on a three-year rotating cycle for replacement of all workstation PCs.

When upgrading or replacing equipment, the System Coordinator will coordinate with the QAPM, 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 Coordinator will evaluate the

specifications to determine compatibility with the existing network specifications and the needs of other network users, and then research several options with input from the data processing and IT consultant who provides network support and maintenance of the NEIWPC system. The Coordinator will then make his/her recommendations to the Deputy Director and the Executive Director 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 are obtained from other agencies, the NEIWPC 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 NEIWPC project manager and the end user will further evaluate 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 QAPM to ensure that the requirements of the project and the needs of the project manager are met. The Coordinator will review the specifications to ensure that the software is compatible with the Commission's hardware system.

After computer hardware and software have been installed, it will be tested to verify that NEIWPC's specifications have been met. Also, when changes to computer hardware and software configurations, the changed configuration will be tested to ensure that the change has not impacted project and/or program objectives. The results of all computer hardware and software testing will be documented and maintained by NEIWPC.

## **8.0 PLANNING**

The planning process for projects must ensure that there is a clear understanding of the needs and expectations of the product or results to be provided. Planning for projects involving the generation, acquisition, and use of environmental data will:

- a. Identify the users of the product to be generated.
- b. Identify the needs and expectations of the user both in terms of technical and quality goals.
- c. Translate those needs and expectations into specifications to produce the desired result including the sampling design rationale, sampling and analytical procedures to be utilized and assessment activities.
- d. Consider cost and schedule constraints under which the project is to be performed.
- e. Identify the acceptance criteria or measures of performance to satisfy the needs and expectations of the user.
- g. Document the results of the planning process in the QAPP.
- h. Refer to Section 2 of this document, Management and Organization.

Project managers will establish the data needs and expectations, data quality objectives and acceptance criteria and discuss them with all contractors that collect environmental data for NEIWPCC. The contractor will prepare a QAPP based on the requirements established in Section 3.2 of this QMP and submit them for review and approval by NEIWPCC project manager and QAPM. Modifications undertaken to any approved SOP or QAPP resultant from unanticipated changes encountered during a data collection event require the contractor to resubmit the SOP or QAPP for approval by the NEIWPCC project manager and QAPM unless the alternate steps were appropriately outlined in the original version.

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 the following five basic aspects of the data:

- a. Accuracy - Can the data's accuracy be determined, how was it determined, and is it acceptable for the planned use?
- b. Precision - Can the data's precision be determined, how was it determined, and is it acceptable for the planned use?
- c. Completeness - Are there a sufficient amount of data available for the planned use?
- d. 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?
- e. Comparability - Generally, how comparable is the group of data with respect to several factors, including:
  1. Consistency of reporting units?
  2. Standardized siting, sampling, and methods of analysis?
  3. 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 EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process*, EPA QA/G-4, February 2006.

## **9.0 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 in Section 3 (Quality System and Description). The QAPM will conduct assessments as described in Section 3 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.

NEIWPCC uses SOPs to ensure that certain kinds of regularly performed activities, such as contract development, invoice payment, travel reimbursement, are conducted uniformly and appropriately given the needs of the task. Written SOPs help to ensure standardization of work.

## 10.0 ASSESSMENT AND RESPONSE

NEIWPC's program to monitor conformance to assess the effectiveness of the QMS includes:

- a. Employee performance evaluations;
- b. Program reviews;
- c. Formal audits;
- d. Management system reviews; and,
- e. EPA assessments.

Assessments, including formal audits, are based on quality objectives as documented in the QMP, QAPPs, SOPs, technical or professional standards, or other requirements set prior to work being performed. Employee performance evaluations are conducted on an annual basis following guidelines provided by the Human Resource Department and are documented on Self-Evaluation Forms and Self-Assessment Questionnaires. Project and program reviews are completed by the senior staff on a periodic basis. Formal outside financial audits are completed annually. Programmatic audits are completed at the request of the appropriate federal agencies.

The QAPM will review the progress of the work being performed to assure it is in compliance with the QMP and QAPP, as described in Section 3. Documentation of this compliance will be included in NEIWPC's quarterly report, as appropriate. Minor deficiencies will be corrected immediately. The QAPM will have the authority to stop work in progress if an adverse condition that will immediately affect the quality of results is identified. 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 will also 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 QAPM, who will take steps to correct the problem, prepare a report on actions taken and submit it to the QMSC.

