# INSTRUCTIONS for EPA Region 8 Community Grant Recipients for completing the Water Infrastructure Construction Quality Assurance (QA) Plan Template for Construction Only

(For construction activities only-- No sampling, analysis, existing data collection, or construction design will occur)

This Water Infrastructure grant Construction QA Plan template is intended for use **only by EPA Region 8 Community Grant recipients** receiving funding from State Revolving Funds to document project activities involving **Environmental Information Operations (EIO)** as part of a Community Grant. Complete all sections of this template. When this template is completed fully, the content meets EPA QAPP Requirements, QA/R-5.

**PREPARING THE Construction QA Plan:**

* For each section in the Construction QA Plan template, guidance is provided in a **comment box located on the righthand side as “NOTE to Preparer.**” Please click on the comment box to read the entire comment. Once the author addresses the comment, please delete the comment box. Text boxes in angle brackets **<Insert here>** are intended for the Preparer to complete by inserting appropriate text for each section. Enter content within the text box by overwriting the angle brackets. Text preceded by **“EXAMPLE:”** is example text and may not accurately describe the project plans/processes that will be implemented. This example text may be used to help develop responses but should be modified as appropriate to accurately describe the project plans.
* If you plan to utilize a **contractor for IT** services to develop data architecture, processes, validation, maintenance, etc., we recommend referring to your information management resources such as a Data Management Plan.
* We recommend avoiding collection of Personally Identifiable Information **(PII**). If you decide to collect PII, you must comply with 5 U.S.C. § 552a and EPA’s Privacy Policy and describe the requirements within the Construction QA Plan.
* If any of the elements in the template are not applicable for your project, insert **Not Applicable** and include a statement as to why the element is not relevant to the project.
* If there are plans to **publish information** to a website for public access, you must state in the Construction QA Plan how data limitations will be conveyed to users, including the requirement to post a disclaimer onto the website along with the published information. Provide the specific disclaimer text in the plan.
* In the Construction QA Plan, if applicable, describe the process for how data/information will be collected, stored, retrieved, and used, and/or **attach** your Data Management Plan **(DMP)** to the Construction QA Plan.
* Attach any applicable Standard Operating Procedures **(SOPs)** to the Construction QA Plan.
* Links to applicable SOPs, EPA guidance documents, policies, or statutes, State-issued permits, environmental impact statements, or other relevant documents may be provided in lieu of providing as attachments to the Construction QA Plan. Where links are provided, please ensure that the links are provided as hypertext so that the reader can navigate to the document location directly from the Construction QA Plan.

**FINALIZING THE Construction QA Plan:**

* **Delete this instruction page and all other instructional comments** after utilizing the guidance in the template and finalizing the document for review and approval.
* **For Community Grant Recipients:** All Construction QA Plans may be prepared by the Contractor or the Community implementing the project. The plan must be written from the grant recipient’s perspective and should therefore describe the roles, responsibilities, and activities that will be undertaken by both the Community implementing the project and the Contractor performing the work. Construction QA Plans must be submitted to the EPA Project Officer for routing to the appropriate reviewing entity (i.e., the Region 8 QA Branch or DAO) for review and approval. Once approved, provide a copy of the approved plan signature page to your EPA Project Officer for their records.
* **For Contractors:** Submit your completed Construction QA Plan to the EPA Grant recipient who will coordinate with the EPA review and approval of the Construction QA Plan.

**Construction QA Plan Template Disclaimer:** This template describes a QA approach that could be used for a Water Infrastructure Community Grant construction project and has not been developed or reviewed to support other projects.

# Title Page

**U.S. Environmental Protection Agency Region 8**

**Water Infrastructure Community Grant**

<Insert Grant Recipient Organization Name

and Address>

**Construction Quality Assurance Plan**

<Insert Final QAPP Title>

<Insert Date of QAPP>

<Insert Period of Performance MM/DD/YYYY to MM/DD/YYYY>

# Approval Page

**Grant Recipient Approvals:**

Organization: <Insert here>

Project Quality Assurance Officer

Printed Name & Title: <Insert here>

Signature & Date:

Project Manager:

Printed Name & Title: <Insert here>

Signature & Date:

Construction Contractor Project Manager:

Printed Name & Title: <Insert here>

Signature & Date:

