**Instructions for Preparing an Environmental Justice (EJ) or**

**Environmental Education (EE) Quality Assurance Project Plan (QAPP)**

**Using the EJ/EE QAPP Template**

A Quality Assurance Project Plan, or QAPP, is a critical planning document for environmental information operations because it documents how environmental information operations are planned, implemented, documented, and assessed during the life cycle of a program, project, or task. All work performed by or on behalf of EPA involving environmental information operations must be implemented in accordance with an approved QAPP.

These instructions are intended to aid assistance agreement recipients (grants/cooperative agreements) of projects funded by the Office of Environmental Justice and External Civil Rights (EJ) and the Office of Environmental Education (EE) that conduct environmental information operations in preparing QAPPs using the EJ/EE QAPP Template.

**IMPORTANT INFORMATION:**

The EJ/EE QAPP Template is provided as Attachment 1 at the end of these instructions (beginning on page 39). The instructions on pages 1 through 38 include information and examples to help guide you through the QAPP development process. Reach out to your EPA Project Officer if you need additional support or have questions about these instructions or the EJ/EE QAPP Template.

**Note:** The EJ/EE QAPP Template and instructions are designed for projects involving sample collection and analysis. If your project involves the secondary use of existing data only and does not involve sample collection and analysis, please use the Region 8 Quality Assurance Project Plan (QAPP) Template for Secondary Use of Existing Data template for QAPP development, which can be requested from your EPA Project Officer.

The EJ/EE QAPP Template is arranged into four general groups, each with specific required sections:

A Project Management

B Data Generation and Acquisition

C Assessment and Oversight

D Data Validation and Usability

Each section of the EJ/EE QAPP Template corresponds to the required elements of EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5), EPA/240/B-01/003, dated March 2001, which can be found at:

<https://www.epa.gov/quality/epa-qar-5-epa-requirements-quality-assurance-project-plans>

All sections of the EJ/EE QAPP Template must be presented in your final QAPP and should not be deleted. If a section of the EJ/EE QAPP Template is not applicable to your specific project, indicate that the section is not applicable in the EJ/EE QAPP Template and include an explanation as to why the section is not applicable.

Instructions are provided for completing each section of the EJ/EE QAPP Template, and in many cases, tips and other information, such as examples, are also provided. Where the instructions include examples, remember that they are only examples of the type of information that may be included in that particular section of the QAPP. Examples are for reference only and should not be copied directly into your QAPP.

Tables in the EJ/EE QAPP template may be modified, replaced, or deleted based on your project-specific needs. However, each section must still contain the required information indicated in the instructions for that section.

For additional guidance and suggested content, please see *Guidance for Quality Assurance Project Plans* (EPA QA/G-5), EPA/240/R-02/009, dated December 2002, which can be found at:

<https://www.epa.gov/quality/guidance-quality-assurance-project-plans-epa-qag-5>

For questions about QAPP requirements, the QAPP template, and/or these QAPP instructions, please reach out to your EPA Project Officer. Your EPA Project Officer will contact the EPA QA Lead for your grant who will provide additional support.

**SEPARATE THE EJ/EE QAPP TEMPLATE FROM THESE INSTRUCTIONS:**

When submitting your QAPP to EPA for review and approval, you should submit your QAPP only without the instructions. As such, it is recommended that you separate the instructions and the EJ/EE QAPP Template prior to preparing your QAPP. By separating them early, you will be able to view the instructions side-by-side with the template, which may make it easier to complete each section of the QAPP. To separate the instructions and the EJ/EE QAPP Template, follow these step-by-step instructions:

1. Save a duplicate copy of the EJ/EE QAPP Template with Instructions file.
2. Rename the duplicate file copy in accordance with your organization’s file naming convention – this will be the draft version of your project-specific QAPP.
3. Open the draft version of your project-specific QAPP.
4. Delete pages 1 through 39.
   1. Place your cursor at the very beginning of these instructions, in front of the word “Instructions.”
   2. Scroll to page 40, which is the title page of the QAPP.
   3. Hold down the ‘Shift’ key and place your cursor at the very beginning of page 40, in front of “U.S.”
   4. Press the ‘Delete’ key.
5. The instructions should be deleted now, and the first page of the QAPP should be the title page.
6. Fill-out the QAPP template using the instructions in the original EJ/EE QAPP Template with Instructions file.

**PRIOR TO SUBMITTING YOUR QAPP TO EPA:**

1. Separate these instructions from the EJ/EE QAPP Template.
2. Replace text that is highlighted yellow with project-specific information.
3. Add additional information, as necessary, to reflect project-specific information.
4. Update the Table of Contents, including lists of figures and appendices.
5. Leave the EPA document control number in the footer for traceability.

**DISCLAIMER:**

EPA does not consider this QAPP template an official Agency dissemination of information under the Agency's Information Quality Guidelines because it is not being used to formulate or support a regulation or guidance or to represent a final Agency decision or position. This template describes a quality assurance approach that could be used for an EJ or EE project that involves sample collection and analysis.

**QAPP Cover Page and Headers**

**Instructions:**

The items on the cover page that are highlighted yellow need to be replaced with the following project-specific information:

Grantee Organization Name

Grantee Organization Address

Project Title

Grant Number

Date of the QAPP

QAPP Revision Number

Beginning on page 2 of the QAPP, insert the QAPP Title and QAPP Date and Revision Number in the header. Do not delete the section title (left side of header) or page numbers from the header. Note that the QAPP Title and QAPP Date and Revision Number will need to be added to the different sections of the QAPP (Sections A, B, C, D), as indicated in the header.

**Tips and Other Information:**

The section titles in the left header (A – Project Management, B – Data Generation and Acquisition, C – Assessment and Oversight, and D – Data Validation and Usability) correspond to the four general groups discussed in QA/R-5, EPA Requirement for Quality Assurance Project Plans, dated March 2001 (<https://www.epa.gov/quality/epa-qar-5-epa-requirements-quality-assurance-project-plans>).

Below is an example of what the header should look like:

|  |  |
| --- | --- |
| A – Project Management | QAPP for Air Pollution Monitoring in Disadvantaged Communities |
|  | March 2024, Revision 1 |
|  | Page 2 of 35 |

# 

# A1. Title and Approval Page

**Instructions:**

Add the title of the QAPP and the name of the grantee organization.

Add the names of the grantee Quality Assurance Officer (QAO) and grantee Project Manager. Note that the QAO must be independent of all environmental information operations (e.g., sample collection, conducting surveys, etc.), and therefore, the roles of QAO and Project Manager cannot be held by the same person.

