# Title and Approval Page (A1)

## Quality Assurance Project Plan for [Project Name]

**Revision: 0
RAE/EPA Grant #: XXXX
Lead Organization:**

**Partner Organization(s):
January 27, 2021**

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| Thomas Ardito – Restore America’s Estuaries Grant Manager |  | Date |
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|  |  |  |
| Margherita Pryor – EPA Project Officer |  | Date |
|  |  |  |
|  |  |  |
| Nora Conlon – EPA Quality Assurance |  | Date |
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# Distribution List (A3)

*Includes all individuals who are to receive a copy of the QAPP and identifies their organization*

| **Organization** | **Contact / Address** | **Email Address** |
| --- | --- | --- |
| Organization Name | **Name** Job title**Name** Job titleAddress Line 1Address Line 2(111) 111-1111 | Email of Name 1 Email of Name 2 |
| Organization Name | **Name** Job title**Name** Job titleAddress Line 1Address Line 2(111) 111-1111 | Email of Name 1 Email of Name 2 |
| Organization Name | **Name** Job title**Name** Job titleAddress Line 1Address Line 2(111) 111-1111 | Email of Name 1 Email of Name 2 |
| Restore America’s Estuaries/Southeast New England Watershed Grants Program | **Thomas Ardito**,Director2300 Calrendon Blvd., Suite 603Arlington, VA 22201(401) 575-6109 | tardito@estuaries.org |
| Environmental Protection Agency | **Nora Conlon**, Quality Assurance11 Technology DriveNorth Chelmsford, MA 01863617-918-8335 | conlon.nora@epa.gov  |
| Environmental Protection Agency | **Margherita Pryor**, Project Officer5 Post Office Square, #100Boston, MA 02109617-918-1597 | pryor.margherita@epa.gov |

# Section A: Project Management

The following section provides information regarding the background of the [Project Name], the tasks involved in completing the project, and the names and responsibilities of key project team members.

***NOTE: Text in italics is for guidance purposes only. It should be removed from the final product. Any sections that are not applicable to the Project should be removed from the QAPP with an explanation as to why they were not included.***

## A4: Project Task/Organization

*Identify the individuals or organizations participating in the project and discuss their specific roles and responsibilities. Include the principal data users, the decision makers, the project QA manager, and all persons responsible for implementation. The project quality assurance manager must be independent of the unit generating the data. (This does not include being independent of senior officials, such as corporate managers or agency administrators, who are nominally, but not functionally, involved in data generation, data use, or decision making.) Identify the individual responsible for maintaining the official, approved QA Project Plan.*

*Provide a concise organization chart showing the relationships and the lines of communication among all project participants. Include other data users who are outside of the organization generating the data, but for whom the data are nevertheless intended. The organization chart must also identify any subcontractor relationships relevant to environmental data operations, including laboratories providing analytical services.* See **Table 1** for a list of the specific members from each organization.

Table 1 Project Participants

|  |  |  |  |
| --- | --- | --- | --- |
| Name  | Title | Organization | Primary Responsibility |
| Name | Title | Organization Name | Role |
| Name | Title | Organization Name | Role |
| Name | Title | Organization Name | Role |
| Name | Title | Organization Name | Role |
| Name | Title | Organization Name | Role |
| Tom Ardito | Grant Manager | Restore America’s Estuaries  | Project oversight |
| Nora Conlon | EPA Quality Assurance | EPA | Final review and approval of QAPP |
| Margherita Pryor | EPA Project Officer | EPA | Project oversight and QAPP review |

### Organization 1

*Provide description of Organization’s role and project tasks for which they will be responsible.*

### Organization 2

*Provide description of Organization’s role and project tasks for which they will be responsible.*

### Organization 3

*Provide description of Organization’s role and project tasks for which they will be responsible.*

### Restore America’s Estuaries

Restore America’s Estuaries (RAE) has been selected by the Environmental Protection Agency (EPA) to manage the Southeast New England Watershed Grant Program (SNEP) for 2018 and 2019. RAE will oversee fiscal and technical aspects of the grant project.

### EPA

EPA is the grantor to RAE for the grant money that is being used for this project. The EPA will review and approve this Quality Assurance Project Plan (QAPP).

