# **Project Management**

## Title and Approval

**[TITLE]**

**Prepared by:**

**[Organization]**

**[Date]**

**Version [number]**

**EPA Grant Numbers: {fill in}**

Approved by:­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nora Conlon, EPA Quality Assurance Officer, EPA Region 1 date

Approved by:­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Caitlyn Whittle, EPA Project Officer, EPA Region 1 date

Approved by:­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Courtney Schmidt, Staff Scientist, NBEP date

Approved by:­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

{writer’s organizational approval - add more lines if necessary} date

Approved by:­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

{writer’s organizational approval - add more lines if necessary} date

## Abstract and Table of Contents

**Abstract**

{include short abstract for project and what the deliverables will be}

**Table of Contents**

[**1.** **Project Management** 1](#_Toc94177413)

[1.1. Title and Approval 1](#_Toc94177414)

[1.2. Abstract and Table of Contents 2](#_Toc94177415)

[1.3. QAPP Distribution List 4](#_Toc94177416)

[1.4. Project Organization and Responsibilities 5](#_Toc94177417)

[1.5. Problem Definition/Background 5](#_Toc94177418)

[1.6. Project Description 5](#_Toc94177419)

[1.7. Quality Objectives and Criteria 6](#_Toc94177420)

[1.8. Special Training/Certification 6](#_Toc94177421)

[1.9. Documentation and Records 7](#_Toc94177422)

[**2.** **Data Acquisition and Model Use or Development** 7](#_Toc94177423)

[2.1. Sources of Secondary Data 7](#_Toc94177424)

[2.2. Quality of Secondary Data 7](#_Toc94177425)

[2.3. Data Management and Hardware/Software Configuration 7](#_Toc94177426)

[2.4. Model Calibration 8](#_Toc94177427)

[**3.** **Assessment and Oversight** 8](#_Toc94177428)

[3.1. Assessments and Response Actions 8](#_Toc94177429)

[3.2. Hardware/Software Assessments and Configurations Tests 8](#_Toc94177430)

[3.3. Model Peer Review 9](#_Toc94177431)

[3.4. Reports to Management 9](#_Toc94177432)

[**4.** **Data Validation and Usability** 9](#_Toc94177433)

[4.1. Validation Criteria 9](#_Toc94177434)

[4.2. Verification and Validation Methods 9](#_Toc94177435)

[4.3. Reconciliation with User Requirements 9](#_Toc94177436)

[**5.** **References** 10](#_Toc94177437)

[**6.** **Appendix A. Data Storage Policy Agreement** 11](#_Toc94177438)

[**7.** **Appendix B. {Appendix title}** 12](#_Toc94177439)

## QAPP Distribution List

**QAPP distribution list**

Signed copies of this Quality Assurance Project Plan (QAPP) and all subsequent revisions will be sent to the following individuals by electronic mail:

{add list of people to receive the QAPP, including those on the approval page. Need name, title, organization, and email}

## Project Organization and Responsibilities

{identifies key individuals involved in all major aspects of the project, including contractors; discusses responsibilities; project QA manager position indicates independence from unit generating data; organizational chart shows lines of authority and reporting responsibilities}

NBEP

Program Director: Mike Gerel

Staff Scientist: Courtney Schmidt

SUBAWARDEE

Roger Williams University

Peter Wong

EPA Project Officer

Caitlyn Whittle

SUBAWARDEE CONTRACTOR

Figure 1. Organizational Chart. Update with people responsible for the project. These names may change depending on the project

## Problem Definition/Background

{states decision(s) to be made, actions to be taken, or outcomes expected from the information to be obtained; clearly explains the reason (site background or historical context) for collecting secondary data and how that data will be used to meet project goals; identifies regulatory information, applicable criteria, action limits, etc. necessary to the project}

## Project Description

***Deliverable***

{what is the main deliverable(s) for this project}

***Description***

{summarized work to be performed}

***Schedule***

The tentative schedule for the project is provided in the following table. Update for specific project

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Task** | **Anticipated**  **Start Date** | **Anticipated**  **End Date** |
| QAPP | Preparation |  |  |
| Acceptance |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

***Geographical Locations***

{what is the geographic location of the project; include map}

Figure 2. Map of the Narragansett Bay Estuary Program Study Areas.