Add the name of the EPA Region 8 Project Officer and either the Regional Quality Assurance Manager (RQAM) or Delegated Approving Officer (DAO). Note that the name of the RQAM or DAO can be provided by the EPA Project Officer.

**Tips and Other Information:**

The signatures on the Title and Approval Page indicate that officials have reviewed the QAPP and concur with its implementation as it is written. It is the grantee’s responsibility to make sure all signatures are in place before work begins.

Quality Assurance Officer

Grantee organizations should identify and assign a QAO that has the authority to conduct independent oversight of the organization’s QAPP implementation. The QAO authority is independent of all environmental information/data collection activities. Generally, the QAO focuses on ensuring the project outcomes meet the standards and requirements stated in the QAPP.

The QAO does not have the authority to sign QA documentation for the Project Manager.

Project Manager

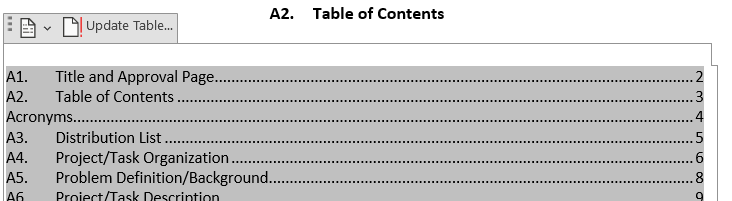
Generally, the Project Manager focuses on overall planning and implementation of the project as it is described in the QAPP.

The grantee Project Manager does not have authority to sign QA documentation for the QAO.

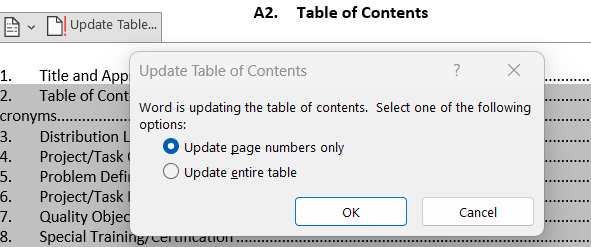
# A2. Table of Contents

**Instructions:**

To update the Table of Contents (TOC), click anywhere in the TOC, and then click “Update Table,” which appears at the top left corner of the TOC, as indicated below.



A dialogue box will appear. Select “Update page numbers only,” as indicated in the screenshot, below. Do not change any section numbers or titles.



List of Figures:

List any figures and/or maps you included in the QAPP. Note that Figure 1, Project Organization Chart, is a required element in the QAPP and should not be deleted from the TOC. Suggestions for additional figures you may add to the QAPP include a site location map, a map showing sampling locations, and diagrams of specific equipment or mitigation systems.

Appendices:

List any appendices you included in the QAPP. Below are examples of appendices you may add to the QAPP.

Appendix A Standard Operating Procedures

Appendix B Field Forms (e.g., sample chain of custody, field equipment calibration logs, etc.)

Appendix C Laboratory Certificate of Accreditation

Appendix D Checklists (e.g., assessment, data verification, data validation, etc.)

**Tips and Other Information:**

The TOC should be updated after all other required information has been added to the QAPP. This ensures that the page numbers listed in the TOC are accurate.

# Acronyms

**Instructions:**

The acronyms listed below are already included in the QAPP template and should not be deleted. List any additional acronyms and abbreviations you included in the QAPP text. Note that acronyms and abbreviations should be spelled out the first time they are used in the text with the acronym/abbreviation in parentheses. For example: “Standard operating procedures (SOPs) for field activities are provided in Appendix A.” Then the acronym (e.g., SOPs) should be used in the remainder of the text.

DAO Delegated Approving Official

DCN Document Control Number

DQI Data Quality Indicator

DQO Data Quality Objective

EE Environmental Education

EIO Environmental Information Operations

EJ Environmental Justice

EPA U.S. 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

# A3. Distribution List

**Instructions:**

In the table provided in the QAPP template, list the individuals and their organizations who need copies of the approved QAPP and any subsequent revisions, including all persons responsible for implementing the project (e.g., project managers, field team leader, data manager, etc.), quality assurance (QA) officers/managers, and representatives of all groups involved. Note that paper copies need not be provided to individuals if equivalent electronic copies can be provided.

**Tips and Other Information:**

The table below includes an example of how to complete this section.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Title** | **Organization** | **Phone Number and Email Address** |
| Jane Smith | Project Manager | XYZ Company | jane.smith@xyzcompany.moc  (303) 765-4321 |
| John Doe | Project QA Officer | XYZ Company | john.doe@xyzcompany.moc  (303) 123-4567 |

# A4. Project/Task Organization

**Instructions:**

In the table provided in the QAPP template, list the individuals or organizations participating in the project and discuss their specific roles and responsibilities. Include the principal data users, decision makers, QA officers/managers, partnering organizations, and all other persons responsible for project implementation (i.e., individuals performing tasks described in the QAPP). Identify the individual responsible for maintaining the official approved QAPP.

**Tips and Other Information:**

The table below includes an example of how to complete this section.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Title** | **Organization** | **Responsibilities** |
| Jane Smith | Project Manager | XYZ Company | Independent of all data/information collections activities. Responsible for reviewing the QAPP annually and ensuring the QAPP reflects the project objectives and implementation. Also responsible for resolving any QA-related issues. |
| John Doe | Project QA Officer | XYZ Company | Responsible for maintaining the official approved QAPP and any subsequent addendums and revisions. Responsible for keeping the EPA Project Officer informed on project schedule and milestones, managing daily activities, coordinating laboratory services, and implementing the sampling design. Reviews field notes and reports for deviations from the QAPP and initiates corrective action. |

**Figure 1. Project Organization Chart**

**Instructions:**

Provide a concise project organization chart showing reporting relationships and lines of communication among all project participants. Include project stakeholders and partnering organizations, as well as any subcontractor relationships relevant to environmental information operations, such as laboratories providing analytical testing services.

The QAPP template includes an example project organization chart that must be updated for your specific project. Each box should include the name of the organization, name of the individual, and the individual’s title/role.

Note that all QA personnel must be independent of all environmental information operations/data collection activities, as shown with lines of communication (i.e., dashed lines), rather than lines of reporting (i.e., solid lines).

**Tips and Other Information:**

Make sure individual names and titles/roles are consistent between different sections of the QAPP. For example, names and titles should be consistent between QAPP Sections A3, A4, and the project organization chart.