For Grant Recipients without EPA Region 8 Approved QMPs

**EPA Approvals:**

EPA Region 8 Project Officer

Printed Name & Title: <Insert here>

Signature & Date:

EPA Region 8 Quality Assurance Manager (RQAM)

Or Delegated Approving Officer (DAO):

Printed Name & Title: <Insert here>

Signature & Date:

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Revision History

|  |  |
| --- | --- |
| Revision No. | Description of Changes |
| <Insert here> | <Insert here> |

Acronyms

|  |  |
| --- | --- |
| DAO | Delegated Approving Officer |
| DCN | Document Control Number |
| DQI | Data Quality Indicators |
| DQO | Data Quality Objectives |
| EIO | Environmental Information Operations |
| EPA | Environmental Protection Agency |
| PM | Project Manager |
| QAO | Quality Assurance Officer |
| QA | Quality Assurance |
| QAPP | Quality Assurance Project Plan |
| QC | Quality Control |
| RQAM | Regional Quality Assurance Manager |
| SOP | Standard Operating Procedure |

# Introduction

<Insert here>

# Project Organization & Distribution List

|  |  |  |  |
| --- | --- | --- | --- |
| **Contact and**  **E-mail address** | **Title** | **Organization** | **Responsibilities** |
| <Insert here> | Water Infrastructure Grant Project Officer | U.S. EPA, Region 8 | <Insert here> |
| Mary Goldade  Goldade.Mary@epa.gov | EPA Regional Quality Assurance Manager or Delegated Approving Officer | U.S. EPA, Region 8 | Construction QA Plan Review and Approval |
| <Insert here> | Grant Recipient Project Manager | <Insert here> | <Insert here> |
| <Insert here> | Grant Recipient Project Quality Assurance Officer | <Insert here> | <Insert here> |
| <Insert here> | Grant Recipient Licensed Project Engineer/Architect | <Insert here> | <Insert here> |
| <Insert here> | Contractor Construction/Project Manager | <Insert here> | <Insert here> |
| <Insert here> | <Insert here> | <Insert here> | <Insert here> |

**Figure 1. Organization Chart**

<Insert here>

EPA Region 8 Quality Assurance Manager or Delegated Approving Official

<Insert here>

Project Quality Assurance Officer

<Insert here>

EPA Region 8 Project Officer

<Insert here>

Community Licensed Project Engineer/Architect

<Insert here>

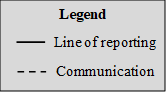
Community Project Manager

<Insert here>

Community Field Staff

<Insert here>

Contractor Construction Manager/Supervisor



<Insert here>

Contractor Field Staff

# Problem Definition, Background and Project Description

<Insert the Problem Definition and Background here>

<Insert Project Description here>

Project Objectives:

Project Site(s) or Study Area(s) and Project Boundaries:

# Project Schedule

Table 6-1 includes a list of project activities and the anticipated timeframe for each.

**Table 6-1. Schedule**

|  |  |  |
| --- | --- | --- |
| Activities | Group/Person responsible  for activity completion | Timeframe work will be done |
| <Insert Here> | <Insert Here> | <Insert Here> |
| <Insert Here> | <Insert Here> | <Insert Here> |
| <Insert Here> | <Insert Here> | <Insert Here> |

# Data Quality Objectives and Indicators

<Insert here - EXAMPLE: No analytical sampling will be performed in association with the construction project. Construction activities will be assessed for quality through the generation of performance evaluations and the associated reports. The evaluations will be conducted by the Contractor Construction Supervisor and the reports generated by the Community Project Manager in coordination with the Contractor Construction Supervisor. Final as-builts will be assessed for quality by the licensed Project Engineer who will approve the final documents. >

