NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION

QUALITY MANAGEMENT PLAN

REVISION NO. 7
May 8, 2023

NEIWPCC

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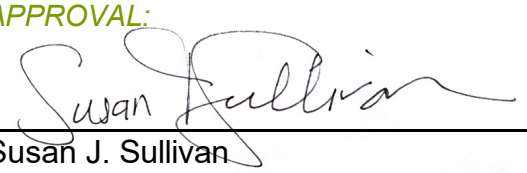

May 11, 2023

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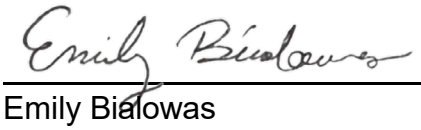
NEIWPCC Executive Director



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APPENDICES

LIST OF ACRONYMS

Word	Acronym
Data Quality Objectives	DQOs
Environmental Protection Agency	EPA
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 U.S. 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 NEIWPCC's quality program and has been prepared for approval in EPA Region 1 and EPA Region 2. NEIWPCC's quality program is based on the principles and required elements stipulated by EPA, which are then applied to all environmental information collection and manipulation activities conducted by or on behalf of NEIWPCC – regardless of geographic location, EPA region, or source of funds. In all information collection activities, it is NEIWPCC'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

NEIWPCC was established in 1947 and serves the states of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

2.1 NEIWPCC Mission

To advance clean water in the Northeast through collaboration with, and service to, our member states.

2.2 NEIWPCC Vision

Clean and sustainable water throughout the Northeast.

2.3 NEIWPCC Values and Categories of Work

All of NEIWPCC's work is built upon a foundation of values that represent our character: leadership, collaboration, education, service, and science. NEIWPCC's work and impact fall into five interconnected categories:

- Connections - We engage and convene water quality professionals and other stakeholders across the Northeast to collaborate on clean water and environmental science challenges across shared regions, ecosystems, and areas of expertise.
- Protection - We conduct research into water-related topics, monitor environmental factors, and fund such work by others. We also implement and fund environmental restoration and other on-the-ground projects.
- Training - We develop, coordinate, and conduct training courses that serve water quality professionals regionally and nationwide.
- Education - We fund and/or staff programs that engage the public through events, exhibits, web and print publications, and other outreach activities.
- Engagement - We actively represent the interests of member states at meetings with federal and state officials and in regional and national water and wastewater associations.

2.4 Goal

The goal of the quality program is to ensure that all environmental information obtained by, and for, NEIWPCC 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 NEIWPCC that:

1. All environmental information generated for the EPA, the states, and any other funder 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. All environmental information will be documented and that documentation will be available.
2. An acceptable and cost-effective program of QA activities will be developed and implemented at the onset of each environmental information operation to help ensure that the necessary level of information quality is achieved.
3. All NEIWPCC environmental information collection and manipulation activities will ensure that acceptable QA requirements are included and implemented in all applicable extramural procurements.
4. All NEIWPCC programs or activities that generate environmental information will be part of an effective Quality Assurance program. Each program or activity that generates, compiles, or makes use of environmental information 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 information of sufficient quality. These QAPPs shall be prepared by the originating project 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 NEIWPCC QAPP's will be submitted annually to EPA with the QMP review, with newly approved QAPPs in current fiscal year highlighted.
    a. For NEIWPCC staff housed in state agencies, there may be times that the state QA requirements and systems in place at those agencies apply. This can include QAPPS that originate in those offices or other organizations. When in doubt, the QAPM should be contacted for consultation.
5. All projects that support externally generated environmental information 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.
6. Any project or activity that accepts externally generated environmental information for use in decision-making shall ensure that the party supplying the information has followed acceptable quality management practices.

2.6 NEIWPCC Management

Pursuant to the authority vested in NEIWPCC's Executive Director, the organization is divided into seven (7) programmatic units referred to as divisions. According to organizational by-laws, NEIWPCC's top manager is the Executive Director. Each division has a top manager, referred to as a Division Director, who reports directly to the Executive 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 QAPP or SOP in place at NEIWPCC 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

Key programmatic and managerial staff can be reached at NEIWPCC's central office located at 650 Suffolk Street, Suite 410, Lowell, MA 01854, P: 978-323-7929, F: 978-323-7919. All NEIWPCC staff that do not work in the Lowell central office report to a supervisor or manager in the central office. Refer to the attached Organization Chart contained in Appendix A.

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, NEIWPCC has adopted a practical approach to QA/QC/SOP functions that includes this QMP as the guidance for implementing its Quality Program. QA/QC/SOP functions are carried out by personnel throughout 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.

2.8.1 QA/QC/SOP Staff

NEIWPCC organizes and oversees agency-wide QA/QC/SOP functions with a Quality Management Steering Committee (QMSC). The QMSC is comprised of the Executive Director, the seven division directors and the Quality Assurance Program Manager (QAPM). The QMSC meets periodically to review quality issues and initiatives. Oversight of QMS activities by the QMSC assures that quality issues are integrated throughout NEIWPCC and that all levels of our management are consistently apprised of and accessible to take action on such issues.

NEIWPCC's QAPM serves as the organization'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 NEIWPCC are based on information of sufficient quality.

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

NEIWPCC has a process to allow qualified employees to be trained and assigned as Quality Assurance Program Manager designees. These individuals are authorized to complete any set or subset of the responsibilities of the QAPM. The QAPM coordinates with all their designees to

ensure the activities they undertake are appropriate and each designee's training is sufficient to allow them to complete such activities in a quality manner. See Appendix G: Designee Training, Reporting, and Records SOP.

NEIWPCC has a process to allow specific programs to approve their own QAPPs for projects that are not EPA funded, without direct review and approval by the QAPM (i.e. internal programmatic delegation of QAPP approval for projects that are not EPA funded). Prior to authorization of internal delegation, a well-documented and repeatable review process must be developed and implemented, with assistance from EPA QA Unit staff. A training program will also be developed and implemented as a component of the internal delegation authorization.

A. Responsibilities of the QAPM (or designee)

1. The QAPM is responsible for and will oversee all aspects of QA activities and will keep upper level management and the appropriate EPA Quality Assurance Offices 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, including reviewing standard language in RFPs and contracts.
5. The QAPM will work with their designees and the project managers to periodically assess a portion of ongoing environmental information operations projects to verify QAPP adherence. These assessments are implemented utilizing project-specific funds.
6. The QAPM will work with the project manager and other NEIWPCC 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 NEIWPCC 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 ensuring that appropriate QA requirements and resources are included in all applicable projects.
3. Project managers will be responsible for maintaining documentation for all QA plans and communications pertaining to QAPP approval.
4. Project managers are responsible to assure all environmental information 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(s) stated in the QA project plan.

5. Technical staff will coordinate and review QA requirements with the appropriate project managers to ensure that all environmental information 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 NEIWPCC. The QAPM will have direct access to the Executive Director, division directors, and project managers on specific QA matters as problems arise. It is important that the QAPM keep the division directors and the Executive Director informed of the performance of the information 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 NEIWPCC staff that are involved in environmental information operations will review this QMP in order to be aware of NEIWPCC policy and requirements. The QAPM will submit a QA status report (Appendix D) to the QMSC by December 31st of each calendar year and forward a copy of the report to the appropriate EPA contacts, including Project Officers and those from regional Quality Assurance Units (if required by NEIWPCC's federal programmatic conditions).

3.0 Quality Program and Description

The quality demands of a specific program function or project should be defined prior to undertaking activities when a QAPP or SOP will be developed. By defining the QOs of a function or project prior to taking action, NEIWPCC 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 NEIWPCC uses to design, document, and implement its Quality Program. The Quality Program includes the process of planning, implementing, and assessing the QA/QC/SOP operations. The Executive 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 with reference to EPA's guidance documents.

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 information used or collected are of known and acceptable quality. The intended use(s) and quality of the information will be defined before information 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: *EPA New*

*England Quality Assurance Project Plan Guidanc*e, January 2010[1]; *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. An additional tool to be utilized in QAPP development and approval is NEIWPCC's *Guide for Development and Approval of Quality Assurance Project Plans*, September 2019.

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 information quality becomes degraded. Assistance in establishing DQOs can be found in EPA's *Guidance for the Data Quality Objectives Process*, EPA QA/G-4," EPA/240/B-06/001, February 2006.

3.3 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 and approved by project managers and the QAPM. When certain procedures used by other agencies, (e.g., EPA and USGS) are adopted by NEIWPCC, the agencies' publications describing the procedures will be kept on file for all staff to review. Guidance for preparing SOPs can be found in EPA's Guidance for the Preparation of Standard Operating Procedures (SOPs), 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 NEIWPCC's central filing systems with updated copies provided to the division directors 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 (or designee) 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

NEIWPCC utilizes an annual self-assessment process to collect information on the performance of the quality management system. The self-assessment process consists of a series of screening questions incorporated into the annual employee performance evaluation and a follow-up online questionnaire (see Appendix B) utilized to collect additional information from NEIWPCC employees involved with environmental

[1] The EPA guidance documents listed throughout this QMP were the current versions at the time the current version of the QMP was developed. When needed, NEIWPCC staff will utilize (to the full extent possible) the most current version of the referenced documents.

information operations. Additional information is collected from project managers in concert with these activities, in order to update records on active QAPPs. See Appendix G: Annual QA Processes: Self-Assessments, QAPP Record Quality Control, & Reporting SOP.

C. *Internal Review/Audits of Performance*

The QAPM (or designee) and/or project managers may accompany field personnel to observe adherence to the QAPP or make unannounced checks to observe compliance with the QAPP. These field assessments – implemented utilizing project-specific resources - 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 Director along with recommendations for corrective actions. The division director will take immediate action on the QAPMs 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, NEIWPCC 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 NEIWPCC employees receive training in quality assurance pertinent to their responsibilities and work assignments. NEIWPCC 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

NEIWPCC determines and maintains the classification system for positions needed by the organization 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 NEIWPCC must meet these minimum requirements to qualify for a certain position. NEIWPCC's Human Resources department is responsible for the review of job classifications and for audits of existing positions as requested, to ensure employees are classified correctly. The Human Resources department also maintains position descriptions specifying the general 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, NEIWPCC'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 NEIWPCC for professional development, learning new techniques, and qualifying for / maintaining required certifications (e.g., 40-hour Occupational

Safety and Health Administration training). NEIWPCC management policy encourages staff to seek advanced degrees or professional training as needed to ensure that NEIWPCC's mission is fulfilled, and its objectives met. Employees participate in regional and national professional conferences and workshops relevant to their job responsibilities. NEIWPCC'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.

NEIWPCC's Human Resources department is responsible for identifying training needs, planning and implementing in-house training, and assisting employees in planning professional development.

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

All NEIWPCC employees are trained in the following areas:

- NEIWPCC Orientation
- Core training (e.g., Contracts & Proposals, RFPs, Event Planning, Staffing, Performance Management)
- Computer software applications and tools
- Sexual harassment awareness, Diversity, Equity & Inclusion awareness, and Cybersecurity
- 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 Executive 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 NEIWPCC's evaluation process and upon review of NEIWPCC's Operating Plan.

4.3 Training for Quality

With their hire letter, all new NEIWPCC employees receive a copy of the current QMP and are required to return an acknowledgment of receipt. All NEIWPCC employees are required to read this QMP. The division and/or project managers annually review the QMP with staff, including specific aspects pertaining to the work of that unit. In addition, a check-box has been incorporated into the annual employee performance appraisal form – where supervisors confirm that they have reviewed NEIWPCC data collection/QAPP policies with their staff.

All information-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 project 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 NEIWPCC'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 conducts quality management system training in conjunction with the annual NEIWPCC All-Staff meeting and/or via alternative mechanisms for training delivery.

5.0 Procurement of Items and Services

NEIWPCC procures a variety of commodities and services for environmental information 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 division directors and project managers 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 NEIWPCC's goal 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 Program in accordance with EPA requirements (EPA QA/R-2). The organization must submit a Quality Assurance Project Plan (QAPP) for NEIWPCC 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 NEIWPCC. 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. Project 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).

5.2 Laboratory Services

The QAPM or the NEIWPCC 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 NEIWPCC projects.

QAPPs developed by or on behalf of NEIWPCC 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. Project managers, or their designees,

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

5.4 Extramural Information Collection

Contracts for extramural information collection or analysis will first be reviewed by the appropriate division directors and project managers, then the QAPM – if necessary – to ensure that adequate QA requirements have been included in the contract. The requirement that the NEIWPCC QAPM review and approve the contractor's QA plan for consistency with EPA and NEIWPCC requirements also will be included.

6.0 Documents and Records

Each division at NEIWPCC is responsible for establishing and implementing procedures for controlling, filing, storing, protecting, and accessing documents and records in conformance with NEIWPCC 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 SOPs will be prepared and reviewed by project managers, technical personnel and appropriate division directors to ensure that the procedures are valid. The QAPM will also review guidance documents and SOPs, as needed, to ensure that they meet the quality needs of current and future projects.

All QAPPs written by or on behalf of NEIWPCC will be reviewed and approved by the QAPM (or designee) and submitted to any other appropriate approval authority for review and approval prior to data collection.

It is the responsibility of project 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 project 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 QAPPs.

The QAPM maintains quality assurance records relating to NEIWPCC's quality system that are not otherwise identified, this can include QMS training records. Project managers and division directors maintain quality assurance records relating to their respective programs 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

All documents and records associated with grants, contracts, and financial and personnel management are stored electronically and maintained at the NEIWPCC central office in Lowell, Mass. NEIWPCC staff working in other locations will have different options for document and records storage.

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

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 NEIWPCC employees. Employees are required to file their own documents or have this task done by support staff according to NEIWPCC policy. Files are kept on-site. Employees off-site may access NEIWPCC files remotely through a VPN service.

6.3 Archival Storage

NEIWPCC stores both financial and programmatic files for the appropriate length of time as determined in NEIWPCC's agreement with the funding source (federal, state, or private).

7.0 Computer Hardware and Software

For the Lowell headquarters office, NEIWPCC contracts with a network support company for IT support. An IT consultant visits NEIWPCC's Lowell Office weekly for a four-hour block of support. Additional time is scheduled for special projects and/or upgrades and the system is continuously remotely monitored. The Business Operations division is responsible for working with the IT consultant to maintain, upgrade and replace all equipment. The Business Operations division also ensures that proper hardware and software are in place and replaced on a regular basis for the Commission. 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 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.

The majority of NEIWPCC's database contains 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.

Specific details on NEIWPCC's databases and servers in the Lowell headquarters office are provided in Appendix D.

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

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 NEIWPCC 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 NEIWPCC 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.

After computer hardware and software have been installed, it will be tested to verify that NEIWPCC's specifications have been met. Also, when changes to computer hardware and software configurations are made, 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 NEIWPCC.

For the majority of NEIWPCC staff who do not work in the Lowell central office, their computer and software needs are provided by the host-agency (typically a state environmental agency or EPA). Programs that are independently hosted coordinate their computer and software needs through the Lowell central office.

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 information 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.
F. Document the results of the planning process in the QAPP.
G. 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, or NEIWPCC staff member, will prepare a QAPP based on the requirements established in this QMP and submit it for review and approval by the 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 information:

A. Accuracy - Can the information’s accuracy be determined, how was it determined, and is it acceptable for the planned use?
B. Precision - Can the information’s precision be determined, how was it determined, and is it acceptable for the planned use?
C. Completeness - Are there a sufficient amount of information available for the planned use?
D. Representativeness - Generally, how well do the information 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 information with respect to several factors, including:
    a. Consistency of reporting units?
    b. Standardized siting, sampling, and methods of analysis?
    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 information 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 (or designee), in cooperation with project managers, will periodically conduct assessments on a percentage of the overall amount of approved QAPPs 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

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

- Employee performance evaluations;
- Program reviews;
- Formal audits;
- Management system reviews; and,
- 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 Resources 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.

As described in section 3.4, the QAPM (or designee), project managers can review the progress of the work being performed to assure it is in compliance with the QMP and QAPP. The organizational goal is to annually conduct assessments of ten percent of applicable, approved projects. The QAPM consults with the QMSC to determine which projects should be audited. Documentation of this compliance will be included in NEIWPCC's quarterly report and annual quality assurance summary report to EPA, 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 Project Managers and the QAPM will determine and document the following:

- The nature and scope of the problem;
- The root cause(s);

- The programmatic impact;
- The required corrective action;
- Actions needed to prevent recurrence;
- Method of assessing and verifying the effectiveness of the corrective action;
- Timetable for implementation; and,
- 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 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 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 – if necessary.

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 appropriate EPA Quality Assurance Offices (or state agencies) advised of all program problems, needs, and overall status.

11.1 Quality Improvement

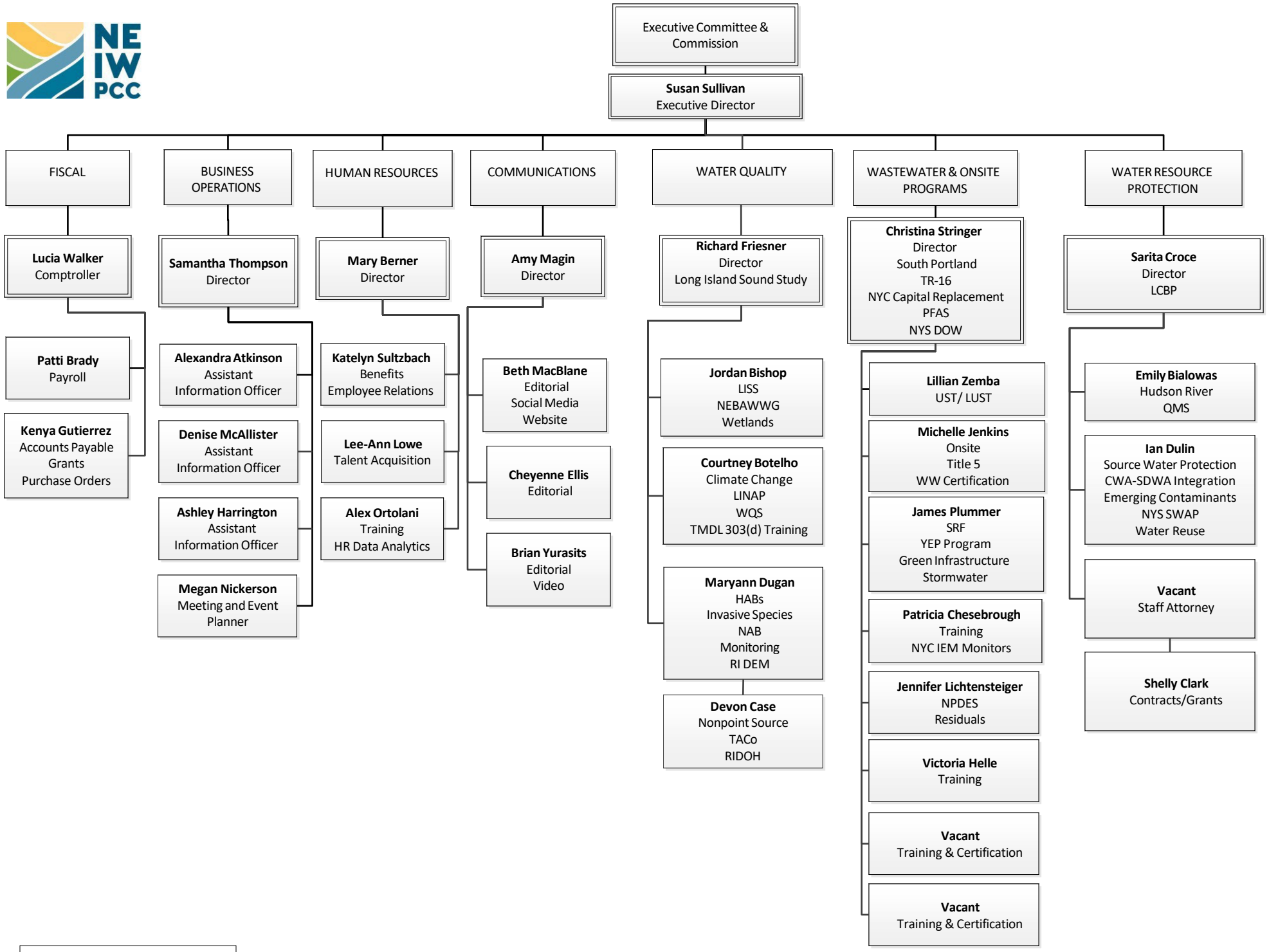
NEIWPCC understands “quality improvement” to be a continuing process by which NEIWPCC identifies opportunities to improve the Quality Program itself, as well as individual programs and work processes. It thus continues, but is distinct from, efforts to assure Quality Control and Quality Assurance.

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 QMSC requires the QAPM to report annually on the state of the Quality Program. Also on an annual basis, division directors review quality-related deficiencies, non-conformance, and programmatic improvements and advise the affected project manager of any significant trends. On an annual basis, the QAPM provides the EPA Region 1 and EPA Region 2 Quality Assurance Officers, as well as all applicable EPA project officers, with a report describing the status of the QMS (Appendix D). This reporting includes a list of all QAPPs reviewed and approved by NEIWPCC for the particular reporting period (fiscal year). Refer to Section 2.0, Management and Organization for additional detail.

APPENDIX A: ORGANIZATIONAL CHART



January 2023

APPENDIX B: EXAMPLE OF CURRENT QA SELF-ASSESSMENT QUESTIONNAIRE

Name*

Your answer

For the period of 10/1/21 to 9/30/22, did your NEIWPCC job responsibility involve environmental data collection or evaluation?*

Yes
No
Not sure

For the period of 10/1/21 to 9/30/22, were you involved in any environmental data collection or evaluation for projects that did not have a NEIWPCC approved QAPP?*

Yes
No
Not sure

Provide more detail if necessary.

Your answer

Please list any potential new projects that will require a NEIWPCC-approved QAPP in FY-2023.

Your answer

Explain any QA training you may want or any QA issues that you need assistance with.