# A5. Problem Definition/Background

**Instructions:**

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

**Tips and Other Information:**

This information should already be included in your workplan, so you can copy and paste the information into this section.

# A6. Project/Task Description

**Instructions:**

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 (a map generated from Google Maps is acceptable).

Use the Project Schedule Timeline table provided in the QAPP template to present the project milestones timeline.

**Tips and Other Information:**

This information should already be included in your workplan, so you can copy and paste the information into this section, rather than rewriting it.

If your workplan already includes a Project Timeline and Milestones table (or equivalent), you may delete the Project Schedule Timeline from the QAPP template and then copy and paste the Project Timeline and Milestones table from the workplan into the QAPP. However, make sure the Project Timeline and Milestones table includes QA activities, such as preparing and finalizing the QAPP and data evaluation.

# A7. Quality Objectives and Criteria

**Instructions:**

The data quality objectives (DQOs) process is a series of seven steps that guides project managers and staff to plan for their project and meet their project goals. The DQO process is used to establish the criteria that serve as the basis for designing a plan for collecting information/data of sufficient quality and quantity to support the goals of the project and achieve the stated outcomes described in the project workplan.

In the QAPP template, discuss the DQOs for the project and the criteria to achieve those objectives. EPA requires the use of a systematic planning process to define these DQOs (i.e., EPA QA/G-4, Guidance on Systematic Planning Using the Data Quality Objectives Process, dated February 2006). Note that much of this information may already be included in your workplan, so you can copy and paste the information into this section. See additional subsections and instructions below.

**Step 1: State the Problem**

Summarize the information you included in QAPP Section A5 (Problem Definition/Background). This section should describe the environmental issue(s) the project is trying to address.

**Step 2: Identify the Goals of the Study**

* Describe the goal(s) of the project (i.e., what does this project hope to accomplish)
* List any study questions (i.e., what questions do you want answered at the end of the project)
* Describe how the data/information collected will be used to answer the study questions

Note that the goals of the study should align with the stated outcomes in your project workplan.

**Step 3: Identify Information Inputs**

Describe/list all of the information needed to answer the study questions in Step 2 and to meet the goals of the study. Examples of information inputs include the following:

* Secondary data (see note below)
* Data/information collected during this project
* Census data
* Information provided by the analytical laboratory

Note that when secondary data (i.e., data generated for purposes other than this specific project or data pertinent to this project but generated under a separate QAPP) is used, the QAPP should describe specifically how the secondary data will be used, as well as the source of the secondary data. The project team should carefully evaluate the quality of the secondary data to ensure they are of the type and quality necessary to support their intended use. Examples of secondary data include the following: sampling and testing data collected during previous investigations, historical data, background information, interviews, modeling data, photographs, aerial photographs, topographic maps, and published literature on geology, climate, population distributions, endangered species, etc.

**Step 4: Define the Boundaries of the Study**

* Define the target population of interest (i.e., who or what you are investigating)
* Describe relevant spatial boundaries (i.e., geographical boundaries – physical area to be studied and generally where samples/data will be collected)
* Describe temporal boundaries (i.e., the time frame that the study will represent and when samples/data should be collected)
* Discuss other practical constraints associated with sample/data collection (e.g., property access, availability of equipment, environmental conditions, such as high humidity, wind, or freezing temperatures)

**Step 5: Develop the Analytic Approach**

* Choose an action level, if applicable. The action level is the concentration of a contaminant (e.g., lead, radon, asbestos) that when exceeded is considered harmful or toxic to human health and/or the environment.
* State the analytical method that will be used to analyze the samples, and confirm that the laboratory/instrument-specific reporting limits are below the action level (e.g., if the chosen action level for radon is 4 picocuries per liter [pCi/L], then the analytical method and laboratory instrument that will be used to analyze samples should be able to detect radon at concentrations less than 4 pCi/L)
* Develop decision statements (i.e., “If…, then…, else…” statements). Decision statements should include alternative outcomes. For example:

If the indoor radon concentration exceeds 4 pCi/L, then mitigation assistance will be provided.

If the indoor radon concentration does not exceed 4 pCi/L, then no further action is required at this time.

**Step 6: Specify Performance or Acceptance Criteria**

Performance or acceptance criteria are needed to ensure the collected information/data will meet the project goals described in Step 2.

Performance and acceptance criteria are often expressed in terms of data quality indicators (DQIs) – precision, accuracy/bias, representativeness, comparability, completeness, and sensitivity. DQIs should be defined for each sample matrix (e.g., air, building material, water) and analytical parameter/group (e.g., radon, asbestos, E. coli).

* Precision – the measure of agreement among repeated measurements of the same property under identical or substantially similar conditions, often evaluated by collecting and analyzing duplicate samples
* Accuracy – a measure of the overall agreement of a measurement to a known value, often evaluated using samples spiked with known concentrations of an analytical parameter
* Bias – the systematic or persistent distortion of a measurement process that causes errors in one direction (i.e., the expected sample measurement is different from the sample’s true value)
* Representativeness – the degree to which environmental information/data accurately and precisely represent a characteristic of a population or environmental condition
* Comparability – the measure of confidence that one data set can be compared to another data set
* Completeness – a measure of the amount of valid environmental information/data needed to be obtained from a measurement system, often expressed as a percentage; the amount of valid information/data is compared to the amount of information/data that was planned under normal conditions
* Sensitivity – the capability of a method or instrument to detect contaminant concentrations at or below the action level

This section of the QAPP should describe how each DQI will be evaluated.

The table below is for illustration only and should not be construed as guidance for establishing performance or acceptance criteria. The table is an example of how data quality indicators may be presented for field and laboratory measurements.

|  |  |  |
| --- | --- | --- |
| **Data Quality Indicators (DQIs)** | **Quality Control (QC) Activities**  **and Checks** | **DQI goals** |
| Precision | Field and laboratory replicates | ≤20% relative percent deviation(RPD) or relative standard deviation (RSD) |
| Bias | Pre- and post-calibration, blanks, sample spikes | Data are not biased in a particular direction |
| Accuracy | Calibration standards, blanks, control samples | No blanks contaminated and all calibrations within acceptable limits (or acceptance criteria); percent recovery (%R) is 80-120% |
| Representativeness | Evaluate whether the data accurately represents the system, population, place, time, and/or situation of interest | Data collected represent the system characterized or exposure experienced and are not biased |
| Comparability | Compare to existing data or datasets | Data collected are sufficiently similar in methodology to permit a meaningful analysis |
| Completeness | Compare to intended sampling goals to meet the project purpose. | Could be stated as the total number of samples or a percentage (e.g., 95%) of samples collected, or an identification of the critical samples needed for the project purpose |
| Sensitivity | Compare to reporting or detection limits from existing data or for decision-making. | State the sensitivity needed for the instruments, methods, or processes used for the project to obtain meaningful data. This depends on analytical method, but generally, the reporting or detection limits should be 3 to 5 times lower than an action level. |

**Step 7: Develop the Plan for Obtaining Data**

Briefly describe the plan for obtaining the environmental information/data. Note that the plan will be described in detail in Sections B, C, and D of the QAPP, so it is appropriate to only include a brief description of the plan here. However, this section should include references to the specific sections of the QAPP where the detailed plan information can be found.