1. State the Problem: <Insert what necessitates the study here – EXAMPLE: One of six of the <Community> water storage tanks, utilized for storage and distribution of potable water to the community, has been utilized beyond its lifespan and requires replacement in order to ensure continued supply of potable water to the community.>
2. Identify the Goal of the Study: <Insert how information will be used to meet the objectives here – EXAMPLE: The goal of the project is to utilize existing designs and specifications provided by <Community> to excavate, remove, and replace the existing tank and any associated water lines found to be corroded or needing replacement during the construction process.>
3. Identify Information Inputs: <Insert what information is needed to answer the study questions here. EXAMPLE: Inputs include the existing <Community> design plans, existing as-builts, construction permits, NEPA determination, SHPO determination, and stormwater construction general permit.>
4. Define the Study Boundaries: <Insert target population & characteristics, geographical boundaries, and temporal boundaries here. EXAMPLE: The geographical boundaries are presented in the <Community> design drawings (Attachment 1). Construction will be maintained within the boundaries shown on the design drawings. The project will include disturbance of XX acres at XX location near the <Community> Water Treatment Plant. Construction is anticipated to commence in XX 2024 and cease in XX 2024. All construction will be performed in compliance with construction and environmental permits and will be conducted within the geographical and temporal boundaries specified therein. Should circumstances change such that the spatial or temporal boundaries of the project must change, Contractor will notify the Community Project Manager who will notify the and EPA Project Officer. In this event, construction will halt until the Community Project Manager or the designee can obtain appropriate permits.>
5. Develop the Analytic Approach: <Insert the parameters of interest and the logic for drawing conclusions from findings here. EXAMPLE: No analytical data will be collected as part of this construction project. Existing engineer-approved design plans provided by and permits obtained by the <Community> will be used to implement the construction component of this project. >
6. Specify Performance or Acceptance Criteria: <Insert applicable controls for engineering and other activities (issued permits, engineering stamp of approval, certifications, 30/60/90-design drawings) performance/acceptance criteria.> EXAMPLE: No new data will be generated during this construction project. Existing design drawings and relevant existing permits provided by the <Community> will be utilized during the construction project. Design drawings provided by the Community will be considered acceptable if the drawings include a licensed Engineer’s stamp of approval or if received directly from the Community Project Manager. Permits for the project will be considered acceptable if received directly from the Community and if they reference the construction site location and/or describe the project. It will be the Community Project Manager’s responsibility to ensure that all engineer-approved construction design drawings and appropriate permits are submitted to the Contractor Project Manager prior to commencement of construction. Use of any received permits or construction drawings are limited to excavation, removal of piping and the tank, and installation of the new tank within the geographical and temporal boundaries specified in the plan and the permits. Should circumstances change such that construction must occur outside the boundaries presented in the approved designs or permits, construction will cease until new permits and plans with updated construction boundaries are obtained.
7. Develop the Plan for Obtaining the Data: <Insert the plans to meet the performance criteria defined here.> EXAMPLE: All existing engineer-approved design drawings and permits issued for the construction project will be obtained directly from the Community electronically. Transfer of design drawings and permits will be the responsibility of the Community Project Manager, who will submit the documents to the Contract Project Manager. The Contract Project Manager will be responsible for disseminating the information to the Construction Site Manager and other appropriate personnel.

# Training and Specialized Experience

<Insert here>

# Documentation and Records

<Insert here.> EXAMPLE: Field inspections will be conducted on a weekly basis using electronic forms on iPads. Occasionally, hard copy paper forms may be used to document inspection findings. Hard copy forms will be scanned too PDF and all records will be stored electronically for XX years. Records will be backed up on XX. Additionally, raw CAD files used for generation of interim design drawings and as-builts will be stored as XXX files at XX location for XX years.

At project termination, all records and documents will be provided to the Community Project Manager, who will file them on the Community network. The Community network is backed up on a daily basis. All documents and records pertaining to the project will be housed on the Community network for XX years. Documents and records will be made available to EPA upon request during the construction phase of the project.

# Construction Materials and Methods

<Insert here.> EXAMPLE: Existing engineer-approved construction plans and permits will be utilized to conduct the construction phase of the project. These will be provided to the Contractor Project Manager directly from the Community Project Manager electronically. The Contractor Project Manager will be responsible for identifying a location for the documents and providing the documents to the appropriate personnel at the construction site.

Construction will proceed as described in the construction plan bid (Appendix A).

Final as-builts will be produced by the Contractor Project Manager and supplied to the Community Project Manager. The final as-builts will be reviewed and approved by the licensed Project Engineer.