Your answer

APPENDIX C: EXAMPLE OF CURRENT FIELD ASSESSMENT DATA SHEET

NEIWPCC

QA Field Assessment Data Sheet

Project Title:

QAPP ID:

Assessor(s):

Assessment Date:

Project Location:

Project Staff:

Brief Project Description:

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)

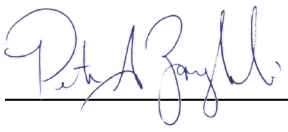
APPENDIX D: EXAMPLE OF ANNUAL QA STATUS REPORT AND QUALITY MANAGEMENT PLAN REVIEW

ANNUAL SYSTEM STATUS REPORT AND QUALITY MANAGEMENT PLAN REVIEW FY-2022

NEIWPCC

December 2022

Submitted by:



12/22/2022

Peter Zaykoski
NEIWPCC Quality Assurance Program Manager

Date

A. Year in Review

Workplan Reporting

NEIWPCC has an EPA-funded work plan and associated resources to allow the quality assurance program manager (QAPM) to support the organizational quality management system. Activities for this effort are reported to the appropriate EPA project officer. Below is the reporting for FY-2022.

§106 QUALITY MANAGEMENT

NEIWPCC Job Cost Codes: 1081-006

First Quarter

- Completed QA orientation trainings for 8 new employees.
- Completed Phase 2 of the annual staff self-assessment.
- Met with NEIWPCC Quality Management Steering Committee (QMSC) to discuss designee program and provide update on QMS anticipated FY2022 activities on 11/2/2021.
- NEIWPCC staff completed two QA field assessments: Q21-029 - Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health; Q20-016 - Quantifying the road salt pollution load to Mirror Lake and the Chubb River; full reports are included in Appendix C.
- Participated in EPA's listening sessions on their QAPP standards update process on 10/5/2021 & 10/7/2021.
- Participated in Northeast QA Round Table virtual meeting on 11/4/2021.
- Submitted annual system status report and QMP review for FY-21 to QMSC and EPA Regions 1 & 2 on 12/21/2021.

Second Quarter

- Completed QA orientation trainings for 3 new employees.
- Participated in EPA flash workgroup related to QAPP guidance through Q2.
- NEIWPCC staff completed two QA Field Assessments: Q21-017 - Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary; EPA award #00A00758 - Conservation of the Lamoille River Mudpuppy (*Necturus maculosus*) Population Using Translocation and Monitoring; full reports are included in Appendix C.
- Provided Quality Management System update to NEIWPCC Commissioners on 1/14/2022.
- Attended EPA's virtual Quality Conference 2/8-2/10/2022.
- Presented annual awareness training at NEIWPCC's All-Staff meeting on 3/24/2022.

Third Quarter

- Completed QA orientation trainings for 12 new employees.
- Onboarded new Assistant QAPM.
- Participated in EPA flash workgroup related to QAPP guidance through Q3.
- NEIWPCC staff completed one QA Field Assessment: Q18-004 - Long-term water quality and biological monitoring project for Lake Champlain; full report included in Appendix C.
- Attended EPA Northeast QA Roundtable Virtual Meeting 5/12/2022.

Fourth Quarter

- Completed QA orientation trainings for 3 new employees.
- Initiated QAPM Designee Base Training for three NEIWPCC staff and QAPM Designee refresher training for one staff person on 8/25/2022 & 8/31/2022.
- NEIWPCC staff completed one QA field assessments: Q21-030 - Lake Champlain high-frequency monitoring program 2021-2025; full report included in Appendix C.
- Provided QMP review and update plan to NEIWPCC Commissioners on 9/9/2022.

QAPP Review and Approval

In FY-2022, 30 quality assurance project plans (QAPPs) were approved. A list of the QAPPs reviewed and approved is contained in Appendix B. Twenty-three of the projects originated from the Lake Champlain Basin Program (LCBP), four from the Long Island Sound Study, and three originated at the Hudson River Estuary Program (HREP). In addition, there are several QAPPs that were submitted in FY-2022 that will be approved and finalized in FY-2023. Those QAPPs will be included in next year's report.

QA Field Assessments

Five QA field assessments were performed on projects with NEIWPCC QAPPs in FY-2022.

The field assessment reports for these projects are contained in Appendix C. The projects assessed and the dates of the assessments are:

- Q21-029 - Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health, 10/5/21
- Q20-016 - Quantifying the road salt pollution load to Mirror Lake and the Chubb River, 10/7/21
- Q21-017 - Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary, 3/10/22
- Q18-004 - Long-term water quality and biological monitoring project for Lake Champlain, 6/2/22
- Q21-030 - Lake Champlain high-frequency monitoring program 2021-2025, 8/12/22

Due to minor deviations noted during the assessments for projects Q21-029 and Q20-016, the relevant QAPPs were updated and provided to the project teams and oversight officers, with an opportunity to comment and additional action. No deviations or nonconformances were observed during the assessments of the remaining projects.

In addition, a QA field assessment was completed on the following project by NEIWPCC staff, "Conservation of the Lamoille River Mudpuppy (*Necturus maculosus*) Population Using Translocation and Monitoring" (EPA award #00A00758) on 3/21/22.

QA Presentations and Training

In FY-2022 there were several presentation and training opportunities offered in association with the quality management system. These included:

- Conducted 26 QA awareness trainings for new employees.
- Participated in Northeast QA Round Table virtual meetings on 11/4/2021 and 5/12/22
- Attended EPA's virtual Quality Conference 2/8-2/10/2022.

- Provided Quality Management System update to NEIWPCC Commissioners on 1/14/2022.
- Presented annual awareness training at NEIWPCC's All-Staff meeting on 3/24/2022.
- Initiated QAPM Designee Base Training for three NEIWPCC staff and QAPM Designee refresher training for one staff person on 8/25/2022 & 8/31/2022.
- Provided QMP review and update plan to NEIWPCC Commissioners on 9/9/2022.

Phase 2 QA Self-Assessments

Phase 2 QA self-assessment questionnaires were distributed to 28 staff on November 16, 2022 utilizing an online survey format for response collection. These staff were contacted to complete the self-assessment questionnaire because they indicated on their 2022 performance appraisal that they were involved with environmental data operations on behalf of NEIWPCC in FY-2022. One staff member has since left NEIWPCC, and 27 responses (100%) have been returned.

B. Quality System Review

Areas of Success

The following activities are indicators of a well-functioning quality management system:

- Continued success in efficiently processing QAPP reviews.
- Implementation of processes for annual QAPP data verification and project managers' certification of QAPP annual review.
- Continuation of a high rate of QA field assessments.
- 100% survey response for staff self-assessments.

Areas of Improvement

The system is performing well and continuous improvement efforts are planned for FY-2023, including:

- Continued development and revision of process documentation.
- Adjustment of our standard electronic filing system to provide more intuitive organization and better align with our annual data verification processes.

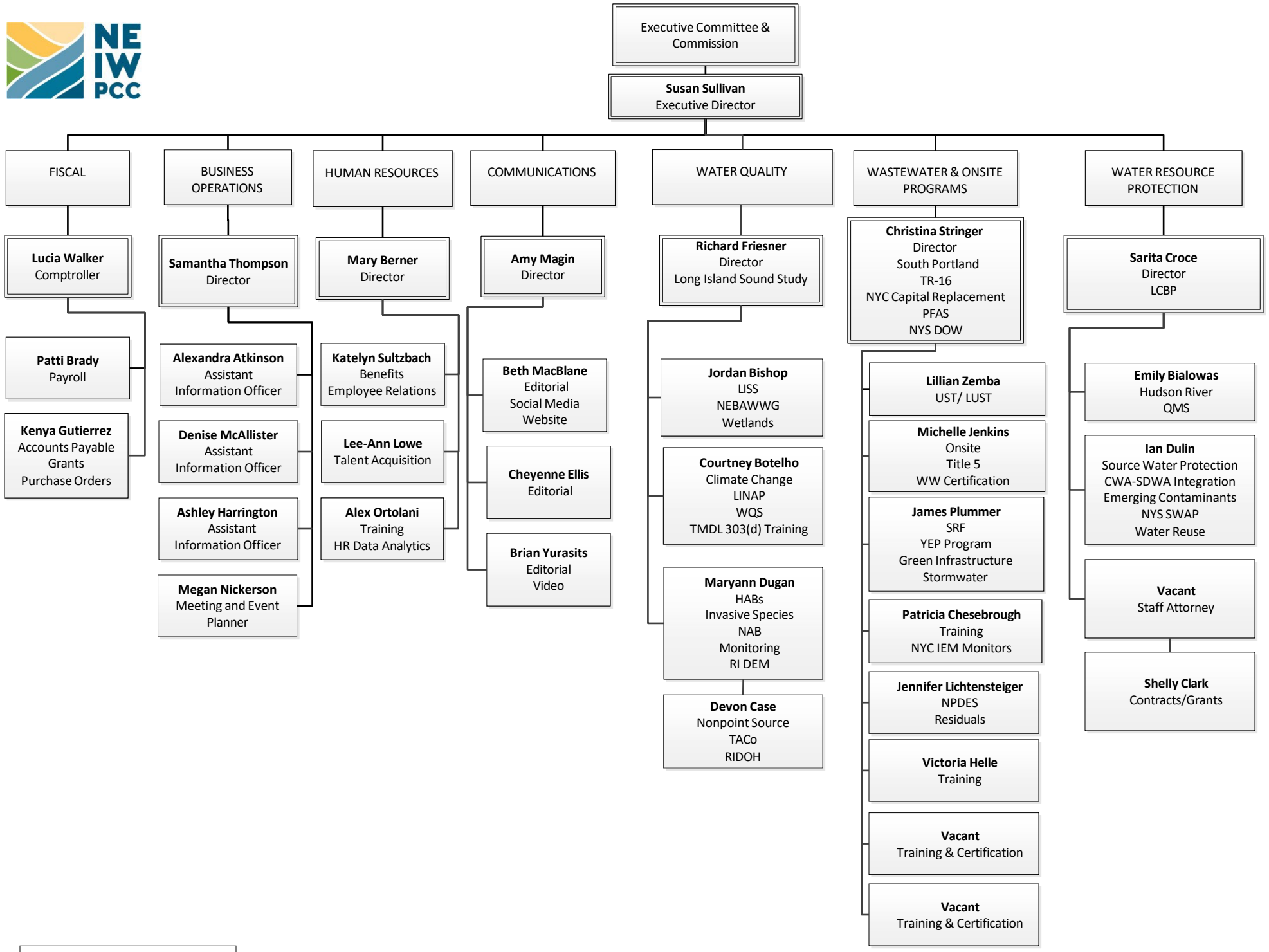
C. Goals for Next Year

- Complete update to NEIWPCC Quality Management Plan.
- Complete training of two to three new QAPM designees and conduct a refresher for existing designees, as appropriate.
- Complete training for project managers, using the updated QAPP standard when available.
- Conduct and coordinate a high rate of field assessments, engaging project managers and QAPM designees.
- Update QAPP guide for project managers and contractors based on the updated EPA standard (when available).
- Refine documentation of processes within the quality management system.

D. Quality Management Plan Review

As of the time of submission of this report, Version 6 of the NEIWPCC QMP is still in effect. The QAPM and NEIWPCC staff have completed updates to the QMP and this version (Version 7) has been approved by the NEIWPCC QMSC. This version will be submitted in January 2023 for concurrence by EPA Regions 1 and 2.

APPENDIX A: NEIWPCC ORGANIZATIONAL CHART



January 2023

APPENDIX B: QAPP LIST FOR FY-22

FY 2022 Approved QAPPs

NEIWPCC Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
Meg Modley Gilbertson	Q20-025-A1	Lake Champlain Basin Boat Launch Steward Programs	Peter Zaykoski	LC00A00605	5/2/2022	5/9/2022	5/16/2022	☑
Meg Modley Gilbertson	Q20-042-A2	Aquatic Plant Survey of Lake Hortonia	Peter Zaykoski	LC 00A00707-0	8/16/2022	8/22/2022	9/8/2022	☑
Meg Modley Gilbertson	Q21-018-A1	Knockout Knotweed: Return of the Jedi QAPP, V1	Peter Zaykoski	LC-00A00695	6/17/2022	6/22/2022	7/12/2022	☑
Meg Modley Gilbertson	Q21-028-A1	Follensby Clear Pond Aquatic Invasive Species Removal Amendment 1	Peter Zaykoski	LC-00A006950	5/18/2022	5/19/2022	6/8/2022	☑
Lauren Jenness	Q21-034	Lake Forest HOA Stormwater System Upgrade and Stream Daylight	Peter Zaykoski	LC00A00377	7/6/2021	7/14/2021	11/17/2021	☑
Jordan Bishop	Q21-036	The Long Island Sound Study Ecosystem Target and Supporting Indicators Microsite	Peter Zaykoski	LI00A00688 EPA	8/12/2021	8/18/2021	11/30/2021	☑
Meg Modley Gilbertson	Q21-038	Irish Farm Stormwater Improvements	Peter Zaykoski	LC00A00695	9/10/2021	9/20/2021	10/18/2021	☑
Matthew Vaughan	Q21-039	Dam Prioritization Tool for the New York Portion of the Lake Champlain Basin	Peter Zaykoski	GLFC	9/28/2021	9/29/2021	10/25/2021	☑

NEIWPCC Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
Daniel Miller	Q22-001	City of Hudson Climate Adaptive Design	Peter Zaykoski	C011814	10/14/2021	10/15/2021	10/28/2021	☑
Matthew Vaughan	Q22-002	Consequences of winter perturbations on nutrient export to Lake Champlain	Peter Zaykoski	LC00A00695-0	11/19/2021	12/8/2021	12/21/2021	☑
Daniel Miller	Q22-003	Preliminary Design of a Shoreline Revitalization and Community Connectivity Project in Ossining, NY	Peter Zaykoski	C011814	12/10/2021	12/15/2021	1/14/2022	☑
Megan Lung	Q22-004	Town of Red Hook and Town of Milan Stream Crossing Management Plan	Peter Zaykoski	C011814	3/1/2022	3/7/2022	3/21/2022	☑
Mae Kate Campbell	Q22-005	Lake Assessment and Watershed Action Planning for New York Lakes & Clean Water Safe Roads Partnership	Peter Zaykoski	LC-00A00707-0	3/15/2022	3/21/2022	4/19/2022	☑
Meg Modley Gilbertson	Q22-006	Distribution and Ecological Impacts of Round Goby in the Lake Champlain Region	Peter Zaykoski	GLFC	3/18/2022	3/21/2022	4/6/2022	☑
Jordan Bishop	Q22-007	Utilizing Ribbed Mussel Aquaculture to Improve Water Quality in the Long Island Sound	Richard Friesner	LI-00A00688	3/29/2022	4/12/2022	8/23/2022	☑
Jordan Bishop	Q22-008	Developing Conservation Plans for New York's Long Island Sound Marsh Complexes-Phase 2	Peter Zaykoski	LI-00A00384	3/29/2022	4/19/2022	6/16/2022	

NEIWPCC Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
Mae Kate Campbell	Q22-009	Establishing Bankfull Discharge and Hydraulic Geometry Relationships, Ausable River Watershed	Peter Zaykoski	LC 00A00707-0	4/5/2022	4/19/2022	5/5/2022	☑
Lauren Jenness	Q22-010	Caspian Lake & Watershed Action Plan, Greensboro VT	Peter Zaykoski	LC 00A00707-0	4/8/2022	5/4/2022	9/20/2022	☑
Mae Kate Campbell	Q22-011	NY NPS Subwatershed Assessment Plan Update	Richard Friesner	LC 00A00707-0	4/20/2022	5/2/2022	7/5/2022	☑
Lauren Jenness	Q22-012	Lake and Watershed Action Plan for Keeler Bay	Peter Zaykoski	LC 00A00707-0	5/4/2022	7/27/2022	8/22/2022	☑
Jordan Bishop	Q22-013	Utilizing Seaweed Aquaculture to Improve Water Quality in the Long Island Sound – Fertilizer Extension	Peter Zaykoski	LI-00A00688	5/4/2022	5/11/2022	7/11/2022	☑
Matthew Vaughan	Q22-014	Going deep: evaluating deep and shallow water drivers of mercury in Lake Champlain fish	Richard Friesner	LC00A00707	5/6/2022	5/31/2022	7/12/2022	☑
Mae Kate Campbell	Q22-016	Concept Design for Ahead of the Storm Demonstration Site in Hinesburg	Peter Zaykoski	LC 00A00707-0	5/18/2022	5/26/2022	7/12/2022	☑
Meg Modley	Q22-017	Native Plantings and Soil Health for Healthy Streams, Ausable River Watershed	Peter Zaykoski	EPA LC 00A00707-0	6/16/2022	6/22/2022	8/1/2022	☑

NEIWPCC Project Manager	QAPP ID	QAPP Title	QAPP Reviewer	Grant Number	Date Draft QAPP Received	Date Review Completed	Date Final QAPP Received	Signature Page Received
Matthew Vaughan	Q22-018	Development of a Comprehensive Binational Phosphorus Mass Balance Analysis Toolkit for the Missisquoi Bay Watershed	Peter Zaykoski	LC00A00707	6/6/2022	6/10/2022	7/15/2022	☑
Matthew Vaughan	Q22-019	Achieving Verifiable Phosphorus Removal from Tile Drains Discharging to Lake Carmi Tributaries	Richard Friesner	LC00A00707	6/9/2022	7/5/2022	9/14/2022	☑
Mae Kate Campbell	Q22-020	Completion of the planification for the revitalization of the Lake Parker watershed	Peter Zaykoski	GLFC	6/23/2022	6/24/2022	7/11/2022	☑
Mae Kate Campbell	Q22-021	Long-Term Monitoring of a Myco-Phytoremediation Project for Phosphorus Mitigation & Pollinator Habitat at Shelburne Farms	Peter Zaykoski	LC 00A00707-0	7/5/2022	7/6/2022	9/26/2022	☑
Lauren Jenness	Q22-023	Lake Iroquois Watershed Action Plan	Peter Zaykoski	LC 00A00707-0	8/3/2022	8/17/2022	9/27/2022	☑
Meg Modley Gilbertson	Q22-024	Lake Eden Eurasian watermilfoil aquatic plant survey	Peter Zaykoski	GLFC	8/11/2022	8/11/2022	8/15/2022	☑

APPENDIX C: FIELD ASSESSMENT REPORTS

June 2, 2022

QA Field Assessment Report

Project Title: Long-term water quality and biological monitoring project for Lake Champlain

QAPP ID: Q18-004

Assessor(s): Matthew Vaughan

On June 2, 2022, Matthew Vaughan (LCBP Chief Scientist and Project Officer) accompanied Pete Stangel and Connor Quinn during field activities associated with the *Long-term water quality and biological monitoring project for Lake Champlain*.

Field activities conducted during this visit included water quality sample collection, digital water quality sonde measurements, zebra mussel veliger tows, and Secchi disk readings. The team visited LTMP site 25 (Malletts Bay). This is the location of the recently deployed Malletts Bay monitoring buoy, though no maintenance was performed on the buoy.

All field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP).

Sampling equipment and Malletts Bay monitoring buoy in the background

Malletts Bay monitoring buoy

October 7, 2021

QA Field Assessment Report

Project Title: Quantifying the road salt pollution load to Mirror Lake and the Chubb River

QAPP ID: Q20-016

Assessor(s): Matthew Vaughan

On October 7, 2021 LCBP Project Officer (Matthew Vaughan) accompanied Leanna Thalmann (Ausable River Association), Brendan Wiltse and Sue O'Reilly (Adirondack Watershed Institute) during field activities associated with the *Quantifying the road salt pollution load to Mirror Lake and the Chubb River* project.

Field activities conducted on this day included in-lake water quality sonde measurements, water sample collection, and in-situ conductivity and temperature sensor data downloading at two locations.

Nearly all field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). There were two minor deviations from the QAPP:

1. Rather than using physical field sheets described in the QAPP, the field team used the ESRI Data123 smartphone app to record field visit information. All form information was identical to the field sheets described in the QAPP. The smartphone app stores information locally then syncs to the cloud and their office computers when connected to the internet.
2. The Adirondack Watershed Institute laboratory Standard Operating Procedure (SOP) has changed regarding the frequency of field blanks and field duplicate collection. When the QAPP was approved, the SOP stated that a field blank and field duplicate would be collected every sampling trip. The lab SOP has been altered to read: "During each year a field duplicate and field blank for each sampling site will be collected either one per year or once per ten sampling trips, whichever is greater."

Photos of the QA field assessment follow.

Brendan Wiltse collects a 2-meter integrated water sample, and Sue O'Reilly prepares to make water profile measurements of dissolved oxygen, specific conductance, and pH at 1-meter intervals using a hand-held water quality sonde.

Leanna Thalmann filters a water sample.

Sue O’Reilly and Leanna Thalmann download in-situ conductivity and temperature data at the outlet of Mirror Lake.

Brendan Wiltse downloads in-situ conductivity and temperature data at a stormwater outflow location.

Mirror Lake

March 10, 2022

QA Field Assessment Report

Project Title: Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary

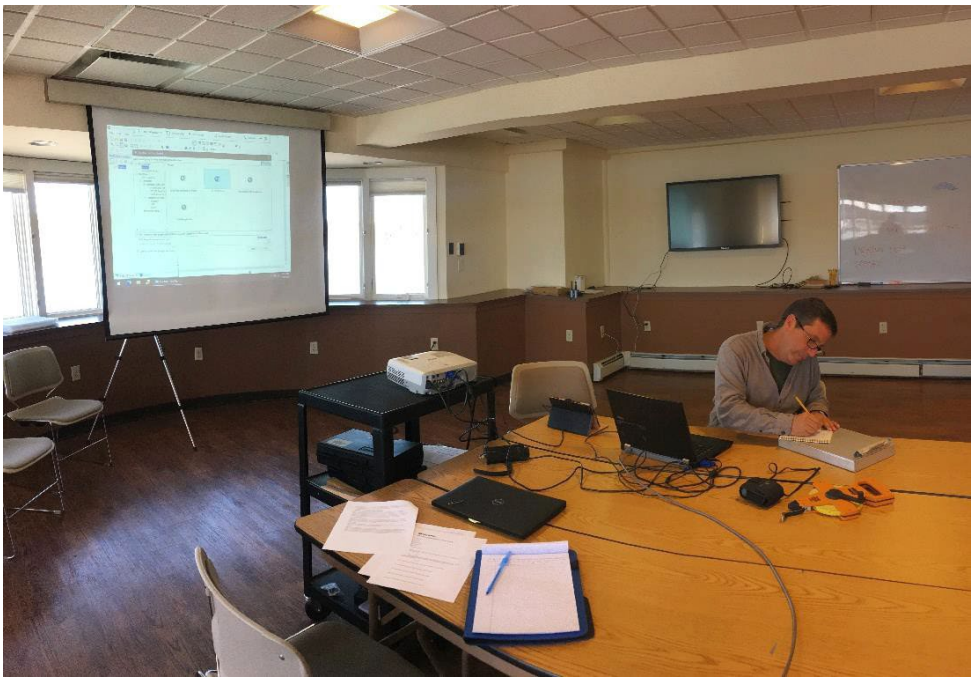
QAPP ID: Q21-017

Assessor: Peter Zaykoski, QAPM

On March 4, 2022, the NEIWPCC Quality Assurance Program Manager (Peter Zaykoski) accompanied Daniel Miller, NEIWPCC Environmental Analyst in the Hudson River Estuary Program during desktop and field activities associated with the Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary project.