***Resources and Time Constraints***

Resource and time constraints are (not) applicable to this project. {if they are applicable, please describe}

## Quality Objectives and Criteria

{description of specific task required modeling and the intended uses of modeling output to achieve the task; identifies performance/measurement criteria for all information to be collected for use in the model, including acceptance criteria for information obtained from previous studies, project action limits and laboratory detection limits and range of anticipated concentrations of each parameter of interest; discusses types of secondary data; addressed the age of the data; discusses geographical representation of data; discusses temporal representation of data; discusses technological representation of data; lists required hardware/software configurations for those studies involving software evaluations}

## Special Training/Certification

{identifies any project personnel specialized training or certifications, discusses how this training will be provided, indicates personnel responsible for assuring these are satisfied, identifies where this information is documented}

## Documentation and Records

{identifies report format and summarizes all data report package information; lists all other project documents, records, and electronic files that will be produced, potentially including model science formulation reports, peer-review/model evaluation group reports, model assessment reports, model calibration reports, a model-users’ manual, configuration and code maintenance manuals, and reports describing model code standards, code auditing and code testing, etc.; identifies where project information should be kept and for how long; discusses back up plans for records stored electronically; states how individuals identified in Section 1.3 will receive the most current copy of the approved QAPP, identifies individuals responsible for this}

{Subawardee} has read Roger Williams University’s [Data Storage Policy](https://www.rwu.edu/sites/default/files/downloads/it/Data%20Storage%20Policy_3_12_19.pdf). A signed agreement to follow the stipulations in the Policy is included in Appendix A.

# **Data Acquisition and Model Use or Development**

## Sources of Secondary Data

{identifies sources of required secondary data, including the originating organizations(d), and the report/publication title and date (can be a table); identifies the generators of the required secondary data (if different from source), including the originating organization(s) and data collection date(s); specifies the hierarchy of sources for the gathering of secondary data, where applicable; discusses the rationale for selecting the data source(s) identified; specifies that all sources of secondary data gathered will be identified in project reports and deliverables}

## Quality of Secondary Data

{discusses quality requirements of secondary data and corresponding acceptance criteria; discusses accuracy, precision, representativeness, completeness, and comparability requirements; discusses the procedures that will be employed to determine the quality of secondary data; includes disclaimer to be used in all project work products and reports if no quality requirements are being employed or when the quality of secondary data cannot be determined}

Any limitations in data quality will be fully disclosed. If a decision is made to use data of unknown quality, then this limitation will be indicated in a disclaimer that will be added to any project deliverable. The disclaimer will read: “These data are of unknown quality and presented here for illustrative purposes only. No inferences regarding the environmental condition of the {project geographical area} should be made based on these data until their quality can be determined.”

## Data Management and Hardware/Software Configuration

{describes data management and storage scheme; identifies data handling equipment/procedures that should be used to process, compile, analyze, and transmit data reliably and accurately; identifies individual(s) responsible for data management; describes the process for data archival and retrieval; describes procedures to demonstrate acceptability of hardware and software configurations; describes or attaches any data forms, checklists, or on-line interactive screens used in the modeling process; includes any necessary graphics to document the data management process (e.g. process-flow diagrams, modeling flow charts, etc.); describes how internal checks used during data entry should be documented; describes how uncertainty and variability in the model results will be determined of characterized (e.g. summary statistics, frequency distributions, goodness-of-fit tests); lists equipment, both hardware and software that will be used on the project; describes system performance requirements, addressing security issues, software installation needs and associated documentation describes plan for development of model coding standards; describes plan for model testing; describes plan for development of model user’s manual and/or maintenance manual; describes how model source code will be stored and maintained; includes configuration management plan to control software/hardware configuration during model development or application}