## A5: Problem Definition/Background

*State the specific problem to be solved, decision to be made, or outcome to be achieved. Include sufficient background information to provide a historical, scientific, and regulatory perspective for this particular project.*

## A6: Project Task Descriptions

*Provide a summary of all work to be performed, products to be produced, and the schedule for implementation. Provide maps or tables that show or state the geographic locations of field tasks. This discussion need not be lengthy or overly detailed, but should give an overall picture of how the project will resolve the problem or question described in A5.*

Table 2 Project Tasks and Schedule

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Deliverable | Timeline | Relevant Details/Comments |
| Task | Deliverable | Month-Month Year |  |
| Task | Deliverable | Month-Month Year |  |
| Task | Deliverable  | Month-Month Year |  |
| Task | Deliverable  | Month-Month Year |  |

### Task 1: QAPP Development

This QAPP describes the quality management system and procedures, as well as the roles and responsibilities of the Project Team. The QAPP provides an overview of the project and quality assurance related to data used for the project.

The Project Manager, [Name], will be responsible for maintenance and distribution of the approved QAPP. The QAPP will be provided electronically as needed.

### Task 2

*Summarize work to be performed for this task, for example, measurements to be made, data files to be obtained, etc., that support the Project’s goals. Provide work schedule. Provide geographical locations to be studied, including maps, where appropriate. Discuss resource and time constraints, where appropriate.*

### Task 3

*Summarize work to be performed for this task, for example, measurements to be made, data files to be obtained, etc., that support the Project’s goals. Provide work schedule. Provide geographical locations to be studied, including maps, where appropriate. Discuss resource and time constraints, where appropriate.*

### Task 4

*Summarize work to be performed for this task, for example, measurements to be made, data files to be obtained, etc., that support the Project’s goals. Provide work schedule. Provide geographical locations to be studied, including maps, where appropriate. Discuss resource and time constraints, where appropriate.*

## A7: Quality Objectives and Criteria

*Discuss the quality objectives for the project and the performance criteria to achieve those objectives. EPA requires the use of a systematic planning process to define these quality objectives and performance criteria.*

*Identifies performance/measurement criteria for all information to be collected and acceptance criteria for information obtained from previous studies, including project action limits and laboratory detection limits and range of anticipated concentrations of each parameter of interest.*

### Description of Data Acceptance

*Discuss precision, address bias, discuss representativeness, identifies the need for completeness, describe the need for comparability, discuss the desired method sensitivity.*

## A8: Special Trainings/Certification

*Identify and describe any specialized training or certifications needed by personnel in order to successfully complete the project or task. Discuss how such training will be provided and how the necessary skills will be assured and documented. Identify where this information is satisfied.*

## A9: Documentation and Records

*Describe the process and responsibilities for ensuring the appropriate project personnel have the most current approved version of the QA Project Plan, including version control, updates, distribution, and disposition.*

*Itemize the information and records which must be included in the data report package and specify the reporting format for hard copy and any electronic forms. Records can include raw data, data from other sources such as data bases or literature, field logs, sample preparation and analysis logs, instrument printouts, model input and output files, and results of calibration and QC checks.*

*Identify any other records and documents applicable to the project that will be produced, such as audit reports, interim progress reports, and final reports. Specify the level of detail of the field sampling, laboratory analysis, literature or data base data collection, or modeling documents or records needed to provide a complete description of any difficulties encountered.*

*Specify or reference all applicable requirements for the final disposition of records and documents, including location and length of retention period.*

*Describe how individuals identified in A3 will receive the most current copy of the approved QAPP and identify the individual(s) responsible for this.*

# Section B: Data Generation and Acquisition

This QAPP was developed with guidance from the EPA Requirements for Quality Assurance Project Plans (QA/R-5). *List any elements from Section B that are not applicable to your project.*

## B1: Sampling Process Design (Experimental Design)

*Describe the experimental data generation or data collection design for the project, including as appropriate:*

* *The rationale for the design*
* *The types and number of samples required,*
* *The design of the sampling network,*
* *The sampling locations and frequencies,*
* *Discusses what to do if sampling sites become inaccessible,*
* *Samples matrices,*
* *Measurement parameters of interest,*
* *Identifies project activity schedules such as each sampling event, times samples should be sent to the laboratory, etc., and*
* *Identifies sources of variability and how this variability should be reconciled with project information.*

## B2: Sampling Methods

*Describe the procedures for collecting samples and identify the sampling methods and equipment, including any implementation requirements, sample preservation requirements, decontamination procedures, and materials needed for projects involving physical sampling. Where appropriate, identify sampling methods/standard operating procedures (SOPs) by number, date, and regulatory citation. If a method allows the user to select from various options, then the method citations should state exactly which options are being selected. Indicate what sample containers and sample volumes should be used. Indicate how samples will be homogenized, composited, split, or filtered as applicable. If in situ monitoring, indicate how instruments should be deployed and operated to avoid contamination and ensure maintenance for proper data collection. Describe specific performance requirements for the method. For each sampling method, identify any support facilities needed. The discussion should also address what to do when a failure in the sampling or measurement system occurs, who is responsible for corrective action, and how the effectiveness of the corrective action shall be determined and documented.*