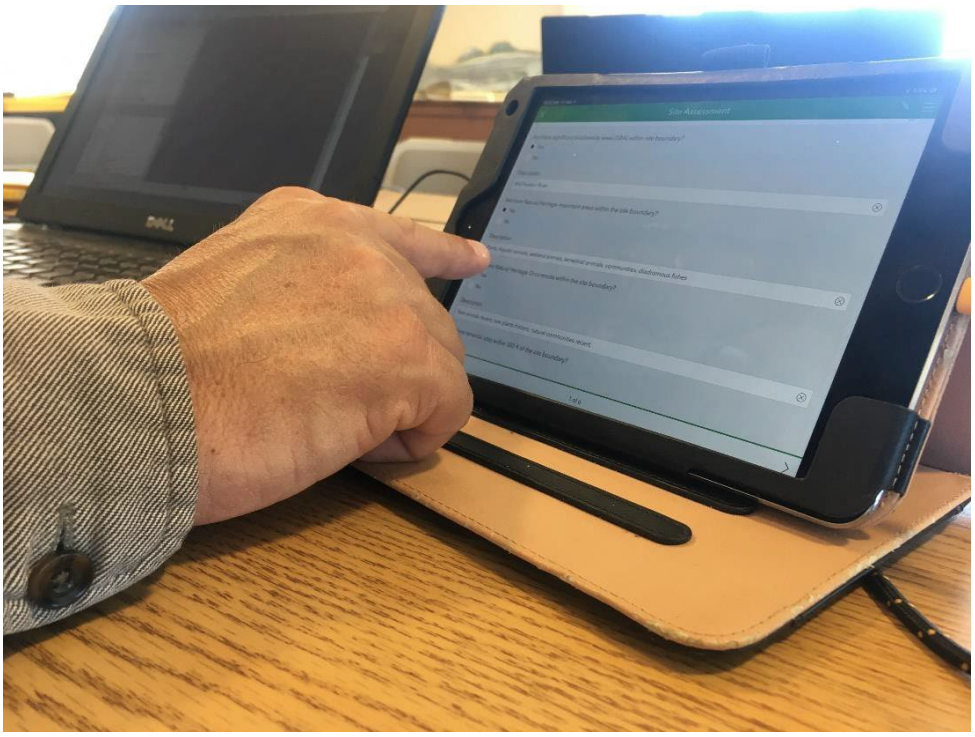
Activities conducted during the assessment included both desktop and field components of the site assessment protocol. Dan Miller completed the desktop components of the assessment at the Hudson River National Estuarine Research Reserve office at the Norrie Point Environmental Center in Staatsburg, NY. He demonstrated to me the tools in place for accessing data and the process to add relevant information from those geographic layers into the Survey 123 application for specific sites. We then traveled to Rhinebeck, NY, to a site where there is a dam on the Landsman Kill, to complete the field component of the protocol. Dan walked me through the process to open the site record in Survey 123 and add relevant data gathered through observations at the site. Pictures from the assessment are provided below and a copy of the assessment data sheet is attached at the end of this report.

All efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). No deviations from (or discrepancies with) the approved QAPP approved were observed or noted.



Dan Miller preparing to demonstrate the desktop component of the restoration site data collection protocol at the Norrie Point Environmental Center.

Dan showing locations of potential resotration sites, where the protocol has or is planned to be used for assessment.



Walking through the Survey123 application, Dan indicates the information that is collected during the desktop portion of the assessment.

The field site: a dam on the Landsman Kill in Rhinebeck, NY.

Dan enters observations into the Survey123 application at the field site.

Dan estimates distances to characterize the dam as part of the “Hydrologic Conditions” portion of the assessment protocol.

QA Field Assessment Data Sheet

Project Title: Collection and Management of Restoration Site Data in the Tidal Hudson River Estuary

QAPP ID: Q21-017

Assessor(s): Peter Zaykoski, QAPM

Assessment Date: March 4, 2022

Project Location: Norrie Point Environmental Center, Staatsburg, NY & Landsman Kill Dam, Rhinebeck, NY

Project Staff: Daniel Miller, NEIWPCC Environmental Analyst

Brief Project Description: Field observations of candidate restoration sites using mobile data collection app. Information combined in a geo-referenced database with secondary information from NYS to create site reports used to evaluate restoration site potential for further study and funding.

Is there an approved QA Project Plan for the overall project and has it been reviewed by all appropriate personnel?

Yes.

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.

Yes.

Is the implementation of the project in accordance with the QA Project Plan?

Yes.

Are there deviations from the QA Project Plan? (If yes, explain)

No.

Do any deviations from the QA Project Plan affect data quality?

N/A

Have any corrective actions been taken during the project?

No.

Did these corrective actions impact data quality (If yes, describe)

N/A

2021-10-05

QA Field Assessment Report

Project Title: Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health

QAPP ID: Q21-029

Assessor(s): Matthew Vaughan

On October 1, 2021, Matthew Vaughan (LCBP Chief Scientist and Project Officer) accompanied Sam Brewer, Hisashi Kominami, and Paliza Shrestha during field activities associated with the *Efficacy of the Vermont Stormwater Management Manual Bioretention Soil Specification in Removing Pollutants and Supporting Plant Health* project.

Field activities included synthetic stormwater mixing, synthetic rain event experimental run, and effluent sample collection.

Nearly all field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). The following deviations from the approved QAPP were observed:

- The synthetic stormwater runoff volumes have been revised to 30, 60, and 90 gallons, rather than the volumes specified in the QAPP (Table 7; 34.3, 52.8, and 68.7 gallons, converted from liters). The new volumes were chosen to represent small, medium, and large storms. The maximum practical volume for each storage tank is 90 gallons.
- The copper concentration in synthetic stormwater has been doubled to address sensitivity concerns at the suggestion of a laboratory technician. The concentrations are now 0.32 mg/L (for 1x concentration) and 0.64 mg/L (for 2x concentration) (QAPP Table 6).

Photos from this visit are on the following pages.

Synthetic stormwater tanks rest above experimental bioretention plots before the simulated rainfall event.

A full view of the experimental site. The lower storage containers catch simulated rainfall event effluent for sampling.

Sam Brewer combines the concentrated pollutant mixture with “clean” groundwater to create the synthetic stormwater.

A close-up view of an experimental bioretention basin during a simulated rainfall event.

August 12, 2022

QA Field Assessment Report

Project Title: Lake Champlain high-frequency monitoring program 2021-2025

QAPP ID: Q21-30

Assessor(s): Matthew Vaughan

On August 12, 2022, Matthew Vaughan (LCBP Chief Scientist and Project Officer) accompanied Pete Stangel (Aquatic Biologist), Peter Isles (Aquatic Biologist), and Connor Quinn (Field Assistant) during field activities on the Lamoille River associated with the *Lake Champlain high-frequency monitoring program.*

Field activities conducted during this visit included routine cleaning and sensor calibration for specific conductivity, dissolved oxygen, turbidity, nitrate, and pH probes on the YSI EXO2 multi-parameter sonde.

All field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP).

Water quality monitoring buoy deployed on the Lamoille River

Peter Isles (front) and Connor Quinn (back) remove the multi-parameter water quality sonde from the buoy housing for cleaning and sensor calibration.

Pete Stangel uses a winch to raise the buoy anchor for maintenance.

YSI EXO2 multi-parameter water quality sonde and calibration standards.

March 21st, 2022

QA Field Assessment Report

Project Title: Conservation of the Lamoille River Mudpuppy (Necturus maculosus) Population Using Translocation and Monitoring

QAPP ID: EPA award: #00A00758; RFA:#21050

Assessor(s): Meg Modley Gilbertson

On March 21st, 2022, the LCBP/NEIWPCC Project Officer (Meg Modley Gilbertson) accompanied Mark Ferguson, Vermont Department of Fish and Wildlife Biologist and Gwen Lavalla, Vermont Department of Fish and Wildlife seasonal technician, during field activities associated with the Mudpuppy Translocation project.

Field activities conducted on March 21st, 2022 included visiting the three sampling locations to retrieve 8 traps per site and the pit tagging of selected individuals to be translocated above the Arrowhead Mountain Dam.

All field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). No deviations from (or discrepancies with) the approved QAPP approved were observed or noted.

I met Mark and Gwen at the first sampling site on March 21st, 2022 on a 40-degree day. The water temperature was reading 2 degrees centigrade and optimal sampling for mudpuppies is 3 degrees centigrade based on the literature and the Vermont Department of Fish and Wildlife's past experience collecting mudpuppies.

The first array of 8 traps were set just below the Peterson Dam off of Peterson Rd. Each trap is a metal mesh cylinder that opens in the middle, weighted with slate, and baited with 3 golden shiner minnows that are crushed and inserted into a small plastic bottle with holes in it inside the trap. Each trap is checked every 48 hours so the sampling effort is intense. Each trap is targeted to be placed along the shoreline underwater and is connected to shore by a rope that is tied off to trees and spaced out about 10 meters apart. In the spring flows it can be challenging to retrieve the traps with debris and spring run-off water levels. I observed the retrieval, opening of each trap, removal of mudpuppies if found, rebaiting of the trap, and the return of the trap to the water. Trap 5 had two mudpuppies present. They were carefully removed and put into a 5-gallon bucket with water. Once all traps had been checked at the first sample site the mudpuppies were put in the back of the car with a battery-operated aerator and we continued to the next sample site.

First sample location just below the Peterson Dam off of Peterson Rd.

Mark Ferguson and Gwen Lavalla, VTFWD work to retrieve mudpuppy traps along the Lamoille River in Milton, VT.

Mark and Gwen retrieve a mudpuppy trap.

Mark Ferguson redeploys a baited mudpuppy trap.

Two mudpuppies retrieved in trap 5 before transfer to 5 gallon bucket.

Two mudpuppies from trap 5 at first sampling site transferred into 5 gallon bucket with Lamoille River water in the field.

The second sample site was just downstream along the embankment of the Lamoille River just off of West Milton Road. The second array of traps has a few more mudpuppies. Trap 2 had 1 plus a crayfish that was returned to the river, trap 4 had 3 mudpuppies, and trap 6 had 1 mudpuppy.

Field data sheet at site 2 shows trap 2 had 1 mudpuppy and 1 crayfish present.

Mark retrieves crayfish from trap 2 and prepares to release it in the Lamoille River.

Mudpuppies caught in the field are placed in 5 gallon buckets and aerators are inserted in the back of the VTFWD truck for transport.

The third sample site was located just upstream of the Bear Trap Road bridge and West Milton Road. Trap 2 had 2 mudpuppies, trap 4 had three mudpuppies, trap 6 fell apart as it was being retrieved and half the trap was lost in the river so it was replaced with a new trap, and trap 8 had 4 mudpuppies present.

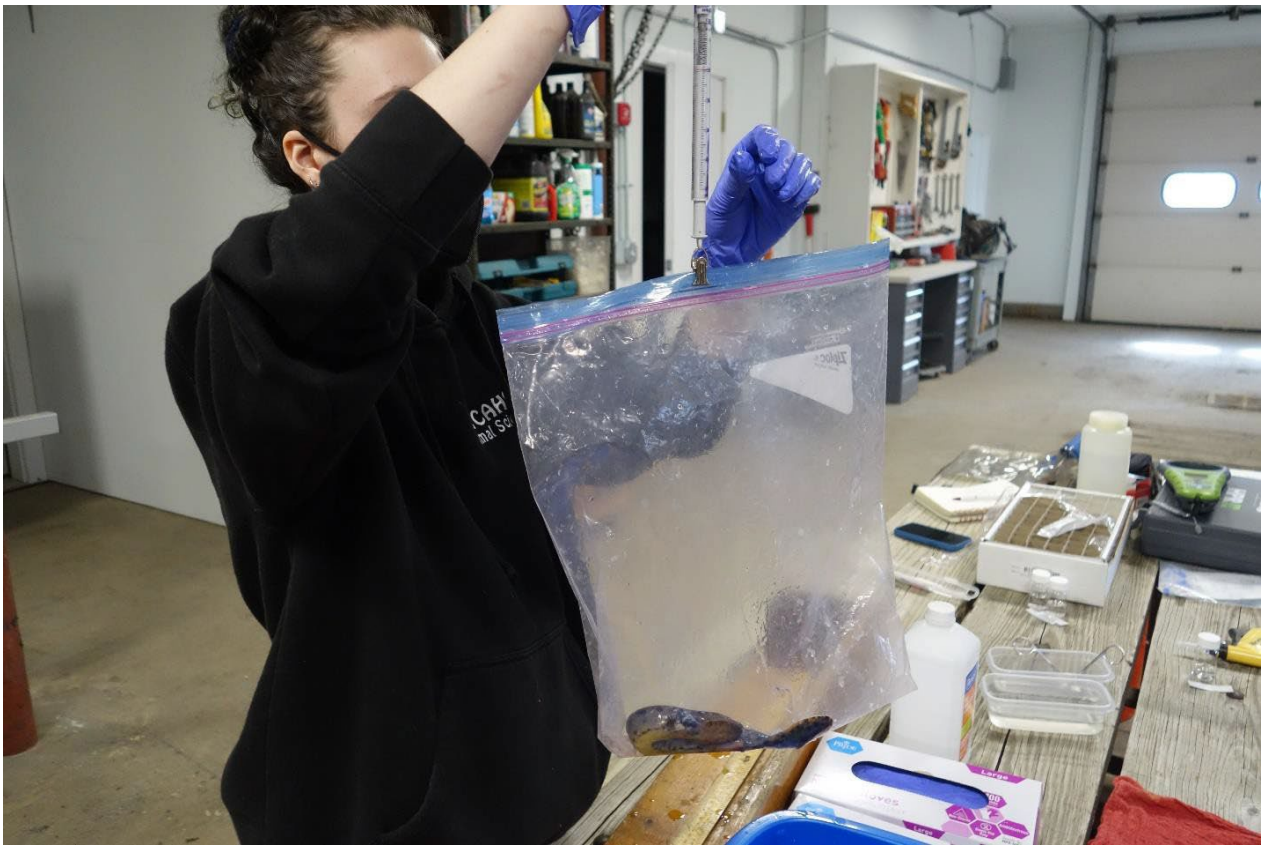
Gwen shows data collection sheet and approved QAPP on her phone during field assessment at site 3 on the Lamoille River.

After all the traps were checked at all three sites then the mudpuppies were transferred in their aerated buckets to the Vermont Department of Fish and Wildlife facility off of Gravelle Road in Milton, VT. There the mudpuppies were carefully transferred into blue bins so they could be

inspected with gloved hands for sex and then placed in a plastic bag to get their weight.

Mudpuppy in blue bin.

Gwen carefully checks the mudpuppy sex.



Mudpuppy placed in plastic bag for weight measurement.

Then the mudpuppies were clipped and a subset were pit tagged before being relocated above the Arrowhead Mountain Dam. Mark and Gwen used bleach to sterilize the scissors and tweezers used to take the tail clip after each use. Since the mudpuppies are so slippery they used a wet small towel to aid in picking up and handling the mudpuppies. Mark snipped skin off the tail to preserve of each mudpuppy caught and put the sample in a marked vile and the info was recorded on the data sheet. The process for pit tagging involved using the HPR lite handheld pit tagger. First the pit tag was scanned and the number was recorded on the data sheet. Then the tag was inserted into select mudpuppies. Then the mudpuppy was scanned for the tag to ensure it could be read and was correct. Any mudpuppy under 150mm in length was not pit tagged.


idextrous
eorder No
PR-5050

Mark and Gwen work to collect tail tissue from each mudpuppy.

Gwen and Mark work to pit tag mudpuppies over 150mm in length

The LCBP/NEI Project Officer had to leave before all pit tagging and tail clipping was complete but Gwen and Mark were headed out right after to release them above the Arrowhead Mountain Dam. They still had a long day ahead of them.

March 21st, 2022

QA Field Assessment Data Sheet

Project Title: Conservation of the Lamoille River Mudpuppy (Necturus maculosus) Population Using Translocation and Monitoring

QAPP ID: EPA award: #00A00758; RFA#21050

Assessor(s): Meg Modley Gilbertson

Assessment Date: March 21st, 2022

Project Location: Lamoille River in Milton, VT

Project Staff: Mark Ferguson, Vermont Department of Fish and Wildlife and Gwen Lavalla – VTFWD intern

Brief Project Description: The Vermont Natural Heritage Inventory assigns the mudpuppy a conservation status rank of S2, indicating it is rare in the state. Due to concern about its long-term population viability and in order to ensure they remain a vital part of the LCB aquatic fauna an immediate conservation strategy identified is to establish a subpopulation upstream of the known inhabited reach of the Lamoille River and separated from it by 2 dams. VTFWD will carry out trapping and translocation of 50-150 mudpuppies on the Lamoille River from below the Peterson Dam and move them upstream of the Arrowhead Mountain Dam. Translocated mudpuppies will be marked with PIT tags and a subset will be fitted with radio transmitters to assess survival and movement.

Is there an approved QA Project Plan for the overall project and has it been reviewed by all appropriate personnel?

Yes, this is a Lake Champlain Basin Program/NEI funded project supported by EPA funds that went directly from EPA to Vermont Department of Fish and Wildlife. LCBP project officer assigned to assist and track the project is Meg Modley Gilbertson. Meg worked with Mark Ferguson at VTFWD to ensure the QAPP was prepared and reviewed by EPA and signed by the appropriate parties. During the QA field site assessment Meg ensured that Mark and Gwen were aware of the QAPP and had a copy on hand.

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.

Yes, VTDFW had a copy of the QAPP on hand and in the field during data collection

Is the implementation of the project in accordance with the QA Project Plan?

Yes the project is operating in accordance with the QA Project Plan.

Are there deviations from the QA Project Plan? (If yes, explain)

No, there were no deviations from the QA Project Plan that I observed or heard about.

Do any deviations from the QA Project Plan affect data quality?

N/A

Have any corrective actions been taken during the project?

No

Did these corrective actions impact data quality (If yes, describe)

N/A

APPENDIX E: NEIWPCC DATABASE AND SERVER DETAILS

For the Lowell headquarters office, all of NEIWPCC's databases are currently stored on the server NEIDynamics and NEIDC01. NEIWPCC's five servers are virtual machines running various versions of Windows Operating systems. The servers are hosted across a single VMWare host server. The full list of the servers and their functions are depicted below. Email is hosted in Microsoft's cloud via Office365.

All of the servers are backed up by our IT consultants. There is a 15-day retention period. The appliance provides 10TB of storage. There is also a copy of the backup going to a secure offsite location.

- NEIDC01 (VM, Domain Controller, DNS, DHCP, File, Print) (Windows 2012))
- NEIDC02 (Backup Domain Controller in the event that NEICD01 goes down) (Windows 2012 R2)
- NEIDynamics (Accounting system - MS Dynamics) (Windows 2012)
- NEIRDSCB01 (Remote Desktop Gateway Broker, RDS) (Remote Desktop Services, gateway, Windows 2012)
- NEIRDSSH01 (RDS App Server) (Windows 2012)

For the Lowell Headquarters office, the server and all of the individual workstations are protected with virus, SPAM, and anti-spyware software, using SentinelOne EDR. 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 NEIWPCC where it is stored, classified as good or SPAM, and then redirected to the appropriate NEIWPCC 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.