Where deficiencies or non-conformances have been identified, the Program Managers and the QAPM will determine and document the following:

- a. The nature and scope of the problem;
- b. The root cause(s);
- c. The programmatic impact;
- d. The required corrective action;
- e. Actions needed to prevent recurrence;
- f. Method of assessing and verifying the effectiveness of the corrective action;
- g. Timetable for implementation; and,
- h. The staff responsible for implementing and follow-up reporting.

Assessment results are reported to appropriate management, supervisory and other personnel for review and action as necessary. Upper level management, the QAPM, 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 QAPM, division directors and project managers to take timely actions to carry out the recommendations. The

QAPM will prepare a report on actions taken and make recommendations on actions that require approval by the Deputy and Executive Directors.

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 QAPM for approval. They will also make recommendations on new procedures that may improve the quality of results and the quality management system. The QAPM will take appropriate action to incorporate the recommendations into the quality management system.

## **11.0 CORRECTIVE ACTION**

As described in Section 2 (Management and Organization), the QAPM is responsible for overseeing all aspects of QA activities within NEIWPCC, including identifying, responding to and resolving identified QA program problems and needs. It is important that the QAPM, with sufficient support from upper management, take appropriate action when, how, and where necessary to resolve problems. The QAPM will keep upper level management and the EPA Region I Quality Assurance Office (or other appropriate EPA regional QA offices or state agencies) advised of all program problems, needs, and overall status.

### 11.1 Quality Improvement

NEIWPCC understands “quality improvement” to be a continuing process by which the Commission identifies opportunities to improve the Quality Management System itself, as well as individual programs and work processes. It thus continues, but is distinct from, efforts to assure Quality Control and Quality Assurance.

All NEIWPCC employees are encouraged to identify, plan, implement and evaluate quality improvement activities for their areas of responsibility. Personnel prevent quality problems wherever possible, and report opportunities for improvement as well as quality system problems as they are identified.

### 11.2 Quality Management Systems

NEIWPCC’s Senior Management Team requires the QAPM to report annually on the state of the QMS. Also on an annual basis, division directors review quality-related deficiencies, non-conformance, and programmatic improvements and advise the affected program manager of any significant trends.

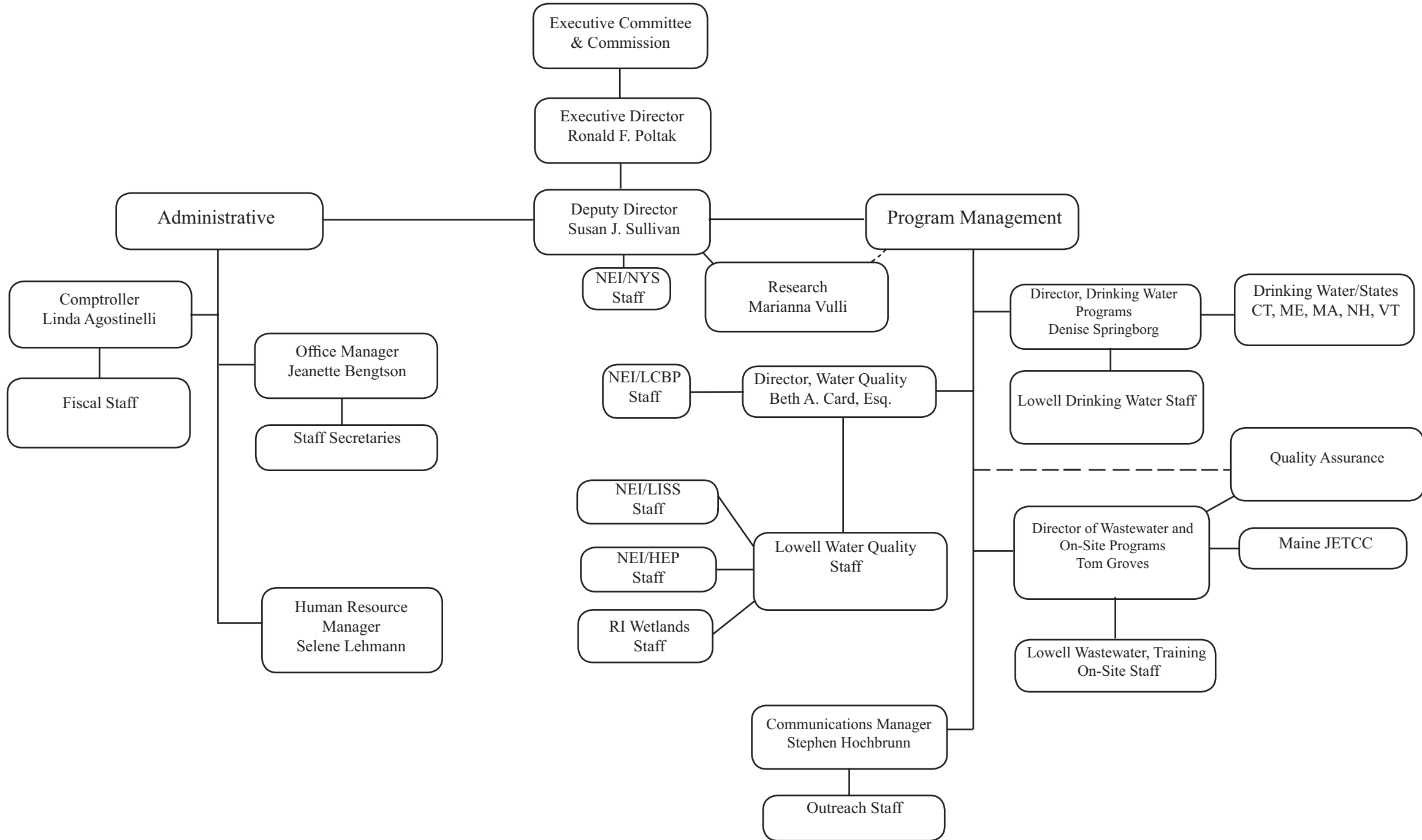
On an annual basis, the QAPM provides EPA Region I Quality Assurance Officer with a report describing the status of the QMS.