**Table 10-1: List of Standard Operating Procedures or Other Methods**

|  |  |
| --- | --- |
| **Activity** | **SOP**  **Reference / User Manuals** |
| <Global Position System> | <Insert here> |
| <Photos or Video> | <Insert here> |
| <Electronic Data Capture Device> | <Insert here> |
| <Security, Privacy and Publishing> | <Insert here> |
| <Data Storage, Transfer and Backup> | <Insert here> |

# Existing Data and Data from Other Sources

<Insert here.> EXAMPLE: Existing construction design plans provided by XX will be referenced to perform construction activities. Additionally, XX and XX permits obtained by the Community will be utilized throughout the project. Existing files will be considered acceptable if received directly from the Community Project Manager and if the project referenced in the design plans or permits matches that which is described/presented in the construction bid plans.

# Data/Information Management

<Insert here-This section should be detailed and describe the complete data life cycle>

<Insert here-Describe the project data management process>

<Insert here-Describe the record-keeping procedures, document control, data storage, retrieval and or cite SOPs>

<Insert here-Describe data handling equipment procedures to process, analyze and transmit data reliably and accurately, along with acceptability of hardware and software configurations>

<Insert here-Identify the individual(s) responsible for data management>

<Insert here-Attach and reference checklists or forms that will be used>

<Insert here-Attach your Data Management Plan>

< Insert here.>

EXAMPLE: Data generated during construction will include final as-builts. These will be created using spatial information collected by the Contractor using survey equipment. Survey data will be collected in accordance with SOP XXXX (Appendix B). The Contractor Project Manager is responsible for offloading and packaging the survey data for transfer to the Community. The data will be offloaded using survey data software (e.g. Trimble software, or similar) and stored and transferred electronically to the XX Community Project Manager using XXX system. The Community Project Manager or designee is responsible for receiving and evaluating the data received to ensure it is not corrupt and is usable. The Community Project Manager is also responsible for transferring the information to drafting personnel who will use the data in CAD to produce the final as-builts. The licensed professional engineer assigned to the project will review final as-builts and provide approval by means of an engineer’s stamp. The final as-builts will be kept on file electronically at the Community headquarters, indefinitely, and provided by the Community Project Manager to the EPA Region 8 Project Officer electronically for EPA’s records.

State-issued permits and design drawings will also be utilized during the construction phase of the project. These will be delivered by the Community Project Manager electronically to the Contractor Construction Project Manager. Copies provided to the Contractor Construction Project Manager will be stored electronically on XXXX network. Backups of the network occur on a daily basis. The Construction Project Manager is responsible for management of electronic files associated with the project. Electronic files shall be retained on the XXX network for a minimum of 10 years.

# Reporting, Oversight and Assessments

<Insert what type of report(s) will be generated? E.g., existing data projects, model evaluation, assessments here>

<Insert what will the report(s) include? E.g., raw data, specific actions here>

<Insert who will receive the report(s) here>

<Insert who is responsible for preparing and delivering to the recipient(s) here>

<Insert for assessment reports, who is responsible for implementing and monitoring Corrective Actions here>

EXAMPLE: <Community> will conduct inspections of construction on an XX basis to assess project status, construction progress, identify any issues and corresponding corrective actions, and monitor any previously identified corrective actions throughout the construction process. The Community Project Manager will be responsible for conducting the inspections or designating an individual to conduct the inspections. Information gathered from the inspections will be recorded in a field notebook, on inspection forms, and/or documented with photographs. Information identified during the inspections will be included in quarterly reports that will be delivered electronically to XXX by the Community Project Manager.

Any corrective actions related to construction that are identified during the Community inspections are the responsibility of the Contractor Construction Supervisor to implement. Other non-construction-related corrective actions are the responsibility of the Contractor Project Manager to implement or delegate to appropriate staff. All corrective actions will be monitored by the Contractor Project and Community Project Manager or designee conducting inspections.

# Data Review and Usability

<Insert here.>

EXAMPLE: Existing design plans to be utiilzed by the Contractor and permits obtained by the Community will be considered usable if received directly from the Community. The Contractor Construction Project Manager will verify that the documents received reference and/or the project upon which the construction plan in the bid is based. The Construction Project Manager will notify the Community Project Manager of any discrepancies or issues observed during the review process and the Community Project Manager will be responsible for addressing the issues.