**Tips and Other Information:**

For more information and guidance about the systematic planning process to develop quality objectives, please refer to EPA QA/G-4, Guidance on Systematic Planning Using the Data Quality Objectives Process, February 2006, which can be found at:

<https://www.epa.gov/quality/guidance-systematic-planning-using-data-quality-objectives-process-epa-qag-4>

For more information about linking assistance agreements to environmental results, please visit the following website:

<https://www.epa.gov/grants/linking-assistance-agreements-environmental-results>

# A8. Special Training/Certification

**Instructions:**

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.

**Tips and Other Information:**

The table below includes an example of how to complete this section.

|  |  |  |
| --- | --- | --- |
| **Role** | **Specialized Training/Certification** | **How training will be provided and documented** |
| Field Team Leader | CPR/First Aid Certification | Training provided by the American Red Cross. Certification is valid for 2 years, and training will be scheduled by the <grant recipient name> Health and Safety Director. The certificate will be provided to the employee, and a copy of the certificate will be provided to the <grant recipient name> Health and Safety Director and maintained in the employee file. |

# A9. Documents and Records

**Instructions:**

Describe the documents and records that will be generated during this project.

* Describe the process and responsibilities for ensuring the appropriate project personnel have the most current approved version of the QAPP, including version control, updates, distribution, and disposition.
* Identify any records and documents applicable to the project that will be produced.
* Specify the reporting format for any hardcopy and electronic forms.
* Specify or reference all applicable requirements for the final disposition of records and documents, including location and length of retention period.

**Tips and Other Information:**

The QAPP template includes a list of potential documents that may be produced during the project. The documents listed should be modified to represent the documents that will be generated during your specific project.

The documents listed in the QAPP template may be used as subheadings in this section. Each subheading should include the information listed above in the instructions.

# B1. Sampling Process Design

**Instructions:**

Fill out the table provided in the QAPP template with the following information:

* **Sampling Location** – Describe the location where the sample should be collected.
* **Sample ID Number** – Identify each sample with a unique sample ID number. The sample ID numbers will be used on the chain-of-custody form and sample label to uniquely identify each sample. Rather than just numbering samples as 1, 2, 3, etc., it is recommended that additional identifying information be included in the sample ID numbers, such sample location ID, sample matrix code, quality control (QC) sample code, and/or date the sample is collected.
* **Sample Matrix** – Describe the type of sample to be collected, such as soil, groundwater, indoor air, etc.
* **Analytical Parameter** – Describe the analytical parameter(s) that the sample will be analyzed for, such as asbestos, radon, lead, pesticides, etc.
* **Sampling SOP** – Identify the SOP that field personnel must follow while collecting each sample. Note that detailed sampling SOPs must be available to field personnel and should be included as an appendix to the QAPP.
* **Rationale** – Briefly describe the reason each specific sampling location was selected.
* **Comments** – The comments field can be used to document any reminders for field personnel, such as taking GPS coordinates.

In some cases, you may not know the exact sampling locations and sample ID numbers prior to the sample collection event. If this is the case for your project, follow the instructions below when completing this section of the QAPP template:

* Delete the table from the QAPP template.
* Describe how sample locations will be determined in the field (i.e., what is the criteria for determining when and where a sample should be collected).
* Describe how sample locations will be documented (e.g., photographs, GPS coordinates, markings on a map, etc.).
* Describe the sample numbering convention for uniquely identifying each sample, including field QC samples. For an example, refer to the Sample ID Number instructions above and footnote 1 below the table in Tips and Other Information.
* Describe the type of sample that will be collected from each sample location (e.g., soil, groundwater, air, etc.) and the analytical parameter (e.g., asbestos, lead, radon, etc.).
* Identify the SOP that field personnel must follow while collecting each sample. Note that detailed sampling SOPs must be available to field personnel and should be included as an appendix to the QAPP.

**Tips and Other Information:**

If you are filling out the table in the QAPP template, refer to the table below for an example of the type of information to record in each table column.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sample Location** | **Sample ID**  **Number1** | **Sample**  **Matrix** | **Analytical Parameter/**  **Group** | **Sampling**  **SOP** | **Rationale** | **Comments** |
| Center of Room 123 | 123-CT-ASB-20240201-01 | Ceiling Tile | Asbestos | SOP #456 | Determine asbestos concentration in Room 123 ceiling tile |  |
| Center of Room 123 | 123-CT-ASB-20240201-01-FD | Ceiling Tile | Asbestos | SOP #456 | Duplicate of sample 123-CT-ASB-20240201-01 |  |

1 Sample numbering convention: location ID - sample matrix code - analytical parameter code - sample collection date - sequential number - QC sample code (if applicable). For example:

123 = Room number

CT = ceiling tile

ASB = asbestos

20240201 = February 1, 2024

01 = sequential number

FD = field duplicate

# B2. Sampling Methods

**Instructions:**

* Describe the procedures for collecting samples. Identify the sampling methods and equipment/ materials needed. Where appropriate, identify sampling methods by number, date, and regulatory citation.
* Discuss what to do if a sample cannot be collected for any reason (e.g., groundwater well is dry, property access is denied, sampling equipment failure, etc.).
* Describe the process for the preparation and decontamination of sampling equipment, including the disposal of decontamination by-products and disposable materials (e.g., disposable gloves, paper towels, etc.), to prevent cross-contamination between samples.
* Provide complete laboratory contact information, including the physical address where samples should be delivered.
* List any required accreditations or certifications that should be held by the laboratory. For example, a project with asbestos analysis may require NVLAP (National Voluntary Laboratory Accreditation Program) accreditation, and a project with chemical analysis may require NELAC (National Environmental Laboratory Accreditation Conference) accreditation.
* For each analytical parameter/group and sample matrix, fill out the table with the method and SOP reference, accreditation expiration date, required sample containers, preservation requirements, maximum holding times from sample collection to extraction/analysis, and data package turnaround time.