*Describe the process for the preparation and decontamination of sampling equipment, including the disposal of decontamination by-products; the selection and preparation of sample containers, sample volumes, and preservation methods; and maximum holding times to sample extraction and/or analysis.*

## B3: Sample Handling and Custody

*Describe the requirements for sample handling and custody in the field, laboratory, and transport, taking into account the nature of the samples, the maximum allowable sample holding times before extraction or analysis, and available shipping options and schedules for projects involving physical sampling. Indicate how sample or information handling and custody information should be documented, such as in field notebooks and forms, and identify the individual(s) responsible.*

*Sample handling includes packaging, shipment from the site, and storage at the laboratory. Examples of sample labels, custody forms, and sample custody logs should be included. Identifies chain of custody procedures.*

## B4: Analytical Methods

*Identify the analytical methods and equipment required, including sub-sampling or extraction methods, laboratory decontamination procedures and materials (such as in the case of hazardous or radioactive samples), waste disposal requirements (if any), and any specific performance requirements for the method. Where appropriate, analytical methods may be identified by number, date, and regulatory citation. Address what to do when a failure in the analytical system occurs, who is responsible for corrective action, and how the effectiveness of the corrective action shall be determined and documented. Specify the laboratory turnaround time needed, if important to the project schedule. Identify sample disposal procedures.*

*List any method performance standards. If a method allows the user to select from various options, then the method citations should state exactly which options are being selected. For non-standard method applications, such as for unusual sample matrices and situations, appropriate method performance study information is needed to confirm the performance of the method for the particular matrix. If previous performance studies are not available, they must be developed during the project and included as part of the project results.*

## B5: Quality Control

*Identify QC activities needed for each sampling, analysis, or measurement technique. For each required QC activity, list the associated method or procedure, acceptance criteria, and corrective action. Because standard methods are often vague or incomplete in specifying QC requirements, simply relying on the cited method to provide this information is usually insufficient. QC activities for the field and the laboratory include, but are not limited to, the use of blanks, duplicates, matrix spikes, laboratory control samples, surrogates, or second column confirmation. State the frequency of analysis for each type of QC activity, and the spike compounds sources and levels. State or reference the required control limits for each QC activity and corrective action required when control limits are exceeded and how the effectiveness of the corrective action shall be determined and documented.*

*Describe or reference the procedures to be used to calculate applicable statistics (e.g., precision and bias). Copies of the formulas are acceptable as long as the accompanying narrative or explanation specifies clearly how the calculations will address potentially difficult situations such as missing data values, “less than” or “greater than” values, and other common data qualifiers.*

## B6: Instrument/Equipment Testing, Inspection and Maintenance

*Describe how inspections and acceptance testing of instruments, equipment, and their components affecting quality will be performed and documented to assure their intended use as specified. Identify and discuss the procedure by which final acceptance will be performed by independent personnel (e.g., personnel other than those performing the work) and/or by the EPA project manager. Describe how deficiencies are to be resolved, when re-inspection will be performed, and how the effectiveness of the corrective action shall be determined and documented.*

*Describe or reference how periodic preventive and corrective maintenance of measurement or test equipment or other systems and their components affecting quality shall be performed to ensure availability and satisfactory performance of the systems. Identify the equipment and/or systems requiring periodic maintenance. Discuss how the availability of critical spare parts, identified in the operating guidance and/or design specifications of the systems, will be assured and maintained.*

## B7: Instrument/Equipment Calibration and Frequency

*Identify all tools, gauges, instruments, and other sampling, measuring, and test equipment used for data generation or collection activities affecting quality that must be controlled and, at specified periods, calibrated to maintain performance within specified limits. Describe or reference how calibration will be conducted using certified equipment and/or standards with known valid relationships to nationally recognized performance standards. If no such nationally recognized standards exist, document the basis for the calibration. Identify the certified equipment and/or standards used for calibration. Indicate how records of calibration shall be maintained and be traceable to the instrument. Identify how deficiencies should be resolved and documented.*

## B8: Inspection/Acceptance of Supplies and Consumables

*Describe how and by whom supplies and consumables (e.g., standard materials and solutions, sample bottles, calibration gases, reagents, hoses, deionized water, potable water, electronic data storage media) shall be inspected and accepted for use in the project. State acceptance criteria for such supplies and consumables.*