Refer to Section 2.0, Management and Organization for additional detail.

## **Appendix A – Organizational Chart**

# NEIWPCO ORGANIZATIONAL STRUCTURE

10/12/06



**Appendix B – Example of Current QA Self-Assessment Questionnaire**

**NEIWPCC QA Self-Assessment Questionnaire**

Name: \_\_\_\_\_

Division/Program and Location: \_\_\_\_\_

**1. Do your NEIWPCC job responsibilities involve environmental data collection or evaluation?**

- Yes – Please continue
- No – Skip to question 9
- Not Sure – contact QAPM

**2. If the answer to 1. is yes, please list the project(s) and their job cost code(s):**

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_

**3. Do the projects have approved QAPPs?**

- Yes – please attach signature/approval page
- No – contact QAPM

**4. Is the project a multi-year project?**

- Yes
- No – skip to question 9

*QAPPs for multi-year projects must be reviewed and updated as necessary. This is your report of the results of that review.*

**5. If the answer to 4. is yes, have there been any changes to the scope of the project?**

- No
- Yes, please describe

\_\_\_\_\_  
\_\_\_\_\_

**6. If the answer to 4. is yes, list any non-conformances observed and their remedies:**

\_\_\_\_\_  
\_\_\_\_\_

**7. If the answer to 4. is yes, have there been any changes to key project staff?**

- No
- Yes, please describe

\_\_\_\_\_  
\_\_\_\_\_

**8. If the answer to 4. is yes, have there been any changes to training or certification requirements:**

No             Yes, please describe

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**9. Are you aware of any potential new projects for the upcoming year that will require a QAPP**

No             Yes, please describe

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**10. Do you need any QA training or are there any QA issues that you need assistance with?**

No             Yes, please describe

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**Once completed, please return this form to**

Mike Jennings NEIWPC-QAPM  
978/323-7929  
mjennings@neiwpc.org

**Appendix C – Example of Current Field Assessment Data Sheet**

**NEIWPCQ Field Assessment Data Sheet**

Project: \_\_\_\_\_

Staff: \_\_\_\_\_

Project Location: \_\_\_\_\_

Assessors: \_\_\_\_\_

Assessment Dates: \_\_\_\_\_

Brief Project Description:

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- Is there an approved QA Project Plan for the overall project and has it been reviewed by all appropriate personnel?
- Is a copy of the current approved QA Project Plan maintained at the site? If not, briefly describe how and where quality assurance and quality control requirements and procedures are documented at the site.
- Is the implementation of the project in accordance with the QA Project Plan?
- Are there deviations from the QA Project Plan? (If yes, explain)
- Do any deviations from the QA Project Plan affect data quality?
- Have any corrective actions been taken during the project?
- Did these corrective actions impact data quality (If yes, describe)