**Tips and Other Information:**

The items listed in the QAPP template (i.e., Sampling Methods, Field/Sampling Equipment and Materials, and Decontamination) may be used as subheadings in this section, as applicable.

For the Sample Container, Volume, Preservation, and Holding Time Requirements table, request this information from the analytical laboratory selected to analyze the samples.

Data package turnaround time is the number of days from when samples are received by the laboratory until sample results are provided to the project team (e.g., 21 calendar days or 15 business days).

# B3. Sample Handling and Custody

**Instructions:**

Describe the requirements for sampling handling and custody in the field, during transport, and at the laboratory.

**Sampling Organization** – Identify the name of the organization responsible for collecting the samples.

**Laboratory name and address** – Identify the name of the laboratory performing sample analysis. Provide the physical address where samples should be delivered.

**Method of sample delivery** – Indicate the method of sample delivery to the laboratory, such as FedEx, local courier service, or hand-delivery.

**Number of days from reporting until sample disposal** – This is the number of days that samples, including extracts, should be stored at the laboratory after analysis is complete and results have been reported until they can be disposed of.

Complete the Sample Handling System table in the QAPP template with the organization and title of the person responsible for completing each activity, as well as the SOP reference where the specific sample handling procedures can be found. Note that the information needed to complete the Sample Receipt and Analysis section of the table can be requested from the laboratory.

Note that detailed sample handling SOPs must be available to field personnel and should be included as an appendix to the QAPP. If SOPs have not been developed and are not available, then procedures must be described in detail in this section of the QAPP for each listed activity.

**Tips and Other Information:**

When deciding on the method of sample delivery, consider the nature of the samples, maximum allowable sample holding time from collection to extraction/analysis, available shipping options, and the project schedule. For example, if an analytical method requires a short holding time (e.g., samples must be analyzed within 48 hours of sample collection) or if samples must be maintained at a certain temperature (e.g., 6°C or less), then samples may need to be hand-delivered to the laboratory on the same day as sample collection or shipped to the laboratory overnight.

When determining the number of days from reporting until sample disposal, consider the amount of time from sample delivery until the laboratory reports the analytical results, data have been verified and validated, and data usability has been determined in case a sample must be reanalyzed.

Examples of sample labels and chain-of-custody forms should be included as a QAPP appendix.

# B4. Analytical Methods

**Instructions:**

This section of the QAPP is used to ensure that the selected analytical methods are capable of meeting the project-specific data quality objectives (see Section A7).

* In the Analyte column, you must list each specific analyte you are requesting results for. For example, if you are requesting that soil samples be analyzed for metals, you must list each specific metals compound for which you want results (e.g., arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, etc.).
* List the analytical method that will be used to analyze each analyte.
* In the Units column, indicate the unit of measure for the project action level and laboratory-specific limits.
* List the project action level for each analyte. The action level is the concentration of a contaminant (e.g., lead, radon, asbestos) that when exceeded is considered harmful or toxic to human health and/or the environment.
* List the source of each project action level. For example, the project action level source may be the current EPA Regional Screening Levels or other Federal or State regulatory program.
* List the laboratory-specific reporting limit. The reporting limit is the smallest concentration of an analyte/compound that can be reported by a laboratory. Note that when selecting an analytical method and laboratory, the laboratory-specific reporting limit should be lower than the project action level to ensure method sensitivity and meet project goals. If the laboratory-specific reporting limit is greater than the project action level, then a different analytical method and/or laboratory may need to be selected.

**Tips and Other Information:**

Request the laboratory-specific reporting limits from the analytical laboratory. Be sure to indicate the required units for the laboratory-specific reporting limits, as well as the analytical results. For example, if the project action level unit is listed as milligrams per kilogram (mg/kg), you want to make sure the laboratory-specific reporting limit and the analytical result are also in mg/kg so they can be easily and quickly compared to the project action level without having to make conversions.

# B5. Quality Control

**Instructions:**

Quality control (QC) samples are used to verify that samples were not contaminated during sample collection or analysis. They are also used assess the accuracy and precision of analytical methods used for detection.

Use the table in the QAPP template to 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 plan.

**Tips and Other Information:**

Based on your project-specific needs, the types of QC samples listed in the QAPP template may need to be revised.

Ask the analytical laboratory what QC samples will be analyzed for each method and matrix. Ask the laboratory to provide the frequency/number, QC acceptance limits, corrective action, and person responsible for the corrective action.

A separate table should be filled out for each sample matrix, analytical parameter, and method.

Below is an example of the type of information that may be included in the table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sample Matrix** | Soil | | | | |
| **Field Sampling SOP** | SOP XYZ | | | | |
| **Analytical Parameter** | Metals | | | | |
| **Analytical Method/ Laboratory SOP** | Metals by SW846 Method 6020B/SOP LAB-54321 | | | | |
| **QC Sample** | **Frequency/ Number** | **QC Acceptance Limits** | **Corrective Action** | **Person Responsible for Corrective Action** | **Data Quality Indicator** |
| Field Duplicate | 1 per 10 field samples | Relative percent difference (RPD) <50% | Qualify data as needed | Analyst/laboratory manager | Precision - overall |
| Method Blank | 1 per preparatory batch | No target analytes ≥ laboratory reporting limit | Reanalyze samples; qualify data as needed | Analyst/laboratory manager | Accuracy/bias |
| Laboratory Control Sample | 1 per preparatory batch | Laboratory in-house control limits | Reanalyze once; qualify data as needed | Analyst/laboratory manager | Accuracy/bias |
| Laboratory Matrix Spike/ Matrix Spike Duplicate | 1 per preparatory batch | Laboratory in-house control limits | If laboratory error suspected, reprepare and reanalyze the native sample and matrix spike/matrix spike duplicate. Otherwise, evaluate matrix effects on data quality. | Analyst/laboratory manager | Accuracy/bias  Precision |

*Corrective actions are measures you take to fix conditions that may have caused exceedances of acceptance criteria, such as contamination in a sampling bottle or a poor instrument calibration. Examples of corrective actions include the following: additional training for personnel, inspect the instruments, recalibrate the equipment, re-analyze samples, or flag the samples.*

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

**Instructions:**

Field sampling equipment and laboratory analytical instruments should be tested, inspected, and maintained in accordance with manufacturer’s instructions and the requirements stated in the applicable SOPs.

Testing, inspection, and maintenance of field equipment should be described in dedicated field logbooks. Testing, inspection, and maintenance of analytical instruments should be described in the analytical data package.