APPENDIX F: NEIWPCC ACRONYM REFERENCE

STANDARD ABBREVIATIONS USED IN NEIWPCC QUARTERLY REPORT

AAFM ..... Agency of Agriculture Food & Markets
ABC..... Association of Boards of Certification
AC..... Advisory Committee
ACOE..... Army Corps of Engineers
ACWA ..... Association of Clean Water Administrators
ACWF..... America's Clean Water Foundation
ADK..... Adirondack
AFM ..... Alternative Funding Mechanism
AFO..... Animal Feeding Operation
AMSA..... Assn. of Metropolitan Sewerage Assns.
ANEP ..... Assn. of National Estuary Programs
ANPRM..... Advance Notice of Proposed Rule Making
ANS..... Aquatic Nuisance Species
AOT..... Agency of Transportation
API ..... American Petroleum Institute
APIPP ..... Adirondack Park Invasive Plant Program
ARCGIS ..... ESRI Geographic Information System
ARM..... Ambient River Monitoring
ARRA..... American Recovery and Reinvestment Act
ASCE ..... American Society of Civil Engineers
ASDWA..... Assn. of State Drinking Water Administrators
ASIWPCA ..... Assn. of State and Interstate Water Pollution Control dministrators
AsRA..... Ausable River Association
AST ..... Aboveground Storage Tanks
ASTSWMO..... Association of State & Territorial Solid Waste Management Officials
ATEEC ..... Advanced Technology Environmental Education Center
AVGWLF..... Generalized Watershed Loading Function with an Arc View Interface
AWWA..... American Water Works Association
AWWARF..... American Water Works Research Foundation
BD..... Bureau Directors
BEACH..... Beaches Environmental Assessment, Closure, and Health
BMP ..... Best Management Practice
BOD ..... Biochemical Oxygen Demand
BWAR ..... Bureau of Watershed Assessment of Research
CAC..... Citizens' Advisory Committee
CAFO ..... Concentrated Animal Feeding Operation
CALM ..... Consolidated Listing and Assessment Methodologies
CBEI..... Champlain Basin Education Initiative
CBSM..... Community-Based Social Marketing
CCMP..... Comprehensive Conservation and Management Plan
CCRPC ..... Chittenden County Regional Planning Commission
CCS..... Cumberland County Soil
CDBG..... Community Development Block Grant-Disaster Recovery
CDC ..... Center for Disease Control
CEIT..... Center for Environmental Industry & Technology
CHRAC ..... Cultural Heritage & Recreation Advisory Committee
CICEET..... Cooperative Institute for Coastal & Estuarine Environmental Technology
CMOM..... Capacity, Management, Operations & Maintenance
COAST..... Coastal Adaptation to Seal Level Rise Tool
COLA ..... Congress of Lakes Associations
CONEG..... Coalition of Northeastern Governors
CO-OPS..... Center for Operational Oceanographic Products and Services
COT..... Communication Outreach Training Committee
CPUE..... Catch Per Unit Effort
CRC..... Coastal Resources Center
CRJC ..... Connecticut River Joint Commissions
CRMC..... Coastal Resources Management Council
CRP ..... Comprehensive Restoration Plan
CRWC..... Connecticut River Watershed Council
CSLAP..... Citizens' Statewide Lake Assessment Program
CSO..... Combined Sewer Overflow
CT AGO ..... Connecticut Attorney General's Office
CT DEEP ..... Connecticut Department of Energy and Environmental Protection
CTP..... Coastal Training Program
CT SWP..... Connecticut State Water Plan
CT WPAA..... Connecticut Water Pollution Abatement Association
CUNY..... City University of New York
CVNHP..... Champlain Valley National Heritage Partnership
CWA ..... Clean Water Act
CWAP..... Clean Water Action Plan
CWSRF ..... Clean Water State Revolving Funding
DART..... Dept. Application Review Tracking system
DEC..... Department of Environmental Conservation
DEM..... Department of Environmental Management
DFWI..... Darrin Fresh Water Institute
DITP..... Deer Island Treatment Plant
DOS..... Department of State
DOT..... Department of Transportation
DW..... Drinking Water
DWM..... Drinking Water Management
DW SRF..... Drinking Water State Revolving Fund
DWP ..... Drinking Water Program
E&O ..... Education & Outreach
EBPS ..... Environmental Benefit Permit Strategy
ECHO ..... Ecology, Culture, History, Opportunity
ECOS..... Environmental Council of States
ECT..... Environmental Certification Testing
EDAS ..... Ecological Data Application System
EIS..... Environmental Impact Statement
ELAP..... Environmental Laboratory Approval Program
EPA..... Environmental Protection Agency
EPG..... Engineering Planning Grant
ES..... Environmental Scientist
ESIP..... Ecosystem Indicators Project
ESRI ..... Environmental Systems Research Institute
EWM..... Eurasian Watermilfoil
FMIS ..... Financial Management Information Setup
FOIL..... Freedom of Information Laws
FOLA ..... Federation of Lake Associations
FJA ..... Functional Job Analysis
FSR..... Financial Status Report
FTP..... File Transfer Protocol
FWS..... Fish & Wildlife Service
GAC..... Granular Activated Carbon
GI..... Green Infrastructure
GIS..... Geographic Information Systems
GLFC ..... Great Lakes Fisheries Commission

LNPO Great Lakes National Program Office
GMS Groundwater Modeling System
GOSR ..... Governor's Office of Storm Recovery
GPS ..... Global Positioning System
GREAT..... *Greeting Recreationalists to Empower and Train*
GRTS ..... Grants Reporting and Tracking System
GW..... Groundwater
GWDPP ..... Groundwater Discharge Permitting Program
GWPC..... Groundwater Protection Council
GWPRF..... Groundwater Protection Research Foundation
GWR ..... Groundwater Rule
HAB..... Harmful Algae Bloom
HAPAC..... Heritage Area Program Advisory Committee
HCS-RTK..... Hazard Communication Standard/Right-to-Know
HGA ..... Hunt Guillot & Associates, LLC
HRE ..... Hudson River Estuary
HREP ..... Hudson River Estuary Program
HRECOS..... Hudson River Environmental Conditions Observing System
HREMAC ..... Hudson River Estuary Management Advisory Committee
HRNERR..... Hudson River National Estuarine Research Reserve
HRTTP..... Hudson River Toxics Trackdown Project
HRWA..... Hudson River Watertrail Association
HQ..... Headquarters
HUD ..... US Dept. of Housing & Urban Development
IAP ..... Implement Action Plans
ICIS..... Integrated Compliance and Information System
ICWP..... Interstate Council on Water Policy
IEC..... Interstate Environmental Commission
IFB ..... Invitation for Bid Process
IDDE ..... Illicit Discharge Detection and Elimination
IMS..... Internet Map Server
ISDS..... Individual Sewage Disposal System
ITIS ..... Integrated Taxonomic Information Systems
IUP ..... Intended Use Plan
iWR ..... Interstate Water Report (Quarterly Email)
IWR ..... Interstate Water Report
JETCC ..... Joint Environmental Training Coordinating Committee
KKWWD..... Kennebunk, Kennebunkport, Wells Water District
LaMP..... Lakewide Management Plan
LCBP..... Lake Champlain Basin Program
LES ..... Lower East Side
LiDAR..... Light Detection and Ranging
LISO..... Long Island Sound Office
LISS ..... Long Island Sound Study
LISWA..... Long Island Sound Watershed Alliance
LTCP..... Long-Term Control Plan
LTM..... Long-Term Monitoring
LUST..... Leaking Underground Storage Tanks
MA DEP..... Massachusetts Department of Environmental Protection
MACC..... Maine Association of Conservation Commissions
MADWEP..... Massachusetts Drinking Water Education Partnership
MA OWP ..... Massachusetts Association of Onsite Wastewater Professionals
MCL..... Maximum Contaminant Level
ME DEP..... ME Department of Environmental Protection
ME DHE ..... Maine Division of Health Engineering
ME DHS ..... ME Department of Human Services
ME DWP..... Maine Drinking Water Program
MEG..... Modeling Evaluation Group
MEWEA ..... Maine Water Environment Association
MGD ..... Million Gallons per Day
MGS..... Maine Geological Survey
MOGIS..... Maine Office of GIS
MHDS ..... Master Habitat Data Bank
MHOA..... Massachusetts Health Officers Assn.
MOA..... Memorandum of Agreement
MOU ..... Memorandum of Understanding
MPN..... Most Probable Number
MPP..... Millennium Power Partners
MRI..... Merrimack River Initiative
MRWA ..... Maine Rural Water Association
MS4 ..... Municipal Separate Storm Sewer System
MSGP ..... Multi-Sector General Permit
MtBE..... Methyl Tertiary-Butyl Ether
MWRA ..... Massachusetts Water Resources Authority
MWUA ..... Maine Water Utilities Association
MWWCA..... Maine Wastewater Control Association
MyRWA..... Mystic River Watershed Association
NALMS ..... New England Chapter of the North American Lake Management Society
NAS ..... Nuisance Aquatic Species
NAW ..... National Advisory Workgroup
NBEP..... Narragansett Bay Estuary Program
NBNERR ..... Narragansett Bay National Estuarine Research Reserve
NBP ..... National Biosolids Partnership
NC..... Nutrient Criteria
NDWRCDP.... National Decentralized Water Resources Capacity Development Project
NEAEB..... New England Association of Environmental Biologists
NEAPMS..... Northeastern Aquatic Plant Management Society
NEBAWWG ... New England Biological Assessment of Wetlands Workgroup
NEBHE ..... New England Board of Higher Education
NECAN ..... Northeast Coastal Acidification Network
NECNALMS.. New England Chapter of the North American Lake Management Society
NEEEA..... New England Environmental Education Association
NEG/ECP..... New England Governors/Eastern Canadian Premiers
NEGP..... New England General Permit
NEHA..... National Environmental Health Association
NEHSTC..... New England Hydric Soils Technical Committee
NEPA..... National Environmental Policy Act
NEPORT..... National Estuary Program On-Line Reporting Tool
NERACOS..... Northeast Regional Association of Coastal Observing Systems
NERC..... New England Radiation Committee
NERL..... Northeast Regional Lakes
NERMC ..... Northeast Regional Monitoring Collaborative
NERCAP..... Northeast Rural Community Assistance Program
NERRS..... National Estuarine Research Reserve System
NERWA ..... Northeast Rural Water Association
NESCAUM..... Northeast States for Coordinated Air Use Management
NEWEA..... New England Water Environment Association
NEWMOA ..... Northeast Waste Management Officials' Association
NEWWA..... New England Water Works Association
NGA..... National Governors' Association
NHD ..... National Hydrography Dataset
NMMA..... National Marine Manufacturers Association

NH DES..... New Hampshire Department of Environmental Services
NJ DEP..... New Jersey Department of Environmental Protection
NJ DEPE ..... New Jersey Department of Environmental Protection & Energy
NJ DOH..... New Jersey Department of Health
NJHDG..... New Jersey Harbor Dischargers Group
NNC ..... Numeric Nutrient Criteria
NOAA..... National Oceanic and Atmospheric Association
NODP..... National On-Site Demonstration Project
NOS ..... National Ocean Service
NOWRA ..... National On-Site Wastewater Recycling Association
NPDES..... National Pollution Discharge Elimination System
NPRM..... Notice of Proposed Rule Making
NPS..... Nonpoint Source or National Park Service
NPSTC..... Nonpoint Source Training Center
NRCD..... Natural Resources Conservation District
NRCS..... Natural Resource Conservation Service
NROC..... Northeast Regional Ocean Council
NSF ..... National Science Foundation
N/SPDES ..... National/State Pollutant Discharge Elimination System
NURE..... National Uranium Resource Evaluation
NWLON..... National Water Level Observing Network
NYC DPR ..... New York City Dept. of Parks and Recreation
NYRCR ..... New York Rising Community Reconstruction
NYSCC ..... New York State Canal Corporation
NYS DEC ..... New York State Department of Environmental Conservation
NYSERDA..... New York State Energy Research and Development Authority
NYS OAG..... New York State Office of the Attorney General
NYSOEA..... New York State Outdoor Education Association
NYSOPRHP... New York State Parks Recreation & Historic Preservation
NYWEA..... New York Water Environment Assn.
O&M..... Operations & Maintenance
OGWDW..... Office of Groundwater & Drinking Water
OLWP ..... Onondaga Lake Watershed Partnership
OM&R ..... Operations, Maintenance & Rehabilitation
OMSAP ..... Outfall Monitoring Science Advisory Panel
OQA..... Office of Quality Assurance
OTA..... Office of Technical Assistance
OUST ..... Office of Underground Storage Tanks
OWR ..... Office of Water Resources
OWTS ..... On-Site Wastewater Treatment System
PAH..... Poly-Aromatic Hydrocarbons
PAS..... Performance Analysis System
PCI..... Private / Commercial / Institutional
PDF..... Portable Document Files
PDWC ..... Public Drinking Water Commission
PEDS ..... Pollutant Elimination Discharge System
PEP..... Peconic Estuary Program
PETE..... Partnership for Environmental Technology Education
PI..... Public Involvement
PIAC..... Public Interest Advisory Committee
PPA..... Performance Partnership Agreement
POTW ..... Publicly Owned Treatment Works
POTW_PAS ... Publicly Owned Treatment Works Performance Analysis System
PRISM..... Partnerships for Regional Invasive Species Management
PWD..... Portland Water District
PWSS ..... Public Water Supply System
QAPP..... Quality Assurance Project Plans
QA/QC ..... Quality Assurance/Quality Control
QC ..... Quality Control
QSA ..... Quality Assurance Assessment
RAINE..... Resilience and Adaptation in New England Database
RDA ..... Residual Designation Authority
RFP..... Request for Proposals
RIBS ..... Rotating Intensive Basin Study
RI DEM ..... RI DEM
RI DOH ..... RI Dept. of Health
RIPDES ..... RI Point Discharge Elimination System
ROD..... Record of Decision
RSC ..... Russell Sage College
RTAG..... Regional Technical Assistance Group
RWE ..... Regional Water Engineers
SAV..... Submerged Aquatic Vegetation
SARP ..... Sectoral Applications and Research Program
SBDC..... Small Business Development Center
SCADA ..... Supervisory Control & Data Acquisition
SC DNR ..... South Carolina Department of Natural Resources
SDWA..... Safe Drinking Water Act
SE..... Soil Evaluator
SET..... Surface Elevation Table
SFA..... State Fund Administrators
SFY..... State Fiscal Year
SI ..... System Inspector
SIC..... Standard Industrial Classification
SNECWRP .... Southeast New England Coastal Watershed Restoration Program
SOP ..... Standard Operating Procedure
SORA..... State Onsite Regulators Alliance
SPARROW .... Spatially Referenced Regressions on Watershed Attributes
SPDES..... State Pollutant Discharge Elimination System
SRF..... State Revolving Fund
SPRTK..... Sewage Pollution Right to Know
SSO ..... Sanitary Sewer Overflow
STAC ..... Science and Technology Advisory Committee
STORET ..... Storage and Retrieval Data Warehouse
SUNY..... State University of New York
SW..... Stormwater
SWAP ..... Source Water Assessment Program
SWEM..... Systemwide Eutrophication Model
SWIMS ..... State Water Information Management System
SWMP..... System Wide Monitoring Program
SWP..... Source Water Protection
SWPPP..... Stormwater Pollution Prevention Plans
TAC..... Technical Advisory Committee
TAP..... Technical Assistance Program
TCH ..... Training Contract Hour
TEA-21..... Transportation Equity Act for the 21st Century
TEC..... Target Ecosystem Characteristics
THV..... Teaching the Hudson Valley
TMDL..... Total Maximum Daily Load
TNC ..... The Nature Conservancy
TOT..... Time Of Travel
TSN..... Taxonomic Serial Number
TSS..... Total Suspended Solids
TTU..... Toxicity Testing Units
UCMR..... Unregulated Contaminants Monitoring Rule
UIC..... Underground Injection Control

UMASS ..... University of Massachusetts
URI ..... University of Rhode Island
USACE ..... US Army Corps of Engineers
USF&WS ..... United States Fish & Wildlife Service
USGS ..... United States Geological Survey
UST ..... Underground Storage Tank
UVM ..... University of Vermont Montpelier
UWA ..... Unified Watershed Assessment
VDH ..... Vermont Department of Health
VNRC ..... Vermont Natural Resources Council
VT ANR ..... Vermont Agency of Natural Resources
VT DEC ..... Vermont Department of Environmental Conservation
VT YCC ..... Vermont Youth Conservation Corps
WAVE ..... Wadeable Assessments by Volunteer Evaluators
WBID ..... Water Body Identifier
WBNERR ..... Waquoit Bay National Estuarine Research Reserve
WCD ..... Water Conservation District
WEDG ..... Waterfront Edge Design Guidelines
WEF ..... Water Environment Federation
WERF ..... Water Environment Research Foundation
WES ..... Wall Experiment Station
WET ..... Water Environment for Teachers
WHAEM ..... Wellhead Analytical Element Model
WQ ..... Water Quality
WQIP ..... Water Quality Improvement Project
WQS ..... Water Quality Standards
WQX ..... Water Quality Exchange
WRRC ..... Water Resources Research Center
WVU ..... West Virginia University
WWTF ..... Wastewater Treatment Facility
WWTP ..... Wastewater Treatment Plant
YEP ..... Youth and the Environment Program
YOWA ..... Yankee On-Site Wastewater Association

ZM ..... Zebra Mussel

APPENDIX G: NEIWPCC QA Standard Operating Procedures

STANDARD OPERATING PROCEDURE

REVIEW AND APPROVAL PROCESS FOR NEIWPCC QUALITY ASSURANCE PROJECT PLANS (QAPPS)

NEIWPCC

Effective 1/11/2023

Version 3.0

Approved by:

02/02/2023

Emily Bialowas
Quality Assurance Program Manager

Date

02/02/2023

Susan J. Sullivan
Executive Director

Date

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APPENDICES

DOCUMENT CONTROL INFORMATION

Revised By	Date	Version	Summary of Changes
Peter Zaykoski, QAPM	10/1/2019	2.0	Added QAPP Unique ID system and process considerations; added file naming convention; clarified individual steps where needed.
Peter Zaykoski, QAPM	1/9/2023	3.0	Added LCBP delegated process as appendix; documented process for offsite designees; clarified communication procedures for QAPM or designee during review.

I. SUMMARY

This document was prepared to assist NEIWPCC staff in understanding the process for the review and approval of quality assurance project plans. It outlines roles, responsibilities, and procedures for two scenarios: the first covers projects funded by EPA; the second scenario covers projects funded by other organizations.

While this is intended to be a stand-alone document, it does not describe all aspects of the NEIWPCC Quality Program, the process for determining when a QAPP is needed, or specific components and requirements of a quality assurance project plan. For additional guidance on these topics, go to NEIWPCC's Quality Management website (neiwpcc.org/quality).

Note that the procedures described below do not apply to a program that has QAPP-approval authority, in which case the program would have its own approval procedure.

II. DEFINITIONS

QMP	Quality management plan. Overarching document that describes NEIWPCC's quality program.
QAPP	Quality assurance project plan (including all associated appendices, checklists, and forms)
Unique identifier	Alphanumeric label assigned to each QAPP submitted for NEIWPCC review and approval
QAPP writer	Person responsible for writing and revising a QAPP (may be NEIWPCC employee or contractor)
NEIWPCC project manager (PM)	NEIWPCC staff person responsible for oversight of project in need of an approved QAPP
Checklist	Any of several review templates used to assess completeness of a QAPP. The checklist used is based on type of project (primary data, secondary data, or modeling).
Receiver	Designated administrative contact for QAPP tracking at the Lowell office (email: qapps@neiwpcc.org)
QAPP Tracker	Database used to track information and status of QAPP review and approval
QAPM	Quality assurance program manager (currently Emily Bialowas) is the point-of-contact for all quality assurance activities
Designee	Quality assurance program manager designee. An appropriately trained and certified staff person selected by the QAPM to review and approve a particular QAPP
EPA project officer	EPA staff person responsible for project oversight
EPA QA reviewer	EPA staff person responsible for reviewing the QAPP and approving it once it complies with EPA QAPP requirements

III. PROCEDURE

The process for review and approval of all NEIWPCC QAPPs consists of nine steps in three phases:

Phase 1: Preparation and Initialization

Step 1. Project Manager Review for Completeness
Step 2. Initial Submission of Draft QAPP
Step 3. Receipt of Draft QAPP

Phase 2: Review and Revision

Step 4. QAPP Review Assignment
Step 5. Reviewing Draft QAPP
Step 6. Draft QAPP Revision
Step 7. QAPP Revision Review

Phase 3: Finalization and Filing

Step 8. Finalization of QAPP
Step 9. Electronically Filing the QAPP

All QAPP review and approval processes share the same detailed process instructions for phases one and three; the specific process for phase two is dependent on the funding source of the project. Details for each step in the process are presented below and flow charts showing summarizing the steps for each scenario are provided in Appendix A.

Most NEIWPCC QAPPs are reviewed and approved through the centralized system, coordinated by the NEIWPCC QAPM in the NEIWPCC Headquarters office. However, pursuant to NEIWPCC's Quality Management Plan (QMP), NEIWPCC has a program that allows the Lake Champlain Basin Program to review and approve QAPPs for projects not funded by EPA. The specific processes for QAPPs that move through this delegated program are detailed in Appendix D.

PHASE 1: PREPARATION AND INITIALIZATION

Step 1: Project Manager Review for Completeness

1.1 : Whether the QAPP writer is a NEIWPCC employee or a contractor, the NEIWPCC project manager (PM) will review the draft QAPP by comparing it to the appropriate checklist, project scope of work, and advisory committee guidance to ensure that the QAPP adequately describes the project activities to be conducted and that all necessary QAPP elements are included. In addition, the PM will ensure that all applicable aspects of the project are detailed in the QAPP. If the QAPP is found to be inadequate, the PM will provide specific directions to the QAPP writer, who will make the necessary modifications. The PM must verify that all issues have been adequately addressed before proceeding to step 2.

Step 2: Initial Submission of Draft QAPP

2.1 : Once the PM has reviewed the draft QAPP and assessed it as adequate and complete, the PM will complete the electronic QAPP submission form (available at neiwpcc.org/quality).

2.2 : The PM will email both an electronic version of the draft QAPP and the completed electronic QAPP submission form to the receiver. Any necessary appendices should be provided in the same submission.

NOTE: The PM is responsible for identifying all necessary reviewers (EPA, state agency, or other) before submitting the draft QAPP for review. The QAPM will assist in this process as necessary.

Step 3: Receipt of Draft QAPP

3.1 : Upon receipt of the draft QAPP and corresponding QAPP submission form, the receiver will assign a unique identifier to the QAPP (see Appendix B) and create a new record in QAPP Tracker. (Additional details pertaining to QAPP Tracker are provided in Section IV of this document.)

3.2 : The receiver will create a new folder using the unique identifier and short project title in the designated location on the Common drive (*I:\COMMON\QUALITY\QAPPs\QAPPs - PENDING*) and will save both the electronic draft QAPP (including appendices) and corresponding QAPP submission form within this folder, in accordance with the QAPP File Naming Convention (see Appendix C).

3.3 : The receiver will email the draft QAPP to the quality assurance program manager (QAPM), copying the PM, including a screenshot of the QAPP Tracker record for reference in the body of the email.

NOTE: Once assigned by the receiver, the unique identifier should be included in all correspondence related to the QAPP. Similarly, once EPA provides an RFA number (typically once a QAPP has been reviewed), the EPA RFA number should be included in all correspondence during QAPP review.

NOTE: From this point forward, the PM should be copied on all emails regarding review and approval of the QAPP.

PHASE 2: REVIEW AND REVISION

Two scenarios are presented below covering: 1) projects with EPA funding, and 2) projects with funding from other organizations. Each describes the specific actions for steps 4-7 of the overall process.

SCENARIO 1: EPA FUNDED PROJECT

The key difference between review processes involving EPA Region 1 and Region 2 is in the order of review: the Region 1 review process occurs concurrently with NEIWPCC review, while Region 2 review occurs subsequent to NEIWPCC review. If approval of both EPA Region 1 and Region 2 is required, the concurrent NEIWPCC and EPA Region 1 review should occur before Region 2 review is initiated. Note that QAPPs for Long Island Sound Study (LISS) projects should be reviewed first by NEIWPCC and any state agency reviewers and then distributed to the EPA PO to coordinate EPA review.