## Model Calibration

{describes the objectives of model calibration activities, including acceptance criteria; describes expected frequency of model calibration activities; details the model calibration procedure; describes the method(s) of acquiring input data; describes types of output generated by the model calibration; describes the approach being used to characterize uncertainty (e.g. sensitivity analysis); details correction action to be taken if acceptance criteria are not met; details resources and responsibilities related to model calibration; discusses the analysis of model output relative to acceptance criteria}

# **Assessment and Oversight**

## Assessments and Response Actions

{lists the number, frequency, and type of assessment activities that should be conducted, with the approximate dates; identifies individual(s) responsible for conducting assessments, indicating their authority to issue stop work orders and any other possible participants in the assessment process; describes how and to whom assessment information should be reported; identifies how corrective actions should be addressed and by whom, and how they should be verified and documented}

NBEP may implement, at their discretion, various reviews of this project to assess conformance and compliance to the quality assurance project plan. NBEP may issue a stop work order and require corrective action(s) if nonconformance or noncompliance to the Quality Assurance Project Plan is found.

## Hardware/Software Assessments and Configurations Tests

{describes how hardware and software configurations will be tested; describes model code development inspections and verification tests; describes how programming errors will be screened and corrected; describes how model equations will be checked for correct placement/relationships; described how linkages between model code and uncertainty analysis will be checked; describes how model framework will be tested; describes planned integration tests (to check computational and transfer interfaces between model modules; describes any planned regression tests; describes stress testing of complex models (to ensure that maximum model load does not exceed system limitations); describe process for beta testing of pre-release materials}

## Model Peer Review

{describes process for peer-review of the theoretical bases for the model; describes process for peer-review of the mathematical model structure; describes process for peer-review of model outputs and predictions; describes process for peer-review of model calibration procedures; describes process for peer-review of final technical products}

## Reports to Management

{identifies what project QA status reports are needed and how frequently; identifies who should write these reports and who should receive this information}

{subawardee} will file quarterly reports as a mechanism to keep NBEP and EPA project managers apprised of progress and communicate any QA-related findings associated with the project’s secondary data.

# **Data Validation and Usability**

## Validation Criteria

{describes data reduction and evaluation procedures specific to the project, including calculations and equations; describes criteria used to review and validate input data; describes criteria used to review and validate model components such as theory, mathematical structure, code, and calibration; describes criteria used to test model performance; describes criteria used to review and validate model outputs}

## Verification and Validation Methods

{describes methods for review of model components such as theory, mathematical structure, code, and calibration; describes methods used to test model performance; describes methods for assessment of model output and usability}

## Reconciliation with User Requirements

{describes procedures to evaluate the uncertainty of the validated data; describes how limitations on data use should be reported to data users; describes any potential uncertainties related to decisions made based on limitations in model input data and/or limitations in the model and how this will be reported; describes any departures from assumptions set in the planning phase of the model will be documented and reported to users; describes procedures for final acceptance testing (testing needed before a new model or model application is accepted by the end user)}

# **References**

List references in alphabetical order

# **Appendix A. Data Storage Policy Agreement**



Text

Description automatically generated with medium confidence

**DATA STORAGE POLICY AGREEMENT**

I, **[name]** of **[organization]**, have read Roger Williams University’s [Data Storage Policy](https://www.rwu.edu/sites/default/files/downloads/it/Data%20Storage%20Policy_3_12_19.pdf) and agree to all its stipulations for the NBEP-funded project entitled **[project]**.

Signed,

Signature

Date

# **Appendix B. {Appendix title}**

Attached appendices. Each Appendix receives its own heading (7, 8, etc.) so that it appears in the table of contents at the beginning (copy “7. Appendix” above and paste when you need another appendix). Each appendix should have its own title as well. Please start all additional appendices on a new page.