Use the table in the QAPP template to:

* Identify each piece of equipment or instrument
* Describe the testing, inspection, and maintenance activities
* Identify the person responsible for the testing, inspection, and maintenance activities
* Indicate the frequency that each testing, inspection, and maintenance activity will occur
* Indicate the acceptance criteria for each testing, inspection, and maintenance activity
* Describe the corrective action plan for any testing, inspection, and maintenance deficiency
* Reference the applicable SOP that describes testing, inspection, and maintenance activities in detail

**Tips and Other Information:**

Examples of field equipment that may be used for a project include digital cameras, GPS units, water quality meters, and air samplers.

For laboratory instruments, ask the laboratory to provide the required information.

# B7. Instrument/Equipment Calibration and Frequency

**Instructions:**

Field sampling equipment and laboratory analytical instruments should be calibrated in accordance with manufacturer’s instructions and the requirements stated in the applicable SOPs.

Calibration of field equipment should be described in dedicated field logbooks. Calibration of analytical instruments should be described in the analytical data package.

Use the table in the QAPP template to

* 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 the procedures for each calibration activity
* Indicate the required frequency for each calibration activity
* Indicate the acceptance criteria for each calibration activity
* Describe the corrective action plan for any calibration deficiency
* Reference the applicable SOP that describes the calibration activities in detail

**Tips and Other Information:**

Examples of field equipment that may be used for a project include digital cameras, GPS units, water quality meters, and air samplers.

For laboratory instruments, ask the laboratory to provide the required information.

# B8. Inspection/Acceptance of Supplies and Consumables

**Instructions:**

* Describe the process for inspecting supplies and consumables and determining their acceptability for use during the project.
* State acceptance criteria for such supplies and consumables.
* Indicate the required frequency for inspecting supplies and consumables.
* Identify the person responsible for performing inspections of supplies and consumables.
* Describe how supplies and consumables should be handled and stored.

**Tips and Other Information:**

*Examples* of supplies and consumables that may be used during a project include sample containers, disposable gloves, waterproof markers, spare batteries, bug repellant, sunscreen, flashlights, safety glasses, cell phones, waste containers, and duct tape.

# B9. Non-Direct Measurements

**Instructions:**

Identify any types of data needed for project implementation or decision making that are obtained from non-measurement sources, such as websites, literature files, and historical databases. Describe the intended use of the data. Define the acceptance criteria for the use of such data in the project and specify any limitations on the use of the data.

**Tips and Other Information:**

Examples of non-direct measurements that may be needed for project implementation include:

* Climate and weather data from the National Weather Service
* Latitude and longitude coordinates
* Stream discharge data from the U.S. Geological Service

# B10. Data Management

**Instructions:**

* Describe the data management processes that will be used throughout the life of the project, 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, document control system, and the approach used for data storage and retrieval on electronic media.
* Describe the process for detecting and correcting errors and for preventing loss of data during data reduction, data reporting, and data entry to forms, reports, and databases.
* Include any required computer hardware and software that will be used and address any specific performance requirements for the hardware/software configuration used.
* Provide examples of any forms or checklists to be used.
* Identify the individual(s) responsible for data management.

**Tips and Other Information:**

Be sure to reference any SOPs you have for record keeping, document control, and/or storage and retrieval of data, and include them in a QAPP appendix.

When completing this section of the QAPP, consider the following questions, as applicable:

* How will all data be recorded?
* Will data be transcribed from datasheets to an online database?
* What percent of data will be checked for accuracy and transcription errors?
* Who will check for discrepancies in data entries and how?
* How will laboratory results be delivered and by whom?
* How will data that did not meet the QC requirements of the laboratory be qualified?
* Will data be entered into an electronic database? By whom?
* If applicable, will electronic files be backed up daily?
* How will original data be stored and for how long?
* How will you ensure access to data by appropriate parties in various stages of processing?
* Will data be generated by hand (such as in the field), collected from literature or other sources (existing data), from computerized equipment or instruments and/or computer generated (such as in the laboratory or during review of the data)?
* Will you need any minimum performance or acceptability requirements for sources of data (such as computer hardware or software)?

# C1. Assessments and Response Actions

**Instructions:**

Use the table in the QAPP template to document responsibilities for conducting project assessments, responding to assessment findings, and implementing corrective action. Appropriately scheduled assessments allow management to implement corrective action in a timely manner, thereby correcting deviations, errors, and nonconformances and minimizing their impact on project data quality objectives.

Include any assessment checklists as a QAPP appendix.

**Tips and Other Information:**

The table below includes an example of the types of assessments that may be conducted throughout the project.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assessment Type** | **Responsible for Conducting Assessment** | **Number/ Frequency** | **Estimated Dates** | **Assessment Deliverable** | **Deliverable Due Date** | **Responsible for Responding to Assessment Findings** | **Timeframe for Response** | **Responsible for Implementing Corrective Action** | **Responsible for Monitoring Corrective Action Effectiveness** |
| Readiness review | Grantee Organization QA Officer | Once | One week prior to field sampling | Readiness review memo and checklist | 24 hours following assessment | Grantee Organization Project Manager | 24 hours following receipt of memo and checklist | Grantee Organization Project Manager | Grantee Organization QA Officer |
| Field sampling assessment | Grantee Organization Project Manager | Once on the first day of sampling | [fill in planned dates] | Field sampling assessment memo and checklist | 24 hours following assessment | Grantee Organization Field Team Leader | 24 hours following receipt of memo and checklist | Grantee Organization Field Team Leader | Grantee Organization QA Officer |

# 

# C2. Reports to Management

**Instructions:**

This section documents how management will be kept informed of project oversight and assessment activities and findings.

Use the table in the QAPP template to identify the type, frequency, and distribution of reports issued to inform management of the project status. Identify the preparer(s) and the recipient(s) of the reports.

**Tips and Other Information:**

Examples of reports that may be prepared include the following:

* Field reports
* Assessment reports (assessment memo and checklist and corrective action reports)
* Data verification reports
* Data validation reports
* Data usability report
* Final project report

# D1. Data Review, Verification, and Validation

**Instructions:**

Describe the criteria you will use to review and validate (i.e., accept, reject, or qualify) the data/information obtained. In other words, this section should describe the final checks that will be done on the data/information obtained to decide whether they meet the project data quality objectives discussed in Section A7 and whether the data/information can be used for its intended purpose. This section should also indicate who is responsible for performing this review.