Step 4: QAPP Review Assignment

4.1 : Once the QAPM receives the draft QAPP, the QAPM may assign a designee to conduct the review and, if appropriate, update the QAPP Tracker accordingly. A designee is typically selected, in consultation with appropriate supervisory staff, based on availability and areas of technical expertise. If the QAPM does not delegate QAPP review to a designee, the QAPM remains the NEIWPCC reviewer.

4.2 : The QAPM will email the draft QAPP to the appropriate reviewers. Should the QAPP require approval from EPA Region 1, the QAPM will email it to the appropriate EPA Region 1 project officer and the EPA Region 1 QAPP submission email address: R1QAPPs@epa.gov. Any additional reviewers identified as necessary by the PM, save for EPA Region 2 if applicable, will be included on this message. The message should also include the designee, if one was assigned by the QAPM. The message will request that the agency's staff review the draft QAPP and email any necessary modifications to the PM. The message will also communicate who the QAPM has assigned as designee, if applicable, and request that the agency's staff not approve (sign) the QAPP until the NEIWPCC review and approval process is complete. If the QAPP requires approval through EPA Region 2, that review will occur after NEIWPCC review and concurrent Region 1 review (if necessary). The Region 2 review process is described in steps 7.5 - 7.7 below.

Step 5: Reviewing Draft QAPP

5.1: The QAPM or designee will review the draft QAPP, using (and completing) the appropriate review checklist.***5.2:*** Upon completion of the checklist, the QAPM or designee will generate a comment memo that details any needed modifications. The QAPM or designee will save the completed checklist and comment memo in the appropriate electronic project file (the project-specific folder in *I:\COMMON\QUALITY\QAPPs\QAPPs - PENDING*). If the designee does not have access to the project file on the Lowell office server, they should retain all documents generated as part of the review process and a record of the dates on which each step is completed, using the "Offsite Designee QAPP Finalization Cover Page" document (Appendix E). The designee should provide this cover document and all applicable review documents to the receiver during step 8.4, as described below.

NOTE: All files saved in a project-specific QAPP folder should be named in accordance with the QAPP File Naming Convention contained in Appendix C of this document.

5.3: The QAPM or designee will email the comment memo to the PM and EPA Region 1 reviewers to initiate the revision process. Under most circumstances, the PM should receive the comment memo from the QAPM or designee within 10 business days from the time the QAPP was distributed for review.

5.4: The QAPM or designee will update the project record in QAPP Tracker to specify the date the comment memo was sent and will check the boxes indicating that the electronic checklist and comment memo have been saved in the appropriate folder. If the designee does not have access to the QAPP Tracker, they should retain copies of the electronic checklist and memo locally and note the date they completed the review on the Offsite Designee QAPP Finalization Cover Page.

Step 6: Draft QAPP Revision

6.1 : The PM will email the QAPM or designee's comment memo to the QAPP writer so that the writer can revise the draft QAPP to address issues identified in the memo.

6.2 : The QAPP writer will also incorporate any modifications identified during the concurrent review of the draft QAPP from EPA Region 1 or any other applicable reviewers. (The PM is not required to save EPA or other reviewers' comments on the evaluation of the draft QAPP, but should this be desired, the PM may save additional comments to the project-specific QAPPS-PENDING folder. Files containing additional comments should indicate Do Not Delete in the file name. If the PM does not have access to the Lowell office server, the PM can email the necessary information to the receiver, who will save the file(s).)

Step 7: QAPP Revision Review

7.1 : When revisions are complete, the PM will submit the revised QAPP to the QAPM or designee, EPA Region 1 project officer (if applicable), EPA Region 1 QA reviewer (if applicable) and any additional applicable reviewers to determine if revisions are adequate.

7.2 : The QAPM or designee will update QAPP Tracker to specify the date the revised QAPP was received. If the designee does not have access to the Lowell office server, the designee will add the necessary information to Offsite Designee QAPP Finalization Cover Page.

7.3 : If the QAPM or designee, EPA Region 1 project officer, EPA Region 1 QA reviewer, or other reviewer(s) (as applicable) determine that the revisions are inadequate, the PM will be notified by the appropriate reviewer so the QAPP can be further revised. Steps 6.1, 6.2, and 7.1 will be repeated until all applicable reviewers determine that the QAPP has been adequately revised.

7.4 : Once the QAPM or designee determines that the current version of the QAPP satisfies their review comments and any revisions are adequate, they will send an email to the PM indicating their acceptance of the QAPP. The QAPM or designee should make it clear in the email that their approval is contingent on the approval of any other reviewers in the process and that the PM should wait to initiate the signature process until they have approval from all reviewers. The QAPM or designee will update the QAPP Tracker to reflect the date that revisions were accepted and save a copy of the email as a PDF in the appropriate project folder. The QAPM or designee will check the box in QAPP Tracker to indicate that the OK to proceed message has been filed. If the designee does not have access to the Lowell office server, the designee will retain the PDF copy of the email and note the appropriate information on the Offsite Designee QAPP Finalization Cover Page.

NOTE: If the PM has been notified by all applicable reviewers that the QAPP has been adequately revised *and* the QAPP does not require approval from EPA Region 2, skip steps 7.5, 7.6, and 7.7 and proceed to step 8. If the QAPP requires approval from EPA Region 2, continue to step 7.5.

7.5 : Once the QAPM or designee, EPA Region 1 project officer (if applicable), EPA Region 1 QA reviewer (if applicable) and any additional reviewers determine that the revisions are adequate, the QAPM or designee will notify the PM that the QAPP meets NEIWPCC and EPA Region 1 QA requirements (if applicable) and can be sent to the appropriate EPA Region 2 project officer, who will coordinate the Region 2 review and approval process.

7.6 : The PM will email a Word version of the QAPP to EPA Region 2, so that modifications can be identified via the Track Changes feature.

7.7 : As the PM receives feedback on the draft QAPP from EPA Region 2, the PM will work to ensure that the QAPP is adequately revised to address identified issues.

NOTE: Upon completion of step 7.7, continue to Phase 3 of the process.

SCENARIO 2: PROJECT FUNDED BY OTHER ORGANIZATIONS

Step 4: QAPP Review Assignment

4.1 : Once the QAPM receives the draft QAPP, the QAPM may assign a designee to conduct the review and, if appropriate, update the QAPP Tracker accordingly. A designee is typically selected, in consultation with appropriate supervisory staff, based on availability and areas of technical expertise. If the QAPM does not delegate QAPP review to a designee, the QAPM remains the NEIWPCC reviewer.

4.2 : The QAPM will email the draft QAPP to the appropriate reviewers. Should the QAPP require approval from other organizations, the QAPM will email the draft QAPP to the appropriate reviewer(s), including the designee, if one was assigned by the QAPM. The message will request a review of the draft QAPP with any necessary modifications emailed to the PM. The message will also request that the other organization(s) not approve (sign) the QAPP until the NEIWPCC review and approval process is complete.

Step 5: Reviewing Draft QAPP

5.1 : The QAPM or designee will review the draft QAPP, using (and completing) the appropriate review checklist.

5.2 : Upon completion of the checklist, the QAPM or designee will generate a comment memo that details any needed modifications. The QAPM or designee will save the completed checklist and comment memo in the appropriate electronic project file (the project-specific folder in *I:\COMMON\QUALITY\QAPPs\QAPPs - PENDING*). If the designee does not have access to the project file on the Lowell office server, they should retain all documents generated as part of the review process and a record of the dates on which each step is completed, using the "Offsite Designee QAPP Finalization Cover Page" document (Appendix E). The designee should provide this cover document and all applicable review documents to the receiver during step 8.4, as described below.

NOTE: All files saved in a project-specific QAPP folder should be named in accordance with the QAPP File Naming Convention contained in Appendix C of this document.

5.3 : The QAPM or designee will email the comment memo to the PM to initiate the revision process. Under most circumstances, the PM should receive the comment memo from the QAPM or designee within 10 business days from the time the QAPP was distributed for review.

5.4 : The QAPM or designee will update the project record in QAPP Tracker to specify the date the comment memo was sent and will check the boxes indicating that the electronic checklist and comment memo have been saved in the appropriate folder. If the designee does not have access to the QAPP Tracker, they should retain copies of the electronic checklist and memo

locally and note the date they completed the review on the Offsite Designee QAPP Finalization Cover Page.

Step 6: Draft QAPP Revision

6.1 : The PM will email the QAPM or designee's comment memo to the QAPP writer so that the writer can revise the draft QAPP to address issues identified in the memo.

6.2 : The QAPP writer will also incorporate any necessary modifications identified during the concurrent review of the draft QAPP by other approving organizations (if applicable). If the PM would like to save any comments (optional) on the evaluation of the draft QAPP, the PM can save them to the project specific QAPPS-PENDING folder. Files containing comments should indicate Do Not Delete in the file name. If the PM is not located in the Lowell office, the PM can email the necessary information to the receiver, who will save the file.

Step 7: QAPP Revision Review

7.1 : When revisions are complete, the PM will submit the revised QAPP to the QAPM or designee and any other reviewers (if applicable) who will determine if revisions are adequate.

7.2 : The QAPM or designee will update QAPP Tracker to specify the date the revised QAPP was received. If the designee does not have access to the Lowell office server, the designee will add the necessary information to Offsite Designee QAPP Finalization Cover Page.

7.3 : If the QAPM or designee or other reviewer determines that the revisions are inadequate, the PM will be notified so the QAPP can be further revised. Steps 6.1, 6.2, and 7.1 will be repeated until the QAPM or designee and all applicable reviewers determine that the QAPP has been adequately revised.

7.4 : Once the QAPM or designee determines that the current version of the QAPP satisfies their review comments and any revisions are adequate, they will send an email to the PM indicating their acceptance of the QAPP. The QAPM or designee should make it clear in the email that their approval is contingent on the approval of any other reviewers in the process and that the PM should wait to initiate the signature process until they have approval from all reviewers. The QAPM or designee will update the QAPP Tracker to reflect the date that revisions were accepted and save a copy of the email as a PDF in the appropriate project folder. The QAPM or designee will check the box in QAPP Tracker to indicate that the OK to proceed message has been filed. If the designee does not have access to the Lowell office server, the designee will retain the PDF copy of the email and note the appropriate information on the Offsite Designee QAPP Finalization Cover Page.

NOTE: If the PM has been notified by all applicable reviewers that the QAPP has been adequately revised, proceed to step 8.

PHASE 3: FINALIZATION AND FILING

Step 8: Finalization of QAPP

8.1 : The PM (or person assigned finalization responsibility within the QAPP) will circulate the complete, final QAPP to the appropriate individuals to obtain signatures. The QAPP should be circulated via email, with signatures added electronically, unless hard copies with original

signatures are required. Generally, NEIWPCC and project staff should sign first before the final signature from EPA.

8.2 : Upon receipt of the signature page, the QAPM or designee will check the box in QAPP Tracker indicating that the signature page was received, when the final QAPP is circulated. If the designee does not have access to the Lowell office server, they should make note of the date on the Offsite Designee QAPP Finalization Cover Page.

8.3 : Once the PM (or assigned individual) receives all signatures, the PM (or assigned individual) will email a PDF of the complete, approved QAPP to the distribution list.

8.4 : Upon receipt of the complete, approved QAPP, the QAPM or designee will forward a copy of the approved QAPP to the receiver with finalization instructions. The QAPM or designee will instruct the receiver to save a copy of the approved QAPP (with all signatures included) in the appropriate project folder, update the project record in QAPP Tracker to specify the date that the final QAPP was received and fiscal year of completion for the review process, and move the project folder from the "QAPPs - PENDING" directory to the appropriate fiscal year folder in the "QAPPs - COMPLETE" directory. If the designee does not have access to the Lowell office server, they should include a copy of their completed Offsite Designee QAPP Finalization Cover Page and all relevant documents in their email to the receiver, who will file them appropriately in the project file.

NOTE: The QAPM or designee must confirm that all fields in the QAPP Tracker for which they are responsible have been completed before providing finalization instructions to the receiver.

Step 9: Electronically Filing the QAPP

9.1 : Upon receiving finalization instructions from the QAPM or designee, the receiver will save a copy of the complete, approved QAPP (with all signatures included) in the appropriate project folder. Once the complete QAPP has been saved, the receiver will delete intermediate drafts of the QAPP and ensure that the folder also contains the checklist, comment memo, submission form, and the email authorizing initiation of the signature process. The receiver will retain any files designated Do Not Delete and the initial draft QAPP, which will be retained for training purposes. If the designee provided an Offsite Designee QAPP Finalization Cover Page and relevant documents in their finalization email, the receiver will file the attached documents in the project file.

NOTE: If QAPP is an amendment, then the receiver should go back into QAPP tracker record for the original QAPP and define the end date as the day previous to the day of approval of the amendment.

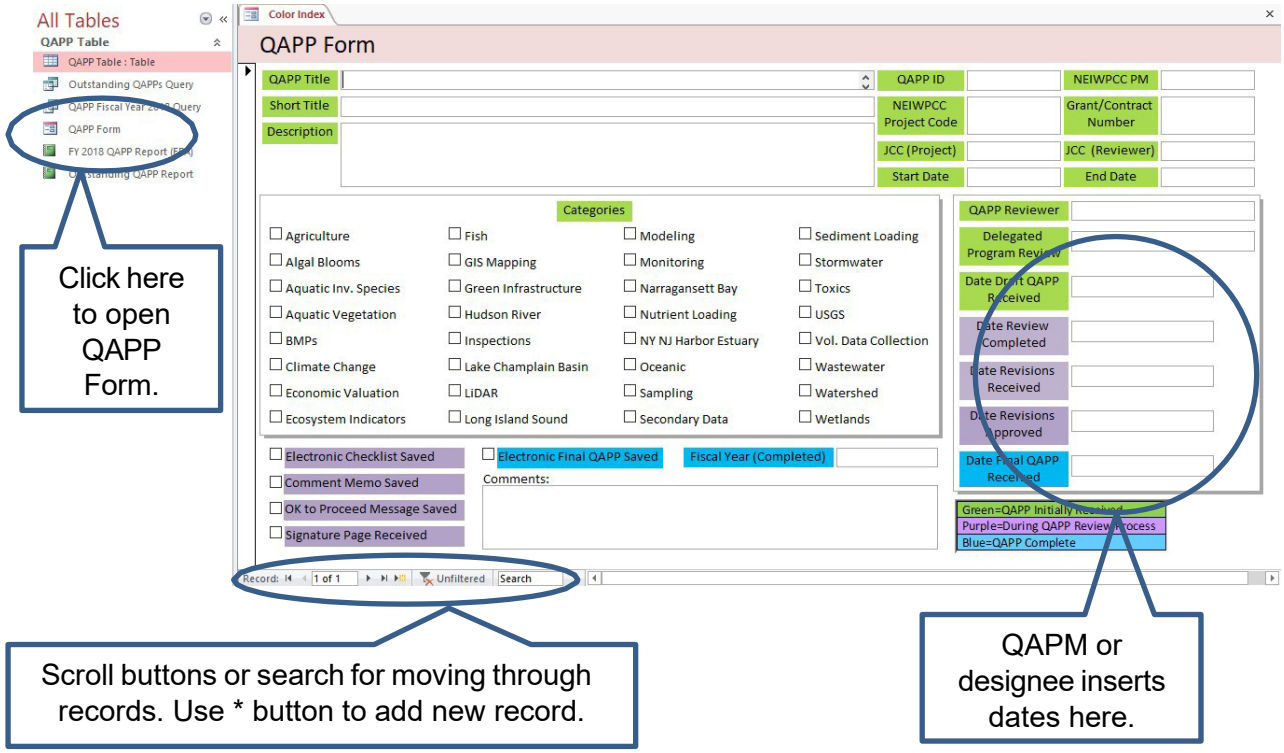
9.2 : With the aforementioned documents included, the receiver will relocate the project folder to the "QAPPS - COMPLETE" folder on the Common drive (for example, *I:\COMMON\QUALITY\QAPPs\QAPPs - COMPLETE\Completed FY2023 QAPPs* for fiscal year FY2023 projects) and update QAPP Tracker accordingly.

IV. QAPP TRACKER

QAPP Tracker (Figure 1) is an Access database used to compile project-specific information pertaining to the QAPP review and approval process. It can be found at *I:\COMMON\QUALITY.*

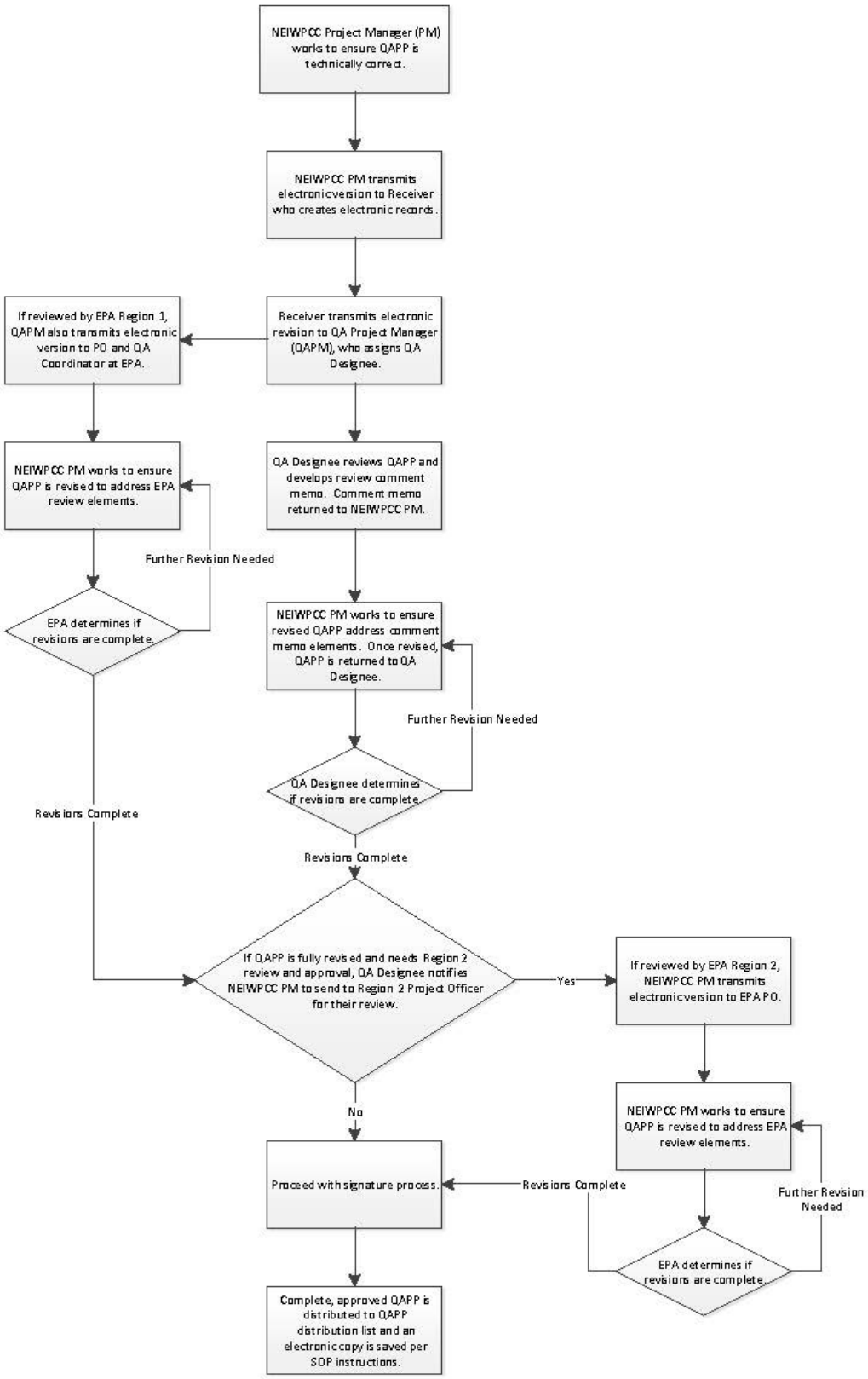
- Once QAPP Tracker is opened, the QAPP Form can be opened from the navigation pane.
- When a QAPP is submitted for review, the receiver will create a new record for the project and populate the fields within the record using information provided on the QAPP Submission Form.
- When the QAPM or designee (or receiver) updates the project-specific record within QAPP Tracker, the appropriate record is first found using the scroll buttons or search function. The fields for inserting relevant dates for that record are located at the far right of the form.