## B9: Non-Direct Measurements (i.e. secondary data)

*Identify any types of data needed for project implementation or decision making that are obtained from non-measurement sources such as computer data bases, programs, literature files, and historical data bases. Describe the intended use of the data and the rationale for their selection, i.e. the relevance to the project. Define the acceptance criteria for the use of such data in the project and specify any limitations on the use of the data. Describe how limits to validity and operating conditions should be determined.*

## B10: Data Management

*Describe the project data management process, tracing the path of the data from their generation to their final use or storage (e.g., the field, the office, the laboratory). Describe or reference the standard record-keeping procedures, and/or cite other documentation such as SOPs, document control system, and the approach used for data storage and retrieval on electronic media. Discuss the control mechanism for detecting and correcting errors and for preventing loss of data during data reduction, data reporting, and data entry to forms, reports, and databases. Provide examples of any forms or checklists to be used.*

*Identify and describe all data handling equipment and procedures to process, compile, and analyze the data. This includes procedures for addressing data generated as part of the project as well as data from other sources. Include any required computer hardware and software and address any specific performance requirements for the hardware/software configuration used. Describe the procedures that will be followed to demonstrate acceptability of the hardware/software configuration required. Describe the process for assuring that applicable information resource management requirements are satisfied.*

*Identify the individuals responsible for data management. Describe the process of data archival and retrieval. Attach any relevant checklists or forms for this task.*

# Section C: Assessment and Oversight

This section addresses the activities for assessing the effectiveness of the implementation of the quality assurance and quality control activities. The purpose of the assessment is to ensure that QAPP is implemented as described.

## C1: Assessments and Response Actions

*Describe each assessment to be used in the project including the frequency and type and approximate dates. Assessments include, but are not limited to, surveillance, management systems reviews, readiness reviews, technical systems audits, performance evaluations, audits of data quality, and data quality assessments. Discuss the information expected and the success criteria (i.e., goals, performance objectives, acceptance criteria specifications, etc.) for each assessment proposed. List the approximate schedule of assessment activities. For any planned self-assessments (utilizing personnel from within the project groups), identify potential participants and their exact relationship within the project organization. For independent assessments, identify the organization and person(s) that shall perform the assessments if this information is available. Describe how and to whom the results of each assessment shall be reported.*

*Define the scope of authority of the assessors, including stop work orders, and when assessors are authorized to act.*

*Discuss how response actions to assessment findings, including corrective actions for deficiencies and other non-conforming conditions, are to be addressed and by whom. Include details on how the corrective actions will be verified and documented.*

## C2: Reports to Management

*Identify the frequency and distribution of reports issued to inform management (RAE, EPA) of the project status; for examples, reports on the results of performance evaluations and system audits; results of periodic data quality assessments; and significant quality assurance problems and recommended solutions. Identify the preparer and the recipients of the reports, and any specific actions recipients are expected to take as a result of the reports.*

# Section D: Data Validation and Usability

This section addresses the QA activities that occur after the data collection of the project has been completed. Implementation of these elements ensures that the data conform to the specified criteria and achieve the project objectives.

## D1: Data Review, Verification, and Validation

*State the criteria used to review and validate -- that is, accept, reject, or qualify -- data, in an objective and consistent manner.*

## D2: Verification and Validation of Methods

*Describe the process to be used for verifying and validating data, including the chain-of-custody for data throughout the life of the project or task. Identify who is responsible for verifying and validating different components of the project data/information, for example chain-of-custody forms, receipt logs, calibration information, etc. Discuss how issues shall be resolved and the authorities for resolving such issues. Describe how the results are conveyed to data users. Precisely define and interpret how validation issues differ from verification issues for this project. Provide examples of any forms or checklists to be used. Identify any project-specific calculations required.*

## D3: Reconciliation with User Requirements

*Describe how the results obtained from the project or task will be reconciled with the requirements defined by the data user or decision maker. Outline the proposed methods to analyze the data and determine possible anomalies or departures from assumptions established in the planning phase of data collection. Describe how reconciliation with user requirements will be documented, issues will be resolved, and how limitations on the use of the data will be reported to data users and decision makers.*

# References

Environmental Protection Agency. 2001. EPA Requirements for Quality Assurance Project Plans. EPA QA/R-5.

Environmental Protection Agency. EPA R-5 Checklist for Review of Quality Assurance Project Plans.

Environmental Protection Agency. 2010. New England Quality Assurance Project Plan Program Guidance. EQAQAPP2005PG2

Attachment A – XXXXX

Attachment B – Decision Tree for Data Quality Evaluation