**Tips and Other Information:**

Below are *examples* of the type of information that may be included in this section:

*Field documents and records will be reviewed by the [Grantee Organization] Project Manager for completeness and accuracy (e.g., checking for data entry, transcription, and calculation errors) as part of the final report preparation process.*

*Field data will be evaluated against the acceptance criteria discussed in Section A7 and the sampling process design described in Section B1.*

*The laboratory will evaluate analytical data in accordance with their Laboratory QA Manual (or equivalent document) and report results in the analytical data report. Issues identified during the laboratory review and any flags applied to the results by the laboratory will be described in the project narrative of each analytical data report.*

*Analytical results will be further evaluated by the [Grantee Organization] Project Manager will special attention to the quality control data results in accordance with Section B5.*

# D2. Verification and Validation Methods

**Instructions:**

Describe the process to be used for verifying and validating data. Describe the data review process for ensuring that the data have been recorded, transmitted, and processed correctly (e.g., checking for data entry, transcription, and calculation errors). Discuss how issues will be resolved and the authorities for resolving them. Describe how the results are conveyed to data users. Identify any project-specific calculations required.

If data verification and/or validation checklists will be used, include the checklists in a QAPP appendix. If data verification and/or validation procedures are contained in an SOP or other document, the procedures should be referenced in this section and included as a QAPP appendix.

Data Verification

Describe the process for verifying that all required activities were conducted, all specific records are present, and the contents of the records are complete. Examples of records to be verified include field logbooks, chain-of-custody forms, laboratory reports, assessment reports, and corrective action reports.

Data Validation

Describe the procedures that will be used to validate project data/information.

Data validation is an analyte- and sample-specific process for evaluating compliance with grant requirements, methods/SOPs, and quality control acceptance criteria to determine the quality of a specific data set relative to the intended end use. It focuses on the project’s specifications or needs, designed to meet the needs of the decision makers/data users and should note potentially unacceptable departures from the QAPP.

Data validation must be performed by an individual(s) who is independent of all environmental information/data collection activities.

Any data qualifiers applied to the data by the data validator must be defined. Data validation should note when acceptance criteria are not met, but the final rejection of any data and their use is a decision reserved specifically for the project team.

# D3. Reconciliation with User Requirements

**Instructions:**

Describe how project results will be reconciled with the requirements defined by the data user or decision maker. This is the process for determining data usability (i.e., determining whether the results meet, or do not meet, the project objectives and requirements defined in the QAPP). The data usability assessment is performed at the conclusion of information/data collection activities, using the outputs from data verification and data validation.

**Tips and Other Information:**

The data usability assessment involves a qualitative and quantitative evaluation of the data to determine if the project data are of the right type, quality, and quantity to support the decisions that need to be made. It involves a retrospective evaluation of the systematic planning process (i.e., data quality objectives described in Section A7), and, like the systematic planning process, involves participation by key members of the project team, who should be identified in this section. The data usability assessment evaluates whether underlying assumptions used during systematic planning are supported, sources of uncertainty have been accounted for and are acceptable, data are representative of the population of interest, and the results can be used as intended, with the acceptable level of confidence. The data usability assessment should discuss how limitations on the use of the data will be reported to decision makers.

The data usability report should be included as part of the final project report, along with any supporting information.

# References

**Instructions:**

The references already listed in this section of the QAPP template were used to prepare the template and should not be deleted.

Add resources used to complete the QAPP template. References should include the author, title, document/volume/revision numbers, and date of the referenced document. If a website was used as a reference, include the title of the article or website and the specific URL.

**Tips and Other Information:**

At a minimum, add your grant application, which includes your project workplan, to the list of references.

**Figures and Appendices**

**Instructions:**

The QAPP template includes cover sheets for figures and appendices.

Figures you are including in the QAPP, such as a site location map or equipment diagram, should be inserted after the Figures cover sheet.

Appendices you are adding to the QAPP should be inserted after the applicable cover sheet. Suggestions for appendices to add include standard operating procedures, field forms, laboratory certificate of accreditation, and checklists.

If an appendix is not applicable to your project, delete the cover sheet from the QAPP template. You can also revise the existing cover sheets or include additional cover sheets, as needed.

**ATTACHMENT 1**

**QUALITY ASSURANCE PROJECT PLAN TEMPLATE FOR**

**ENVIRONMENTAL JUSTICE AND ENVIRONMENTAL EDUCATION GRANTS**

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

**Environmental Justice or Environmental Education Grants**

Grantee Organization Name

Grantee Organization Address

**Quality Assurance Project Plan (QAPP) for**

**Project Title**

Grant Number

Date of the QAPP

QAPP Revision Number

# A1. Title and Approval Page

**QAPP Title:**

**Organization Name:**

**Grant Recipient Approvals:**

Quality Assurance Officer (QAO)

Printed Name & Title:

Signature & Date:

Project Manager:

Printed Name & Title:

Signature & Date:

**EPA Approvals:**

EPA Region 8 Project Officer:

Printed Name & Title:

Signature & Date:

EPA Regional Quality Assurance Manager (RQAM)

or Region 8 Delegated Approving Official (DAO):

Printed Name & Title:

Signature & Date\*:

\*The effective date of this QAPP is the date the EPA Region 8 RQAM or DAO signs the QAPP.

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Figure 1 Project Organization Chart

**Appendices**

# Acronyms

DAO Delegated Approving Official

DCN Document Control Number

DQI Data Quality Indicator

DQO Data Quality Objective

EE Environmental Education

EIO Environmental Information Operations

EJ Environmental Justice

EPA U.S. Environmental Protection Agency

PAL Project Action Level

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

# A3. Distribution List

The following individuals will receive a copy of the approved QAPP and any subsequent revisions.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Title** | **Organization** | **Phone Number and Email Address** |
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# A4. Project/Task Organization

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| --- | --- | --- | --- |
| **Name** | **Title** | **Organization** | **Responsibilities** |
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**Figure 1. Project Organization Chart**

Figure 1 presents the key personnel participating in this project. Quality assurance (QA) personnel are independent of all environmental information operations, as shown by lines of communication, rather than lines of reporting.