Figure 1

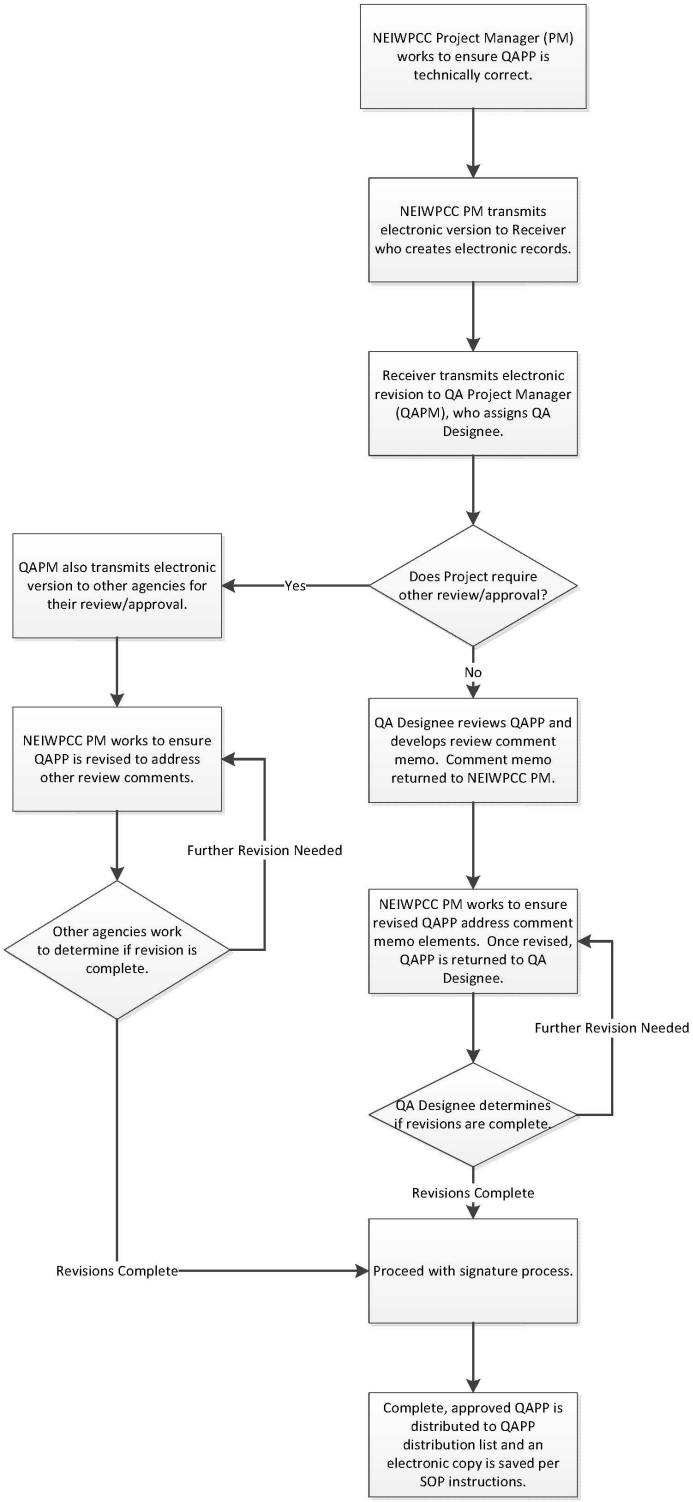


APPENDIX A: PROCESS FLOWCHARTS

EPA Funded Project



Project Funded by Other Organizations



APPENDIX B: QAPP UNIQUE ID SYSTEM

In order to better track quality assurance project plans (QAPPs) through the NEIWPCC review and approval process, a system of unique identifiers has been instituted for all QAPPs entering the review process, beginning in fiscal year 2020. This will allow clear correspondence, accurate records, and better quality control of our QAPP review and approval process data.

DEFINITIONS

Table 1. Identification System Elements

ID Element	Description
FY	The fiscal year when the QAPP was submitted for review
QAPP #	The number of the QAPP as it was received in a given fiscal year
Amendment #	The number of the amendment

FORMAT

The format of unique identifier for each QAPP is built from the elements in Table 1, above, as follows:

Q[FY]-[QAPP #]-A[Amendment #]

With the following rules:

- FY is preceded by “Q” to differentiate these identifiers from other unique identifiers used in NEIWPCC systems (e.g. agreement numbers).
- FY is specified by two digits
- QAPP # is sequentially defined by the Receiver at the time of receipt. It is specified by a three digit number (e.g. 012) and resets to 001 at the beginning of each fiscal year.
- Amendment # is only used if the QAPP that is submitted is an amendment to an existing QAPP. The number of the amendment should be preceded by “A” and the FY and QAPP # should be the same as the original QAPP.

EXAMPLES

- QAPP submitted on 10/27/19 and is the second QAPP received during fiscal year 2020: **Q20-002**
- Amendment 1 to Q20-002 submitted on 1/20/21: **Q20-002-A1**

APPENDIX C: FILE NAMING CONVENTION

This file naming convention applies to those files and folders created during the NEIWPCC quality assurance project plan (QAPP) review and approval process as well as final, approved QAPPs. This convention was developed to be consistent with the NEIWPCC Filename Convention Rules.

This convention came into effect October 1, 2019.

DEFINITIONS

Table 1. File & Folder Name Elements

File Name Element	Description
QAPP ID	The unique identifier assigned to each QAPP by the Receiver at the initialization of the review process
Short Title	A brief title assigned to each QAPP and provided by the Project Manager on the Submission Form
Document Type	The short name for each type of document created during the review process (e.g. review checklists or comment memos). Specific shorthand names are defined in Table 2 below
Additional Detail	In some cases another element is necessary to capture the content of the file. This element is flexible.
Date	The date of creation of the file, most recent edit, or approval as appropriate

TABLE 2. QAPP REVIEW DOCUMENTS

Document Type	File Name Shorthand	Description
Submission Form	submission form	Form provided by NEIWPCC project manager during initial submission of QAPP for review
Draft QAPP	QAPP DRAFT	Initial QAPP as submitted to the receiver for review
Final, Approved QAPP	QAPP FINAL	Approved and signed QAPP used during project implementation
Appendices	APPX	Any appendices that are not included within the body of the QAPP and provided as separate files
Review Checklist	checklist	Any of several review templates used to assess completeness of a QAPP (The checklist used is based on type of project (primary data, secondary data, or modeling).

Document Type	File Name Shorthand	Description
Review Comment Memo	memo	Document used to communicate revisions requested by the QAPM or designee to the NEIWPCC project manager
Authorization Message	ok to proceed	A copy of the email sent to the project manager indicating that all revisions requested have been made and the QAPM or designee is ready to proceed to signature

FORMAT

For both QAPP folders and the documents contained within those folders, a combination of the elements above are used to create consistency using the following formats. Note that underscores should be used between elements as delimiters.

For each **QAPP folder**, the unique identifier and the short title are used as follows:

[QAPP ID]_[short title]

For each **review document** the format is as follows:

[QAPP ID]_[document type]_[additional detail]_[date]

With consideration of the following rules:

- Document type descriptors should use the shorthand names as defined in Table 2, above.
- For any appendices filed, the document type element in the file name should correspond to the version of the QAPP with which they belong ("QAPP DRAFT" or "QAPP FINAL") and the appendix number or letter should be appended to the abbreviation, "APPX", and included in the "additional detail" element.
- All dates should conform to the rules of the NEIWPCC file naming convention, which specify that they should be ordered by MONTH, DAY, YEAR, using two digits each and separated by periods.
- Additional information can be coded into the "additional detail" element as necessary. It is important that the length of this element is minimized and only included when necessary.
- If there are any additional documents that need to be filed in the QAPP folder, they should generally follow the above format using logical names in the "document type" element. If these additional files should be retained beyond the duration of the review process, they should be labeled "Do Not Delete" in the "additional detail" element.

EXAMPLE

A finalized QAPP with the following details:

- QAPP ID: Q20-023
- Short Title: Hudson Invasive Species Survey
- Two appendices submitted: A & B

Would be filed in the following folder: "Q20-023_Hudson Invasive Species Survey" listed in the appropriate fiscal year folder in the "QAPPs - COMPLETE" directory. The following files would be included in the folder (dates represent arbitrary timeline):

- Q20-023_submission form_05.20.20
- Q20-023_QAPP DRAFT_05.20.20
- Q20-023_QAPP DRAFT_APPX A_05.20.20
- Q20-023_QAPP DRAFT_APPX B_05.20.20
- Q20-023_checklist_05.22.20
- Q20-023_memo_05.22.20
- Q20-023_ok to proceed_05.26.20
- Q20-023_QAPP FINAL_05.29.20
- Q20-023_QAPP FINAL_APPX A_05.29.20
- Q20-023_QAPP FINAL_APPX B_05.29.20

APPENDIX D: LAKE CHAMPLAIN BASIN PROGRAM DELEGATED QAPP REVIEW & APPROVAL PROCESS

SUMMARY

NEIWPCC developed a process in 2014 to allow for the internal delegation of specific programs to approve their own quality assurance project plans, under certain circumstances. The Lake Champlain Basin Program is authorized under this policy to approve any non-EPA (i.e. GLFC or NPS) funded projects that originate in the Grand Isle, VT office. This document outlines the procedures used by LCBP staff as part of the delegated review process.

DEFINITIONS

These definitions supplement those provided in the NEIWPCC SOP, "Review and Approval Process For NEIWPCC Quality Assurance Project Plans (QAPPs)."

QAPM	Quality assurance program manager (currently Emily Bialowas) is the point-of-contact for all quality assurance activities
LCBP QAPM Designee	Lake Champlain Basin Program quality assurance program manager designee. An authorized QAPM designee based in the LCBP.
LCBP Program Manager	NEIWPCC Headquarters-based staff responsible for oversight of LCBP activities.
LCBP Project Officer	LCBP staff responsible for oversight of a particular project. Equivalent to the NEIWPCC project manager role.
Project QA Officer	Individual responsible for oversight of quality assurance-related activities on a given project. May be an LCBP staff person or a contractor.
LCBP Office Manager	LCBP staff responsible for maintaining project records at the Grand Isle, VT office.
Contractor Project Manager	Individual at the firm contracted by NEIWPCC to complete a given project that is responsible for overall oversight and management of that project.

TYPES OF QAPPS APPROVED IN-HOUSE BY LCBP STAFF

Review and approval under the delegated process can be made by LCBP-based Quality Assurance Program Manager (QAPM) designees. The current list of QAPM designees is maintained by the NEIWPCC QAPM on the NEIWPCC Lowell HQ server.

Exceptions include:

- EPA-funded projects, which are treated like any other EPA-funded project and routed for review and approval as described in the Standard Operating Procedure: "Review and Approval Process For NEIWPCC Quality Assurance Project Plans (QAPPs)".
- LCBP in-house projects with a data collection or analysis component. Examples include the State of the Lake report or recent climate change projects. These projects require review and approval from the LCBP Program Manager at NEIWPCC and/or the NEIWPCC QAPM or designee.

- The Lake Champlain Long-term Monitoring Program, for which EPA has continued to serve as a QAPP signatory regardless of funding source.
- If an LCBP QAPM designee is unavailable for an extended period of time (e.g. 10 business days or longer) that will prohibit the timely review of a QAPP, the appropriate LCBP Project Officer will submit the QAPP for review through NEIWPCC's centralized QAPP review and approval system.

LCBP DELEGATED QAPP REVIEW PROCESS

Once a QAPP is completed by the contractor and returned to LCBP for review, the assigned LCBP QAPM designee will complete the following tasks, unless otherwise noted:

a. Read through the QAPP and compare it to the project workplan, if available.
b. Fill out the appropriate checklist depending on the project type. The current checklists can be found in the "Grant Tools/QAPP docs" folder on the LCBP server.
c. Write a memo to the Contractor Project Manager describing any deficiencies noted through use of the checklist. The template for the QAPP review memo can be found in the Grant Tools/QAPP docs folder on the LCBP server.
d. Once revisions are made to the QAPP, check them against the memo to make sure all concerns were addressed.
e. Obtain approval signatures which should include at a minimum, the LCBP QAPM designee, LCBP Project Officer, Project QA Officer, and the Contractor Project Manager, and other signatures as necessary.
f. The LCBP Project Officer will send the approved QAPP to the distribution list, which should include at a minimum, all signatories of the QAPP, the LCBP Program Manager, the LCBP Office Manager, the NEIWPCC QA Receiver, and the NEIWPCC QAPM.
g. Assemble and retain a standardized Project QA folder for each QAPP in a dedicated location on the LCBP server (regardless of funding source) that contains:
    i. Project Workplan
    ii. All versions of the QAPP
    iii. Email correspondences pertaining to the QAPP
    iv. A completed checklist
    v. Memorandum to the Contractor
    vi. Signature Page(s)
    vii. A separate cover page that contains basic information about the QAPP (template attached)
h. Send a completed cover page along with the draft QAPP, completed checklist, the comment memo, a PDF copy of the email providing approval to move to signature, and the final approved QAPP to the LCBP Program Manager at NEIWPCC and the NEIWPCC QA Receiver.
i. LCBP will send the entire Project QA folder to the LCBP Program Manager at NEIWPCC at the close of every project.

All LCBP Staff are familiar with the contents of NEIWPCC's Quality Management Plan.

Reference documents (these documents also are located on the LCBP server in "Grant Tools/QAPP Docs"):

- QAPP Guidance Document
- EPA QAPP Template
- GLFC QAPP Template
- LCBP QAPP Review Cover Page (for NEIWPCC tracking)

- R5 Fillable Checklist
- Modeling Project Checklist
- Secondary Data Checklist
- Cover Memo Example

Updates/Revision Tracking:

- June 2014: Clarified procedure if one or more of the LCBP QAPM designees is unavailable for an extended period of time
- January 2023: Clarified roles and responsibilities; updated to align with current processes.

LCBP GLFC-funded QAPP Cover Page

Project Title: _____
Short Title: _____
For Amendments only, Original QAPP ID: _____
NEIWPCC Job Cost Code: _____
NEIWPCC Contract Code: _____
Anticipated Start Date of Field Work: _____
Project End Date: _____
Name of LCBP Project Officer: _____
Name of LCBP QAPP Reviewer: _____
Date QAPP Draft Received: _____
Date QAPP Draft Reviewed: _____
Date Draft QAPP Revisions Received (if any): _____
Date Draft QAPP Revisions Approved (if any): _____
Date Final QAPP Received: _____

Brief Project Description (a few sentences about project objectives and the type of data to be collected and analyzed): _____

Project Categories (check all that apply)

- ☐ Agriculture
- ☐ Algal Blooms
- ☐ Aquatic Invasive Species
- ☐ Aquatic Vegetation
- ☐ Best Management Practices
- ☐ Climate Change
- ☐ Economic Valuation
- ☐ Ecosystem Indicators
- ☐ Fish/Fisheries
- ☐ GIS Mapping
- ☐ Green Infrastructure
- ☐ Inspections
- ☐ Lake Champlain
- ☐ LiDAR
- ☐ Modeling
- ☐ Monitoring
- ☐ Nutrient Loading
- ☐ Sampling (Primary Data)
- ☐ Secondary Data
- ☐ Sediment Loading
- ☐ Stormwater
- ☐ Toxics
- ☐ USGS
- ☐ Volunteer Data Collection
- ☐ Wastewater
- ☐ Watershed Management
- ☐ Wetlands

ATTACHMENTS:

- ☐ Original QAPP Draft
- ☐ QAPP review memo (completed by LCBP QAPP reviewer)
- ☐ R-5 or acceptable alternate checklist (completed by LCBP QAPP reviewer)
- ☐ OK to proceed message (sent by LCBP QAPP reviewer)
- ☐ Final approved QAPP with fully signed signature page

APPENDIX E: OFFSITE DESIGNEE QAPP FINALIZATION COVER PAGE

QA Designee QAPP Finalization Cover Page

QAPP ID: _____
Date QAPP Draft Reviewed: _____
Date Draft QAPP Revisions Received (if any): _____
Date Draft QAPP Approved: _____
Additional Comments: _____

ATTACHMENTS:

- ☐ QAPP review memo
- ☐ R-5 or acceptable alternate checklist (completed by designee)
- ☐ OK to proceed message in pdf (sent by designee)
- ☐ Final approved QAPP with fully signed signature page

STANDARD OPERATING PROCEDURE

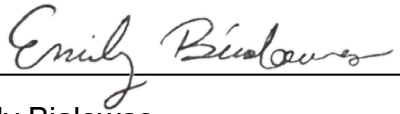
ANNUAL QA PROCESSES: SELF-ASSESSMENTS, QAPP RECORD QUALITY CONTROL, & REPORTING

NEIWPCC

Effective 1/11/2023

Version 1.0

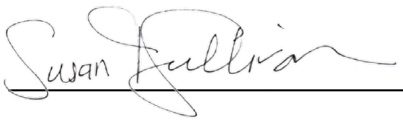
Approved by:



02/02/2023

Emily Bialowas
Quality Assurance Program Manager

Date



02/02/2023

Susan J. Sullivan
Executive Director

Date

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APPENDICES

Appendix A: QAPP Annual Review and Data Validation Instructions Distributed for FY 2021

DOCUMENT CONTROL INFORMATION

Revised By	Date	Version	Summary of Changes
Emily Bialowas, QAPM	1/11/2023	1.0	Initial Version

This SOP will be reviewed annually.

I. SUMMARY

This document contains information on the annual processes used to evaluate the function of NEIWPCC's Quality Program, verify records related to quality assurance project plans, and report to the Quality Management Steering Committee, NEIWPCC Commissioners, and EPA.

II. DEFINITIONS

QMP	Quality management plan. Overarching document that describes NEIWPCC's quality program.
QAPP	Quality assurance project plan (including all associated appendices, checklists, and forms)
Unique identifier	Alphanumeric label assigned to each QAPP submitted for NEIWPCC review and approval
NEIWPCC project manager (PM)	NEIWPCC staff person responsible for oversight of project in need of an approved QAPP
QAPP Tracker	Database used to track information and status of QAPP review and approval
QAPM	Quality assurance program manager (currently Emily Bialowas) is the point-of-contact for all quality assurance activities
Designee	Quality assurance program manager designee. An appropriately trained and certified staff person selected by the QAPM to review and approve a particular QAPP

III. PROCEDURES

SELF-ASSESSMENT PROCESS

As described in the QMP, NEIWPCC's uses a self-assessment process to help ensure its Quality Program is functioning well and that issues are readily identified and rectified. The self-assessment process is conducted in two phases. The first phase uses the annual employee performance appraisal process to collect responses on a series of screening questions. The second phase uses an online form to collect additional information from a subset of employees, as defined by their responses to the phase one questions. The QAPM follows up with individual employees and their supervisors, as appropriate, to address issues identified through this process. Additionally, the self-assessment process provides valuable information to the QAPM on broader training needs and can influence the QAPM's actions over the coming year on efforts to improve the Quality Program.

Tracking of the self-assessment processes is typically completed using an excel workbook. The specific format and information in the workbook changes annually, as the QAPM better refines the processes and tools for the assessment.

Note that all steps in the procedure are undertaken by the QAPM, unless otherwise noted.

PHASE 1

Step 1

Confirm with the Human Resources Division (HR) the questions and procedure for collecting information from performance appraisals. Note that the timing of this step should occur in June or July in anticipation of upcoming annual performance appraisal process. These questions are not included on initial 6-month performance reviews. The following steps occur after performance appraisals (conducted in September).

Step 2

Coordinate with HR to get the data collected during performance appraisals.

Step 3

Complete an assessment of the responses to each question. Follow up with HR on any questions related to the data itself, including missing information or unexpected entries. For any staff that indicated a lack of awareness of the QMP or Quality Program overall, schedule and conduct a training to investigate their answers and provide information on the Quality Program.

PHASE 2

Step 1

Filter the data from HR to identify individuals who responded 'Yes' to the question related to participation or oversight of environmental data/information activities at NEIWPCC.

Step 2

Create second tab in tracking sheet for the effort and copy data in for individuals identified above.

Step 3

Using the previous year's Google form as a starting point, make any needed updates to the questions and content and update any dates where necessary.

Step 4

Request all individuals identified above complete the Google form via email. The email should contain a link to the form, instructions for completion, and information on the purpose of the assessment. Provide at least two weeks for completion and provide a reminder to any who have not completed the form about one week in advance of the deadline.

Step 5

Follow up with any staff and their supervisors from whom responses have not been received. The goal is a 100% response rate.

Step 6

Once all responses are received, download a copy of them from the Google form, and identify any responses that require follow up or corrective action.

Step 7

Complete follow ups or corrective actions and track progress in the tracking sheet and in the document containing the answers provided by staff.

NOTE: A summary of the self-assessment process should be included in the annual system status report and quality management plan review provided to EPA.

APPROVED QAPP COMPILATION AND DATA VALIDATION

At the close of each fiscal year, the QAPM compiles a report of the QAPPs that were approved over the previous year, performs quality control on the available data for each QAPP, and verifies that the appropriate records are filed in association with each QAPP. The QA receiver is often engaged in this process to provide support.

APPROVED QAPP REPORT

All data on NEIWPCC QAPP review and approval is contained in the QAPP Tracker database. Upon finalization of each approved QAPP, the fiscal year of review process completion is entered in the QAPP Tracker. This value provides a simple criterion on which to query the database.

Step 1

Make a copy of the previous year's QAPP query in the QAPP Tracker database and modify the expression to select QAPPs from the immediate past fiscal year.

Step 2

Make a copy of the previous year's QAPP report in the QAPP Tracker database and modify the data source to reflect the immediate past fiscal year.

Step 3

Review the resulting report and correct any entries in the database accordingly.

- Compare the number of QAPPs listed in the report to the number of QAPPs included in the appropriate Completed QAPPs folder on the Lowell office server. If there are fewer QAPPs on the report, identify the QAPPs that are missing and verify that the "Fiscal Year (Completed)" field is correctly filled out in the QAPP Tracker. If there are fewer QAPPs on the server, check the pending QAPPs folder in the case that the files were not moved.
- Review each entry in the report and validate all data provided. If any entries are not accurate (e.g., a project code was entered where a grant number should be), correct them in record for the QAPP. Communicate with the project manager as needed.

Step 4

Produce a PDF copy of the final QAPP report, showing all QAPPs approved during the previous fiscal year. File a copy of this report in the folder on the Lowell server associated with the year's annual system status report and QMP review.

APPROVED QAPP FILE VALIDATION

In concert with review of the data in the QAPP Tracker for plans approved within the previous fiscal year, the QAPM completes a quality control validation process on the files retained for each plan. This process can be delegated to the QA receiver.

Step 1

The file in the Completed QAPPs folder for each plan is verified to ensure all appropriate documents are retained and named in accordance with the file naming convention.

- Confirm the correct documents are included in the relevant folder. If any documents are missing, contact the reviewer for the QAPP to acquire the documents or provide clarification to why they are missing. Any clarifications should be added to the corresponding QAPP Tracker records in the 'Notes' field. While verifying documentation,

confirm that the appropriate fields in QAPP Tracker are completed. If any information is missing, again, contact the QAPP reviewer.

- Confirm all records in the QAPP folder are named in accordance with the file naming convention. The file naming convention is provided in an appendix to the "Review and Approval Process for NEIWPCC Quality Assurance Project Plans (QAPPS)" SOP. Correct any file names, as necessary.

PROJECT MANAGER ANNUAL QAPP REVIEW AND DATA VERIFICATION

Prior to FY 2020, project managers provided their input for their annual review of multi-year QAPPs as part of Phase 2 of the annual self-assessment process. During the review for FY 2020, this process was modified to link project managers' review of their multi-year QAPPs with a data verification process to ensure all data for open and recently closed QAPPs are correct.

The QAPM compiles information from the QAPP Tracker database on all QAPPs that are currently listed as open (i.e., their end date has not yet passed) or recently closed (i.e., their end date occurred in the previous fiscal year) and share that information with the project managers on each project for the validation effort. Using the same mechanism, each PM certifies their completion of any necessary annual reviews.