Survey data used for creation of the as-built drawings will be reviewed by the Contractor Construction Project Manager or designee upon offload from the survey device to ensure data has not been corrupted. The uncorrupted datafiles will be transferred to the Community Project Manager. Data will be reviewed for post-transfer corruption during post-processing by the Community Project Manager or delegated individual. Corrupted survey data files will be rejected and the data re-offloaded from the survey equipment until successful offload is achieved. Post-processing of survey data will be in accordance with SOP XXXX (Appendix B). Survey data will be considered usable if post-processed data is within XX-feet of the horizontal datum and XX-foot of the vertical datum. Survey data that do not meet these quality goals will be rejected and data will be recollected.

Final as-builts will be reviewed by a licensed professional engineer to ensure usability. The engineer’s stamp will signify that the information contained on the as-builts is approvable and therefore usable.

Should the construction project extend beyond one year from the time of approval of this Construction QA Plan, an annual review of the plan will be performed. The annual review should be documented using the EPA Region 8 Document Review Crosswalk, located at the following:

<https://www.epa.gov/quality/managing-quality-environmental-data-epa-region-8>. Any changes to construction or the QA plan identified during the annual review will be documented in the comments section(s) of the crosswalk. The annual review will be conducted by and documentation of the annual review will be generated by the Project Quality Assurance Officer. The Community Project Manager will be responsible for submitting the completed crosswalk documenting the annual review to the Region 8 EPA Project Officer. Significant changes, such as changes to the construction plan or roles and responsibilities, may require revision to the Construction QA Plan and a full review of the revised plan; therefore, these changes should be discussed with the Region 8 EPA Officer on a case-by-case basis to determine appropriate measures.

# References

U.S. EPA, Privacy Policy (CIO 2151.1), September 2018 or most recent version. Web site: <https://www.epa.gov/irmpoli8/current-information-directives>

U.S. EPA, Requirements for Quality Assurance Project Plans (EPA QA/R-5), March 2001 or most recent revision. Web site: <https://www.epa.gov/irmpoli8/current-information-directives>

U.S. EPA, Guidance for the Data Quality Objectives Process (EPA QA/G-4), EPA/600/R-96/055, July 2000 or most recent revision. Web site: <https://www.epa.gov/quality/quality-assurance-project-plan-development-tool>

U.S. EPA, Guidance for Preparing Standard Operating Procedures (EPA QA/G-6), EPA/600/B-07/001, April 2007 or most recent revision. Web site:<https://www.epa.gov/quality/quality-assurance-project-plan-development-tool>

US EPA, 2003, A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information. Web site: <https://www.epa.gov/sites/default/files/2015-01/documents/assess2.pdf>

Guidance for Data Quality Assessment: Practical Methods for Data Analysis (EPA QA/G-9), QA00 Version (EPA, 2000b)

# List of Figures

# [*Figure 1 Location Map(s)*](#Figure3)

# Appendices

# *Appendix A*

# *Construction Bid/Planning Documents*

# *Appendix B*

# *Standard Operating Procedures and User Manuals*

# *Appendix C*

# *Cross-reference Between Construction QA Plan and EPA QA/R-5 Elements*

|  |  |
| --- | --- |
| **Project Management** | |
| **Construction QA Plan Element** | **Agency QAPP Element (EPA QA/R-5)** |
| **Title Page**  **Approval Page**  **Table of Contents** | A1. Title and Approval Sheet  A2. Table of Contents |
| **Introduction**  **Problem Definition, Background and Project Description** | A5. Problem Definition and Background  A6. Project/Task Description |
| **Data Quality Objectives and Indicators**  **Reporting, Oversight and Assessments** | A7. Quality Objectives and Criteria  C2. Reports to Management  C1. Assessments and Response Actions |
| **Project Organization & Distribution List**  **Training and Specialized Experience** | A3. Distribution List  A4. Project/Task Organization  A8. Special Training/Certifications |
| **Documentation and Records**  **Data Management** | A9. Documents and Records  B10. Data Management |
| **Project Implementation** |  |
| **Construction QA Plan Element** | **Agency QAPP Element (EPA QA/R-5)** |
| **Design and Data Collection Methods**  **Existing Data and Data from Other Sources**  **Data Review and Usability** | B1. Process Design (Experimental Design)  B2. Sampling Methods  B9. Non-Direct Measurements  D1. Data Review, Verification, and Validation  D2. Verification and Validation Methods  D3. Reconciliation with User Requirements |