State Department of Environmental Quality

EPA Region 8

Project Officer

EPA Region 8

RQAM or DAO

Grantee Organization

Individual Name

Quality Assurance Officer

Grantee Organization

Individual Name

Project Manager

Grantee Organization

Project Staff

Partnering Organizations

Subcontractors

**Legend**

Lines of reporting 

Lines of communication

# A5. Problem Definition/Background

# A6. Project/Task Description

**Project Schedule Timeline**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Activity** | **Date (MM/DD/YYYY)** | | **Deliverable/Document Generated** | **Deliverable/Document Due Date** |
| **Anticipated Start Date** | **Anticipated End Date** |
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# A7. Quality Objectives and Criteria

**Step 1: State the Problem**

**Step 2: Identify the Goals of the Study**

**Step 3: Identify Information Inputs**

**Step 4: Define the Boundaries of the Study**

**Step 5: Develop the Analytic Approach**

**Step 6: Specify Performance or Acceptance Criteria**

**Step 7: Develop the Plan for Obtaining Data**

# A8. Special Training/Certification

|  |  |  |
| --- | --- | --- |
| **Role** | **Specialized Training/Certification** | **How training will be provided and documented** |
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# A9. Documents and Records

QAPP

Sample Collection/Field Records

Analytical Records

Assessment Records

Corrective Action Reports

Data Verification and Validation Records

Data Usability Report

Final Project Report

# B1. Sampling Process Design

**Sampling Locations and Sampling Standard Operating Procedures (SOPs)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sample**  **Location** | **Sample ID**  **Number** | **Sample**  **Matrix** | **Analytical Parameter/**  **Group** | **Sampling**  **SOP** | **Rationale** | **Comments** |
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# B2. Sampling Methods

Sampling Methods

Field/Sampling Equipment and Materials

Decontamination

Laboratory (name, sample receipt address, point-of-contact, email, and phone numbers):

List any required accreditations/certifications:

**Sample Container, Volume, Preservation, and Holding Time Requirements**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Analytical Parameter/ Group** | **Analytical**  **Matrix** | **Method/SOP** | **Accreditation Expiration Date** | **Sample Container(s) (number, size, and type)** | **Preservation**  **(chemical, temperature, light protected)** | **Maximum Holding Time from Collection to Extraction/ Analysis** | **Data Package Turnaround Time** |
|  |  |  |  |  |  |  |  |
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# B3. Sample Handling and Custody

Sampling Organization:

Laboratory name and address:

Method of sample delivery (shipper/carrier):

Number of days from reporting until sample disposal:

**Sample Handling System**

|  |  |  |
| --- | --- | --- |
| **Activity** | **Organization and title of person responsible for the activity** | **SOP reference** |
| **Sample Collection, Packaging, and Shipment** | | |
| Sample labeling |  |  |
| Chain-of-custody form completion |  |  |
| Sample packaging |  |  |
| Sample shipping coordination |  |  |
| **Sample Receipt and Analysis** | | |
| Sample receipt, inspection, and log-in |  |  |
| Sample custody and storage |  |  |
| **Sample Disposal** | | |
| Sample disposal |  |  |

# B4. Analytical Methods

**Contaminants of Concern and Other Target Analytes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Analyte** | **Sample Matrix** | **Analytical Method** | **Units** | **Project Action Level (PAL)** | **PAL Source** | **Laboratory-Specific Reporting Limit** |
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# B5. Quality Control

**Field and Analytical QC**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample Matrix** |  | | |
| **Field Sampling SOP** |  | | |
| **Analytical Parameter** |  | | |
| **Analytical Method/ Laboratory SOP** |  | | |
| **QC Sample** | **QC Acceptance Limits** | **Corrective Action** | **Person Responsible for Corrective Action** |
| Field Duplicate |  |  |  |
| Method Blank |  |  |  |
| Laboratory Control Sample |  |  |  |
| Laboratory Matrix Spike |  |  |  |
| Laboratory Matrix Spike Duplicate |  |  |  |
| Surrogates |  |  |  |
| Internal Standards |  |  |  |
| Others |  |  |  |

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

**Testing, Inspection, and Maintenance of Field Sampling Equipment and Laboratory Analytical Instruments**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Equipment/ Instrument** | **Testing Activity** | **Inspection Activity** | **Maintenance Activity** | **Responsible Person** | **Frequency** | **Acceptance Criteria** | **Corrective Action** | **SOP Reference** |
|  |  |  |  |  |  |  |  |  |
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# B7. Instrument/Equipment Calibration and Frequency

**Equipment and Instrument Calibration**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Equipment/ Instrument** | **Procedure** | **Frequency of Calibration** | **Acceptance Criteria** | **Correction Action** | **Person Responsible for Corrective Action** | **SOP Reference** |
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# B8. Inspection/Acceptance of Supplies and Consumables

**Inspection/Acceptance Testing Requirements for Consumables and Supplies**

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| --- | --- | --- | --- | --- | --- | --- |
| **Critical Supplies/ Consumables** | **Inspection/ Acceptance Specifications** | **Acceptance Criteria** | **Testing Method** | **Frequency** | **Responsible Individual** | **Handling/ Storage Conditions** |
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# B9. Non-Direct Measurements

# B10. Data Management

# C1. Assessments and Response Actions

**Assessments and Corrective Action**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assessment Type** | **Responsible Party and Organization** | **Number/ Frequency** | **Estimated Dates** | **Assessment Deliverable** | **Deliverable Due Date** | **Responsible for Responding to Assessment Findings** | **Timeframe for Response** | **Responsible for Implementing Corrective Action** | **Responsible for Monitoring Corrective Action Effectiveness** |
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# C2. Reports to Management

**QA Reports to Management**

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| --- | --- | --- | --- | --- |
| **Type of Report** | **Frequency**  **(daily, weekly, monthly, quarterly, annually, etc.)** | **Projected Delivery Date(s)** | **Person(s) Responsible for Report Preparation** | **Report Recipients** |
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# D1. Data Review, Verification, and Validation

# D2. Verification and Validation Methods

Data Verification

Data Validation

# D3. Reconciliation with User Requirements

# References

Intergovernmental Data Quality Task Force, Uniform Federal Policy for Quality Assurance Project Plans Optimized UFP-QAPP Worksheets, March 2012

U.S. Environmental Protection Agency, EPA Requirements for Quality Assurance Project Plans (QA/R-5), EPA/240/B-01/003, March 2001

U.S. Environmental Protection Agency, Guidance for Quality Assurance Project Plans (QA/G-5), EPA/240/R-02/009, December 2002

U.S. Environmental Protection Agency, Guidance of Systematic Planning Using the Data Quality Objectives Process (QA/G-5), EPA/240/B-06/001, February 2006

**FIGURES**

**APPENDIX A**

**Standard Operating Procedures**

**APPENDIX B**

**Field Forms**

**APPENDIX C**

**Laboratory Certificate of Accreditation**

**APPENDIX D**

**Checklists**