Step 1

Modify "Open and Recently Closed QAPPs FY[XX]" query for the previous year's validation process to reflect the current period of interest. Run the query and look at the results.

Step 2

Complete initial review of all QAPPs in the query, making any known corrections. Note that there should not be many corrections, as records will have been reviewed as part of the verification steps above in the current year or previous years.

Step 3

Identify any QAPPs with terminated staff listed as project manager and contact the appropriate division director(s) to determine the current project manager.

Step 4

Make any updates necessary to the QAPP tracker based on communication with division directors and rerun "Open and Recently Closed QAPPs FY[XX]" query.

Step 5

Export the results of the query to an Excel document and add formatting and additional columns based on the previous year's version. Make any improvements or adjustments as needed. Protect existing data from editing.

Step 6

Request input from all staff listed as PMs in the data, providing roughly two weeks for responses. The Excel doc can be hosted on OneDrive and shared with all PMs via a link in order to minimize versions. Instructions to project managers from the FY21 process are provided in Appendix A for reference.

Step 7

Resolve any questions or issues brought up by staff during their review or during review of the responses.

Step 8

Update QAPP Tracker records accordingly. Note the origin of any updates/corrections in the 'Comments' field for each record. Note, updates can be delegated to the QA receiver.

ANNUAL SYSTEM STATUS REPORT & QMP REVIEW

As required by the NEIWPCC QMP, the QAPM must provide the QMSC with a System Status Report and QMP Review each year, sending a copy to appropriate EPA contacts. This report covers the previous fiscal year and is due by the end of the calendar year.

Step 1

The QAPM drafts the report, using the format of previous reports and integrating any updates or changes requested by the QMSC or EPA. The report contains information on activities undertaken over the previous year, including, field assessments, QAPPs reviewed and approved, and the self-assessment process. It also includes a review of the Quality Program, goals for the coming year, and a review of the QMP.

Step 2

The QAPM provides a draft copy of the report to the QMSC for review and as an opportunity to ask questions or make comments on the activities of the year or future plans.

Step 3

The QAPM makes any revisions necessary based on the feedback of the QMSC and creates a final, signed version of the report in PDF format, including all appendices.

Step 4

The QAPM distributes the final report to the QMSC and to appropriate EPA contacts.

APPENDIX A: QAPP ANNUAL REVIEW AND DATA VALIDATION INSTRUCTIONS DISTRIBUTED FOR FY 2021

Find your name in the 'NEIWPCC Project Manager' column (Column B) and identify the QAPPs for which you are listed as project manager. For each QAPP:

1. Verify if the QAPP is closed or not (as of 12/31/2021). Indicate 'Yes' or 'No' in the dropdown menu in column K of the excel sheet.
    - If the QAPP is closed, **STOP** and move on to the next QAPP in the list.
    - If the QAPP is still open, move to step 2.
2. Verify the end date as listed in column J. If the date is incorrect, provide the new date in column L. If it is correct, make no changes. Move to step 3. Note: if the project is being completed by a contractor and the agreement has been amended in the last FY, the end date should correspond to the end date of the agreement. If this hasn't been captured, please make updates as appropriate.
3. Verify the PM, JCC, Grant and/or project codes in columns B, E-H. If changes are needed, please note them in column M.
4. Indicate whether the QAPP is for a multi-year project using the dropdown menu in column N.
    - If the QAPP is not for a multi-year project, **STOP** and move to the next QAPP on the list
    - If the QAPP is for a multi-year project, move to step 5.
5. Perform annual review
    - Enter any information on changes to the project (scope, people, etc.) in column P. If the distribution list has already been updated with these changes, you can indicate that here (rather than listing changes)
    - Indicate whether there have been any QA/QC non-conformances within the last FY in column R; if you indicate 'Yes' here, add details in column S.
    - Once complete, indicate 'Yes' in column O to demonstrate that the annual review for that QAPP has been complete.

STANDARD OPERATING PROCEDURE

QUALITY ASSURANCE PROGRAM MANAGER DESIGNEE TRAINING, RECORDS, & REPORTING

NEIWPCC

Effective January 11, 2023

Version 1.0

Approved by:

Emily Bialowas — 02/02/2023

Emily Bialowas — Date
Quality Assurance Program Manager

Susan Sullivan — 02/02/2023

Susan J. Sullivan — Date
Executive Director

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APPENDICES

DOCUMENT CONTROL INFORMATION

Revised By	Date	Version	Summary of Changes
Emily Bialowas, QAPM	1/11/23	1.0	Initial Version

This SOP will be reviewed annually.

I. SUMMARY

This SOP documents NEIWPCC's procedures related to its Quality Assurance Program Manager designee program. The document includes the procedure for training employees to become designees, keeping of records related to designees, and periodic evaluation of the designee program and reporting to the Quality Management Steering Committee.

II. DEFINITIONS

QMP	Quality management plan. Overarching document that describes NEIWPCC's quality program.
QMSC	Quality management steering committee. Provides internal oversight and guidance for NEIWPCC's Quality Program.
QAPM	Quality assurance program manager (currently Emily Bialowas) is the point-of-contact for all quality assurance activities
Designee	Quality assurance program manager designee. An appropriately trained and certified staff person selected by the QAPM to review and approve a particular QAPP
QAPP	Quality assurance project plan (including all associated appendices, checklists, and forms)
HR	Human resources staff. Communicates staff milestones in periodic internal newsletters.
Designee records database	Database used to track information on training and status of QAPM designees
QAPP Tracker	Database used to track information and status of QAPP review and approval

III. DESIGNEE RECORDS DATABASE

Training records for designees are retained in an Access database, located on the Lowell headquarters office server ("I:\COMMON\Quality\Designee Records\QAPM Designee Records.accdb"). Details on the server, backup procedures, and file retention are available in the NEIWPCC QMP.

The database was initially developed in 2020 to consolidate information on all NEIWPCC designees. The primary structure of the database allows for the capture of information on the initial training of designees and their current status as well as a way to capture information on employees who are prospective candidates to become trained as designees. The database also provides the location for tracking ongoing training of current designees and pulls in information from the "QAPP Tracker" database to quickly understand designees' activity in reviewing QAPPs.

Details on how and when information is entered into the designee records database are contained in the individual steps for specific procedures, below. Note that information on prospective designees is generally entered during the new hire orientation process. The specific procedure for those cases is documented in NEIWPCC's "Quality Assurance Awareness Training" SOP.

IV. PROCEDURES

INITIAL TRAINING

Note that all steps included in this procedure are the responsibility of the QAPM. The QAPM may delegate individual steps as needed. At the end of the initial training process, designees shall be capable of being delegated review of a QAPP, as described in the NEIWPCC "Review and Approval Process For NEIWPCC Quality Assurance Project Plans" SOP.

Step 1

As needed and when opportune, identify prospective QAPM designees, referring first to the "currently eligible training leads" in the QAPM Designee Records database, where potential designees were identified at time of hire, and confirm suitability with staff supervisors.

Step 2

Verify each prospective designee meets the criteria to complete designee training, as outlined in the current version of the NEIWPCC designee policy[1].

Step 3

Meet with prospective designees to explain the expectations for training and ongoing responsibilities. Note that the QAPM has discretion on whether to proceed with training for any qualified prospective designee and can suspend or halt training at any time.

Step 4

Coordinate with prospective designee(s) to schedule Base Training Session 1 (see Appendix A for an overview of the current designee training program).

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[1] At the time of approval, the current policy is detailed in, "*NEIWPCC Quality Assurance Project Plan (QAPP) Evaluation Training And Designation of Review and Approval Authority,*" April 9, 2014

Step 5
Update training materials and designee training document package (summary available in Appendix A).

Step 6
Complete Base Training Session 1 (total of six hours). Note that at the end of this training the QAPM will assign example QAPPs for trainees to review, including completing relevant checklists and writing comment memos as preparation for Base Training Session 2.

Step 7
Enter trainee(s) information in QAPM Designee Records database, using training lead entries where available and applicable.

1. In the "Designee Summary" form, ensure that the following fields are complete:
    a. Name
    b. Indicate "Active Designee" = "No"
    c. "Inactive Reason" = "In Training"
    d. Base Training "Complete?" = "No"
    e. Enter date training session was completed into the "Date of Session 1" field
2. In the "Training Records" table, enter a record for each trainee, capturing information about session 1.

Step 8
Schedule and complete Base Training Session 2. This session includes a discussion of each homework QAPP that was assigned at the end of Session 1 and a review of the materials generated by each trainee, in relation to the actual comment memos written during each QAPP's review. One key objective of this training is to help trainees better align their understanding of the graded approach with that of the QAPM.

Step 9
Provide certificates of completion to new designee(s).

Step 10
Enter information on Session 2 into the QAPM Designee Records database:

1. In the "Designee Summary" form:
    a. Update "Active Designee" = "Yes"
    b. Remove value from "Inactive Reason"
    c. Base Training "Complete" = "Yes"
    d. Enter date training session was completed into the "Date of Session 2" field
2. In the "Training Records" table, enter a record for each trainee, capturing information about session 2.

Step 11
Notify EPA of current designees, including new designee(s).

Step 12
Notify HR of new designee(s) to include in HR newsletter

Step 13

Complete Practical Training for each new designee. For each new designee, at least three QAPP co-reviews should be completed, with one co-review covering each project type (i.e., primary data, secondary data, and modeling)[2].

Step 14

For each co-review that is completed, as part of the Practical Training process, enter relevant data into the QAPM Designee Records database[3]:

1. In the "Designee Summary" form:
    a. In the next available "Co-Review" field, indicate the type of project followed by the QAPP unique ID and the short title of the project.
    b. If this is the first co-review, enter, "No" into the "Complete?" field in the Practical Training section.
    c. If this is the final co-review, enter, "Yes" into the "Complete?" field and fill in the "Date of Completion" field in the Practical Training section.
2. In the "Training Records" table, a record should be added for each co-review.

ONGOING TRAINING

Periodic and ongoing training of designees is necessary to ensure QAPP review standards are maintained, and designees are apprised of the most current processes and expectations in the organization. The QAPM collects information through a variety of means on when and how to provide ongoing training to designees, including through periodic conversations with designees, discussions with division directors, and at the time of updates to internal and/or external processes and standards.

The form and content of ongoing training for designees is at the discretion of the QAPM. The most common trainings are "refresher trainings," which may be based on the same content as the most current new designee trainings or may simply be the attendance of a current designee at one or both Base Training sessions for new designees.

For any ongoing training, the QAPM should record each training session in the QAPM Designee Records database, in the "Training Records" table.

TERMINATION OF DESIGNEES

Generally, once an employee has received relevant training and been authorized as a designee, their status as such continues as long as they are in the employ of NEIWPCC. The QAPM is responsible for management of designees' training and their effective utilization in QAPP

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[2] The co-review process is completed opportunistically as draft QAPPs are received for review. The specific level of engagement and oversight for each designee and each review is at the discretion of the QAPM. To expedite this process, the QAPM can also use QAPPs that have already been approved, in a similar process as to what was completed for the homework QAPPs between Base Training Sessions 1 & 2. The objectives of the practical training are to ensure that the quality of the designee's comment memo is up to the standard of the QAPM, that they are competent in managing the review process, and that they are capable of accurately producing and filing all relevant documents and records.

[3] Note that the QAPM may determine that additional co-reviews are necessary for a given designee as part of their training. If this is the case, the records in the database should reflect that this portion of the training has not been completed until all necessary reviews have been completed. Any additional co-reviews shall be documented in the "Training Records" table for the designee.

reviews and in assuming other delegated QAPM duties. See the "Designee Program Evaluation and Reporting" section below for more information on the ongoing management of designees and the overall program.

If and when a designee ceases to be an employee of NEIWPCC, their status as a designee also ends. At this time, the QAPM should update the QAPM Designee Records database to reflect this change: the "Active Designee" field should be updated to, "No"; the "Inactive Reason" field should be updated to, "Terminated"; and any pertinent details should be included in the "Comments" field, including the effective date of the change.

DESIGNEE PROGRAM EVALUATION AND REPORTING

The QAPM periodically and at their discretion, completes an evaluation of existing designee QAPP review readiness and report those results and intended designee program direction to the Quality Management Steering Committee. Typically, this is completed at or near the beginning of the NEIWPCC fiscal year. The below processes can be modified as necessary if this is completed at a different time or the QAPM determines that the needs for the specific circumstances dictate it.

DESIGNEE COORDINATION GUIDELINES

The designee program is a key element in the overall Quality Program at NEIWPCC. Designees have a high level of QA-related training and are engaged with QA-topics on a regular basis. Effective management of the designee program requires regular communication between the QAPM and their designees. In recent years, the foundation of communication has come from an annual meeting of the QAPM and their designees, typically near the end of the NEIWPCC fiscal year in August or September.

This meeting has allowed the QAPM to provide updates on the Quality Program to designees, for designees to share ideas on systematic improvements, and for the group to reflect on specific challenges and resolutions that may have occurred during the past year. This has also been a chance for the QAPM to discuss upcoming expectations for QAPP reviews and request information on each designee's capacity to assist with reviews in the coming year (see the "QAPP Review Readiness Determination" section below).

QAPP REVIEW READINESS DETERMINATION

The QAPM developed a more formal evaluation of designee QAPP review readiness in anticipation of reporting to the QMSC for FY21. The intent of this evaluation is to help guide training efforts and to help guide the QAPM in understanding the available resources when delegating QAPPs. The readiness determination is informational in nature and does not dictate or restrict the QAPM in how they approach their management of the designee program.

Designee readiness is determined using two factors: training and capacity.

- Training scores are determined by the training and QAPP review activities that each designee has undertaken over the previous fiscal year. There are three possible scores: Provisional, Current, and Required.
    - A "Provisional" score indicates that the designee has completed QAPM designee base training but needs to complete the practical training unit (i.e., QAPP co-reviews with the QAPM).

  - A "Current" score indicates that the designee has completed at least one of the following within the previous fiscal year: QAPM designee base training, participated in an eligible training program[4] (e.g., a "refresher"), or completed the review process of a QAPP delegated to them by the QAPM.
  - A "Required" score indicates that the designee does not fit either the "Provisional" or "Current" criteria. A designee can move from a "Required" score to a "Current" score by either completing a refresher training or completing a QAPP co-review with the QAPM.
- Capacity scores are self-reported by designees and reflect the overall capacity that each designee anticipates having to review QAPPs in the upcoming fiscal year[5]. There are three possible scores: Yes, Maybe, and No.

Table 1, below, summarizes the nine possible readiness scores that result from the combination of each of the possible training and capacity scores. The flow chart included as Appendix B summarizes the data sources and criteria with which QAPP review readiness determinations are made.

Table 1. QAPP Review Readiness Scores

		Training		
		Provisional	*Current*	*Required*
Capacity	*Yes*	Training Ongoing	Ready	Needs Training
	Maybe	Training Ongoing – 2nd Priority	Ready – 2nd Priority	Needs Training – 2nd Priority
	No	Training Stalled	Lacks Capacity	Not Ready

PROCEDURE

Step 1

Copy the excel sheet that summarizes readiness from the previous iteration of the evaluation.

- Remove the data on capacity, training, and the review readiness determination.
- Update the list of designees in the sheet to reflect the current list of active designees, using the QAPM Designee Records database.

Step 2

Collect information on designee capacity for QAPP reviews in the coming period. Enter data into the updated excel sheet.

[4] The QAPM determines eligibility of individual training opportunities on a case-by-case basis. All trainings that designees receive are recorded in the QAPM Designee Records database and each record contains an indication of whether that specific training is eligible to satisfy this requirement.
[5] Note that the QAPM will generally contact individual designees during the process of delegating a given QAPP, to ensure that the designee has availability during that specific period.

Step 3

Using the information summarized in the "Designee Summary" form in the QAPM Designee Records database, determine the training status of each designee. Refer to the above criteria descriptions and the flow chart in Appendix B. Enter data into the updated excel sheet.

Step 4

Using Table 1, above, assign QAPP review readiness scores to each designee in the updated excel sheet.

REPORTING TO THE QMSC

Typically, once the QAPM has completed the process to make QAPP review readiness determinations for their designees, they will compile their results, add commentary, and submit a summary report to the QMSC. The QAPM will then meet with the QMSC to discuss the information in the report and seek input on any suggested changes to planned activities and the direction of the program. This reporting and subsequent discussions are intended to be internal to NEIWPCC and generally not shared with external entities, such as EPA.

APPENDIX A: QAPM DESIGNEE TRAINING PROGRAM OVERVIEW

NEIWPCC QAPM Designee Training Program

Training Program

Base Training

Session 1: Training Course (six hours total)

- Training Overview & QAPM Designee Role
- QAPP Introduction
- Performing QAPP Review
- QAPP Review & Approval Process

Homework: Independent Review of Draft QAPPs

Session 2: Discussion of QAPP Review Findings (1-2 hours)

Notification to EPA of new Designee(s)

QAPM provides letter to EPA R1 & R2 with current roster of designees (includes those who completed base training) and summary of recently completed training.

Practical Training

Co-Reviews: Typically one of each QAPP type, with additional reviews as needed.

Reference Documents

Policy & Guidance

1. Guide for Development and Approval of QAPPs
2. SOP for NEIWPCC QAPP Review & Approval
3. NEIWPCC Quality Management Plan

Course Documents

- Training course overview (this document)
- Course PowerPoint with notes
- QAPP or no QAPP examples
- Comment memo template
- Review checklists
- Sample QAPPs
- QAPP update docs
- Draft QAPPs for independent review
- Field assessment documents
- Readiness determination flow chart
- Offsite designee & delegated review process documents

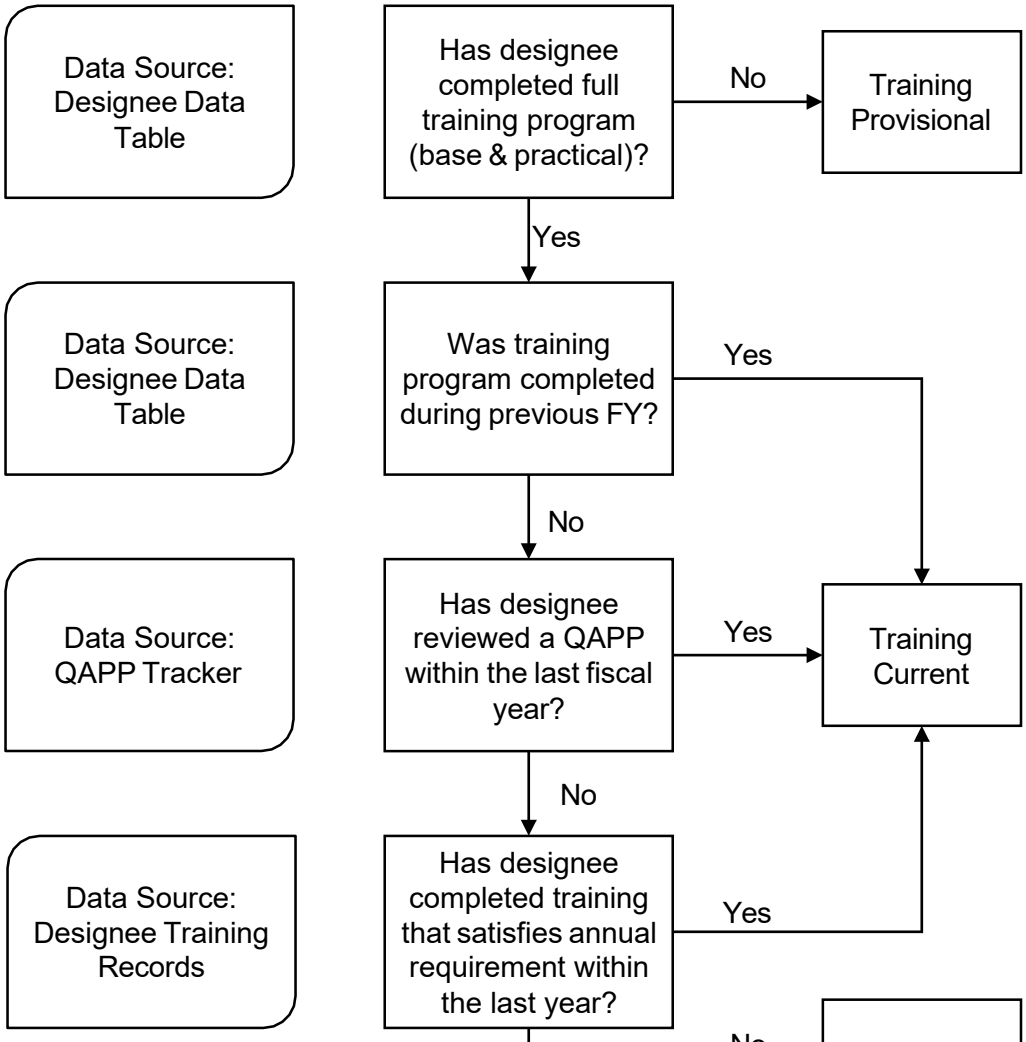
All documents to be provided in electronic package to trainees.

Updated August 24, 2022

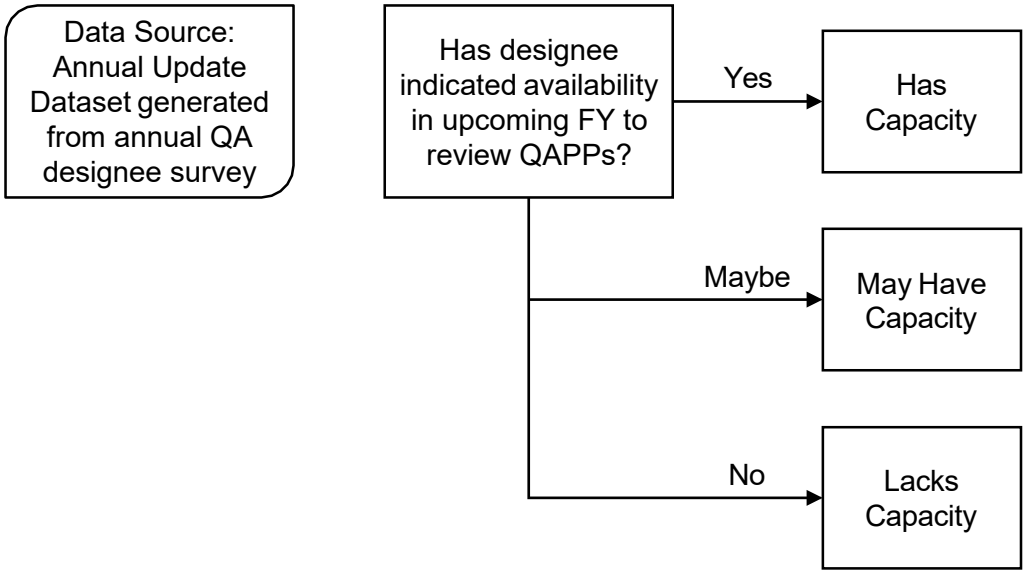
APPENDIX B: DESIGNEE QAPP REVIEW READINESS DETERMINATION FLOW CHART

QA Designee QAPP Review Readiness Determination

Training



Capacity



STANDARD OPERATING PROCEDURE

QUALITY ASSURANCE AWARENESS TRAINING

NEIWPCC

Effective 1/11/2023

Version 1.0

Approved by:

02/02/2023

Emily Bialowas — Date
Quality Assurance Program Manager

02/02/2023

Susan J. Sullivan — Date
Executive Director

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APPENDICES

Appendix A: New Employee QA Awareness Training Handout

DOCUMENT CONTROL INFORMATION

Revised By	Date	Version	Summary of Changes
Emily Bialowas, QAPM	1/11/23	1.0	Original Version

This SOP will be reviewed annually.

I. SUMMARY

This document was prepared to document the procedures NEIWPCC uses to train all its staff in awareness of its Quality Program and the principles of quality assurance and quality control. Note that this document does not pertain to more specific and in-depth training for those staff who are becoming certified as Quality Assurance Program Manager designees. There is a separate SOP for that process.

II. DEFINITIONS

QMP	Quality management plan. Overarching document that describes NEIWPCC's quality program.
QAPM	Quality assurance program manager (currently Emily Bialowas) is the point-of-contact for all quality assurance activities
Designee	Quality assurance program manager designee. An appropriately trained and certified staff person selected by the QAPM to review and approve a particular QAPP
HR	Human Resources Division. Responsible for scheduling orientation sessions for all new hires.

III. PROCEDURE

NEW EMPLOYEE QA AWARENESS TRAINING

This process is initiated by the Human Resources (HR) division during scheduling of orientation sessions for new hires. This procedure begins once the initial QA training orientation session is scheduled by HR with the QAPM and the new hire. HR should provide a copy of the new hire's job description to the QAPM in advance of the scheduled training session. Multiple new employees may attend the same training session.

Step 1

Prior to the orientation session, the QAPM reviews the existing training materials (Appendix A) for the session and verify their accuracy. If needed, the QAPM updates the training materials or modifies them to improve their effectiveness. If updates are made to the training materials, the QAPM sends the updated version to HR for inclusion in future orientation packets.

Step 2

Whether in person or virtually, the QAPM brings a copy of the training materials and shares them with the trainee(s).

Step 3

The QAPM conducts the training. The objective of the training is for the trainee(s) to understand the overall structure of NEIWPCC's Quality Program and where they fit in, including any pertinent responsibilities. The QAPM also makes sure that the trainee(s) know where to find information about the Quality Program and the appropriate staff to contact with questions about QA. The specific content and focus of the training will vary between trainees and should be based on the specific responsibilities included in their job descriptions.

Step 4

During the training, the QAPM makes an assessment on whether the new employee is a potential candidate for QAPM designee training once they are eligible. If a trainee is a potential QAPM designee training candidate, the QAPM enters a new record in the "QAPM Designee Records" Access Database using the "Designee Summary" form, entering "No" in the "Active Designee" field, "Training Lead" in the "Inactive Reason" field, and the new hire's start date in the "Hire Date" field. If the trainee is not a potential designee training candidate, the QAPM skips this step.

Step 5

Once the training is complete, the QAPM makes a note of the training in the appropriate log, such that it is captured and available when compiling quarterly and annual reporting.

ANNUAL ALL STAFF QA AWARENESS TRAINING

As specified in our QMP, the QAPM is responsible for conducting training across the organization, including at the Annual All Staff Meeting (note that there is flexibility to provide such training through alternate means if necessary). Most commonly, training at the All Staff Meeting has taken the form of a thirty minute plenary presentation, though the specifics of the training and its format are at the discretion of the QAPM.

Step 1

The QAPM reviews previous All Staff Meeting training materials and considers staff feedback from them, which can be obtained from the HR department.

Step 2

Based on the current needs of staff (obtained through the self-assessment process and discussions with division directors and staff), the QAPM determines the most effective topics for training. External factors are also important to consider, such as updates to requirements from EPA.

Step 3

The QAPM develops content for the training, collaborating with other staff in the organization, as needed.

Step 4

The QAPM works with the All Staff Meeting Planning Chair and the Director of the Business Operations Division on the logistics for the training (time, location at the venue, any support needed, etc.).

Step 5

The QAPM completes the training at the Annual All Staff Meeting.

Step 6

Once the training is complete, the QAPM makes a note of the training in the appropriate log, such that it is captured and available when compiling quarterly and annual reporting.

APPENDIX A: NEW EMPLOYEE QA AWARENESS TRAINING HANDOUT

Overview of Quality Management System (QMS)

QMS: Quality Management System – Overview / History

- NEIWPCC QMS program has been in place since 2001.
- It is designed to ensure NEIWPCC is collecting sound, defensible environmental data to support decision-making.
- NEIWPCC QA website: http://neiwpcc.org/our-programs/assessment-and-research/quality-management/

QMP: Quality Management Plan

- Provided with initial packet of NEIWPCC materials.
- Blueprint of our Quality Management System.
- Umbrella document, reflecting NEIWPCC QA/QC principles and policies.
- Re-authorized w/ EPA region 1 & 2 every 5 years (or sooner if needed).
- Currently the 5th iteration of QMP - approved in 2018. The next version of the QMP is currently under review with EPA for concurrence.
- Contains obligation to conduct annual system status review and report findings to EPA.

QAPPs: Quality Assurance Project Plans

- Project-specific document
  - What, why, who, where, how much, how good is "good enough", when are we done, etc.
- Various routes of review and approval - depending on source of project funds
- Have a QAPP approval SOP (available on QA website)
- R5 checklist (available on QA website) utilized to evaluate “completeness” of draft QAPPs
- QAPP submission form (available on QA website) used to initiate the review process.

Guidance documents & Training opportunities

- QAPP development guide (available on QA website)
- QAPP approval SOP for NEIWPCC Project Managers (available on QA website)
- Staff training via webinar – occur periodically
- QA awareness training conducted at every NEIWPCC All-Staff meeting.

Staff roles within the system

- QAPM - Quality Assurance Program Manager – defined in QMP and QAPP development guide and approval SOP.
- Project Managers – defined in QMP and QAPP development guide and approval SOP.
- QA Designee – NEIWPCC staff authorized to review and approve draft QAPP’s
- Annual performance evaluation & self-assessment questionnaire
- Immediate supervisor will help to get new employees familiar with NEIWPCC QMS requirements and responsibilities as they pertain to an individual’s specific projects.

Quality Assurance Program Manager (currently Emily Bialowas ebialowas@neiwpcc.org or 978-349-2052) can provide additional guidance and answer further questions – as necessary.

http://neiwpcc.org/our-programs/assessment-and-research/quality-management/

Quality Management

Environmental decisions are only as good as the information upon which they are based, which means the quality of the data must be assured.

Quality Management Plans (QMPs) are mandated by EPA, and describe an organization's system for planning, implementing, documenting, and assessing data collection to ensure the quality of the information that is generated. This system applies to work done by the organization itself or a contractor hired by the organization to conduct a project.

Following EPA's directive, NEIWPCC's Quality Management Steering Committee developed a QMP that spells out our commitment to developing quality assurance project plans (QAPPs) for each project involving the collection of environmental data or the evaluation of environmental technology. These QAPPs carefully describe how the project's data collection activities will be planned, conducted, and reviewed throughout the life cycle of the project.

Our QMP even went beyond EPA requirements by pledging to create QAPPs for all environmental data projects, not just those supported by EPA funds.

In October 2018, NEIWPCC received a periodic Quality System Assessment from representatives of the EPA Region 1 Quality Assurance Unit. Their cover letter and report were received in November 2018. There were no non-conformances found during the assessment.

The 2022 Annual QA Status Report and Quality Management Plan Review was submitted to EPA Regions 1 & 2 on December 22, 2022.

For more information, contact Emily Bialowas, NEIWPCC's Quality Assurance Program Manager, at ebialowas@neiwpcc.org.

QUALITY MANAGEMENT LINKS

- NEIWPCC's QMP (revised in 2018)
- NEIWPCC's QAPP Guide
- QAPP Review & Approval SOP
- QAPP Submission Form
- QAPP Submission Form Guidance
- R-5 Checklist for QAPP review
- Secondary Data Project Checklist for QAPP review
- Modeling Project Checklist for QAPP review

STANDARD OPERATING PROCEDURE

QUALITY ASSURANCE FIELD ASSESSMENTS

NEIWPCC

Effective 1/11/2023

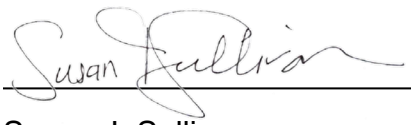
Version 1.0

Approved by:

02/02/2023

Emily Bialowas
Quality Assurance Program Manager

Date



02/02/2023

Susan J. Sullivan
Executive Director

Date

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APPENDICES

DOCUMENT CONTROL INFORMATION

Revised By	Date	Version	Summary of Changes
Emily Bialowas, QAPM	1/11/23	1.0	Initial Version

This SOP will be reviewed annually.

I. SUMMARY

This document was prepared to assist NEIWPCC staff in understanding the process for completing quality assurance field assessments on active projects that have NEIWPCC quality assurance project plans (QAPPs). All NEIWPCC QAPPs have language in them that authorizes NEIWPCC staff to conduct assessments to determine conformance and compliance with the plan as documented in the QAPP.

II. DEFINITIONS

QMP	Quality management plan. Overarching document that describes NEIWPCC's quality program.
QAPP	Quality assurance project plan (including all associated appendices, checklists, and forms)
Unique identifier	Alphanumeric label assigned to each QAPP submitted for NEIWPCC review and approval
NEIWPCC project manager (PM)	NEIWPCC staff person responsible for oversight of project in need of an approved QAPP
QAPP Tracker	Database used to track information and status of QAPP review and approval
QAPM	Quality assurance program manager (currently Emily Bialowas) is the point-of-contact for all quality assurance activities
Designee	Quality assurance program manager designee. An appropriately trained and certified staff person selected by the QAPM to review and approve a particular QAPP
Assessors	The individual or team conducting the QA field assessment. This can be the project manager on a project they oversee or the QAPM or one of their designees. Multiple NEIWPCC staff can participate in an assessment as assessors.
Project team	The individual or group of individuals responsible for implementing a given project. This may include the project manager for those projects directly implemented by NEIWPCC staff.

III. PROCEDURE

The primary objective of a quality assurance field assessment is to evaluate whether a project is being conducted in accordance with its approved QAPP and, if it is not, to take corrective actions to ensure that the data collected in the project are of sufficient quality to meet the stated objectives. In addition, field assessments allow an opportunity for staff in oversight positions to observe a project's implementation and better understand future opportunities for related projects. Field assessments are also an excellent avenue to collect pictures and videos of the work that NEIWPCC funds and completes, which can be used in communications products and internal and external presentations.

Two groups of individuals are authorized to complete QA field assessments: project managers and the QAPM and their designees. Project managers are authorized to perform assessments of any project that they have oversight on (e.g., they signed the approved QAPP in a programmatic oversight role). The QAPM and their designees are authorized to assess any project with a NEIWPCC-approved QAPP.

A typical field assessment occurs in three phases:

Phase 1: Planning and Preparation
Phase 2: Onsite Assessment
Phase 3: Reporting and Communication

Details on each of these three phases is included below.

PHASE 1: PLANNING AND PREPARATION

It is important to prepare for a QA Field Assessment and to communicate accurately to the team under assessment about the expectations for the day and the potential outcomes of the assessment. Though most assessments go smoothly, and most teams operate within the confines of their documented plan, if you observe any nonconformances with the QAPP or issues with the data collection procedures, you *must* take action. If you have not communicated openly with the project team in advance on the potential outcomes of the assessment, your actions may cause friction with the project team and may lead to more challenges in your oversight role moving forward.

Step 1: Identify Candidate Projects and Schedule Assessments

1.1: Project managers, division directors, and the QAPM and their designees can all identify potential projects for QA field assessments. As indicated in the name, a project must contain a field data collection component to be eligible for a field assessment. Regardless of the role of the assessor on the project, the individual coordinating the assessment should notify the QAPM of any field assessments that are under consideration or planned.

1.2: The project manager (PM) should contact the project team implementing the project and notify them of the assessment, gathering information on when field work is planned[1].

[1] Typically, field assessments are coordinated with the project team in advance. However, NEIWPCC has the authority to conduct assessments without advance notice to the project team. This is not a regular practice but is a tool that can be used if a project team is suspected of operating outside of the bounds of the QAPP and there is concern that a pre-arranged assessment will not result in an accurate representation of the project team's work. Any PM that has such a concern should contact the QAPM.

1.3: The PM works with the QAPM to determine the appropriate assessors for the project and schedules a date and time for the assessment with the project team and assessors[2]. The PM should communicate expectations and potential outcomes to the project team.

Step 2: Prepare for the Onsite Assessment

2.1: The assessors review the approved QAPP for the project. If the QAPM or one of their designees is assessing the project, they will contact the PM to learn about the current status of the project and will conduct a review of the available quarterly reports for the project.

2.2: The assessors compile relevant documents and equipment for the onsite assessment, including a copy of the QAPP for reference, a copy of the QA Field Assessment Data Sheet (Appendix A), and a camera or smartphone for taking pictures.

PHASE 2: ONSITE ASSESSMENT

During the assessment itself, it is important that assessors are observant and actively compare the activities they observe with the approved QAPP. Assessors should ask questions, document notes of the activities of the day, and take pictures and videos.

Step 3: Complete Assessment

3.1: The assessors accompany the project team during their field work and compare the work of the project team to the approved QAPP. The assessors should not participate directly in data collection activities, though the project team often appreciates an extra set of hands in unloading and carrying supplies and equipment. It is at the discretion of the assessors the extent to which they assist the project team in logistical activities.

3.2: The assessors complete the QA Field Assessment Data Sheet (Appendix A), document the activities that they observe, and take pictures of the activities of the project team (refer to Appendix B for guidance on taking pictures and videos during field assessments).

3.3: If any noncompliance or nonconformance to the QAPP is observed, the assessors initiate necessary corrective actions. For minor issues, corrective actions may include instruction to the project team on changes to their procedures to return to compliance with the QAPP or notation of minor corrections that need to be made in a memo update to the QAPP. For more significant issues, the assessors may need to issue an immediate stop work order or work with the QAPM to develop additional corrective actions that follow. Note that any nonconformance or noncompliance observed, as well as any corrective actions issued during the assessment, must be documented.

NOTE: Contact the QAPM if you are uncertain of how to proceed when faced with taking corrective actions. It is critical that the QAPM is informed of the assessment in advance so that they are available by phone in the case that the assessors need support.

[2] QA field assessments may be conducted for both projects implemented by contractors and those directly implemented by NEIWPCC staff. For those projects implemented by NEIWPCC staff, the QAPM or their designee should be included as an assessor, as often the PM on such a project is a direct participant in data collection.

PHASE 3: REPORTING AND COMMUNICATION

Accurate and complete documentation is critical in all quality assurance-related activities. A field assessment report template is included as Appendix C and a fillable Word version is available upon request to the QAPM.

Step 4: Write Report

4.1: The assessors document their observations, any nonconformance or noncompliance, and corrective actions taken in a report. Pictures should be included in the report with descriptive captions, including the names of each person shown in the picture and the activity taking place.

NOTE: Before submitting the report, the assessors should contact the QAPM if any nonconformance or noncompliance was observed to ensure that the documentation is appropriate and any additional actions have been identified.

4.2: The assessors submit their report to the QAPM by email in Word format, including a copy of the completed QA Field Assessment Data Sheet.

4.3: The QAPM proofs the report and ensures all documentation is included. The QAPM finalizes the report and produces a final pdf version, which includes a copy of the QA Field Assessment Data Sheet. A copy of this report should be retained on the Lowell office server in the appropriate folder ("I:\COMMON\Quality\Assessments\Field Assessments").

4.4: The QAPM enters a record in the QAPP Tracker database for the field assessment using the “Field Assessments” form.

Step 5: Communicate Findings to Leadership

5.1: The QAPM notifies the QMSC of the completion of the field assessment by email, including a copy of the final report for reference. All assessors should be copied on this message. During distribution, the location of pictures and videos on the server should be provided to the appropriate communications staff person for their use.

Step 6: Report Assessment Activity to EPA

6.1: The QAPM includes field assessment activity in the quarterly report for the Quality Program.

6.2: The QAPM includes information about the field assessment in the annual system status report and quality management plan review. This document should include a copy of the full field assessment report as an appendix.

APPENDIX A: QA FIELD ASSESSMENT DATA SHEET

Note that a fillable Word document is available from the QAPM upon request.

NEIWPCC

QA Field Assessment Data Sheet

Project Title:

QAPP ID:

Assessor(s):

Assessment Date:

Project Location:

Project Staff:

Brief Project Description:

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)

APPENDIX B: PHOTOGRAPHY GUIDE FOR FIELD ASSESSMENTS

Pictures and videos are a critical part of the documentation of activities for QA field assessments. As much as is feasible, pictures of all data collection activities should be captured. If you observe any nonconformance or noncompliance to the QAPP, those specific actions should be captured in pictures and/or videos. If there are multiple assessors on site, consider assigning one as a photographer.

Beyond the utility purpose of documentation, pictures and videos captured during field assessments are an important source of media for our communications staff. Capturing landscapes, general activities of the project team, interaction among the assessors and the project team, or other engaging topics is a valuable activity during field assessments. Photos that you include in your assessment report are shared with Headquarters-based communication staff during distribution of the assessment report to the QMSC. If you have additional photos or videos that you would like to share with them, send them to photos@neiwpcc.org or contact one of the Communications division staff to direct them to the file location where they are stored.

Smartphones are capable of taking high-quality pictures and videos and can be a convenient option to use during field assessments. Become familiar with the capabilities and options of your phone before going into the field.

SUBJECTS

It can be difficult to determine what exactly to focus on when completing an assessment and capturing photographic or videographic documentation.

Here are focal points you should consider capturing:

- Data collection activities – focus on a specific process being completed and document each critical action, capturing each individual involved.
- Data entry – Document datasheets so that they are legible. Additionally, capture individual personnel entering data on paper or in digital formats. These shots often highlight a subject's hands and are tactile in nature.
- Underwater activities – if you have a device that is capable of being submerged, taking pictures or videos underwater can provide unique and interesting perspectives on a project. Be cautious of dropping your device where it cannot be recovered.
- Field site – step back a few yards or look for high ground to capture broader documentation of the field site.
- Assessment activities – pass the camera to another person and ask them to take a picture of you and the project team member completing the work.
- Project team members – capture activities of each person. Capture interactions of the team.

GUIDANCE FOR SPECIFIC MEDIA TYPES

Pictures

Ensure your photos are in focus.

Be dynamic in your approach. Avoid standing in one spot, taking pictures only from chest or head height, and always bringing an entire subject into the composition. Try kneeling down and taking pictures straight on or looking up. Take close up photos that show textures or highlight an

individual subject's face or hands. Move around the site and look for different elements to include when focusing on the same subject.

Shoot in a mix of portrait and landscape. When composing a picture, take advantage of asymmetry. Try filling two thirds of the photo with the sky or lining up your subject in the right or left third of the photo.

Videos

Short videos are best. Focus on concise and discrete aspects of a given process to focus on. It is best to record individual segments of video for discrete components of a given process, adjusting your vantage between shots to best capture the subject and action. Where there are repetitive processes, consider filming multiple iterations of the process from different vantage points.

Shoot in a mix of portrait and landscape modes, as different orientations are useful for different communications products. If you are filming a sequence of actions with multiple shots, maintain a single orientation throughout the series.

Filming scenery can be effective for b-roll in communications products. Consider short videos capturing a slow pan of a landscape scene or a stationary shot of a dynamic subject (e.g., moving ripples in a stream).

AN ADDED NOTE ON LIGHT

Equal to the importance of the composition of a picture or video as the subject, is the consideration of light. Luckily, field assessments are typically conducted outdoors, where the quantity and quality of light is generally less challenging to work with than typical indoor settings (e.g., offices or conference centers). Regardless of environment, it is critical to be cognizant of the available light and adjust your composition to best take advantage of your circumstances.

Here are some helpful tips when planning a shot in consideration of the available light.

- The subject should generally be lighted. Try to position yourself so that your back is towards the sun. If you are facing the sun, consider ways to use shadow in your composition (e.g., capturing silhouettes).
- Take advantage of morning and evening light when you can. If you can get to a field site a few minutes early in the morning or linger a few minutes later in the afternoon, you may find excellent opportunities to capture scenery shots.
- A cloudy day can result in difficult, flat lighting conditions. Don't be discouraged. Be creative in your approach and try different settings on your camera or phone and try different styles of composition.

APPENDIX C: QA FIELD ASSESSMENT REPORT TEMPLATE

Note that a fillable Word document is available from the QAPM upon request.

[Insert Date of Report Here]

QA Field Assessment Report

Project Title: [Insert title here]

QAPP ID: [Insert QAPP ID here]

Assessor(s): [Insert your name here and other NEIWPCC staff involved in assessment]

On [Insert DATE of assessment], the NEIWPCC Quality Assurance Program Manager (Emily Bialowas) accompanied [Insert project staff names, titles, and organizations here] during field activities associated with the [Insert project title here] project.

Field activities conducted on [Insert DATE of assessment] included [Describe field activities].

All field efforts observed were conducted in accordance with the approved quality assurance project plan (QAPP). No deviations from (or discrepancies with) the approved QAPP approved were observed or noted.

[Insert pictures from field assessment here & add captions; identify individuals in photos]