Region 2 Brownfields Program
Quality Assurance Project Plan Guidance

Region 2 Brownfields Quality Assurance Program

Revised April 2025

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U.S. EPA Region 2 Hazardous Waste Support Section

Acknowledgement

United States Environmental Protection Agency (EPA) Region 2 acknowledges use of the *EPA-New England, Region 1 Planning and Documenting Brownfields Projects, Generic Quality Assurance Project Plans and Site-Specific QAPP Addenda, Brownfields QAPP Program,* Revision FINAL, March 2009 to create the original version of this document for the Region 2 Brownfields Program.

Table of Contents

1. Introduction

According to 2 CFR 1500.12 and 40 CFR 35, and in accordance with EPA's Quality Assurance Project Plan (QAPP) Standard, EPA requires that a QAPP be prepared for all grant recipient projects involving environmental information operations. As per EPA's QAPP Standard, "environmental information operations" is a collective term that encompasses the collection, production, evaluation, or use of environmental information by or for EPA. It also includes the design, construction, operation, or application of environmental technology. For the Region 2 Brownfields Program, this requirement means that whenever environmental samples are being collected as part of a site assessment or a cleanup project, a QAPP must be prepared and approved by EPA Region 2 prior to the start of work at the site.

2. Background

This QAPP guidance was developed to support the Region 2 Brownfields Program. It is intended to assist Brownfields grant recipients and contractors in complying with the Agency's quality assurance requirements noted above. The primary goal of EPA's Quality Program is to ensure that our environmental information is of known and documented quality to support the intended use of the information. Use of this guidance and associated templates will assist in capturing the required information in a consistent format and will expedite the review and approval of QAPPs by an EPA Region 2 Quality Assurance Officer (QAO).

3. QAPP Overview

A QAPP is a document that describes how environmental information operations will be planned, implemented, documented, and assessed for a project. This guidance was prepared specifically to address the requirements for a QAPP prepared in support of the Region 2 Brownfields program. The QAPP must be approved by an EPA Region 2 QAO before any environmental information is collected, produced, evaluated, or used. This includes sampling and analyses activities associated with the Region 2 Brownfields Program's grants and contracts.

4. QAPP Preparation Pathways

There are two possible QAPP preparation paths: 1) a single Site-Specific QAPP that addresses all required elements, or 2) a Generic QAPP and a Site-Specific QAPP Addendum that together address all the required elements.

A Generic QAPP can be prepared to cover multiple sites in a particular geographic area. Such a document will address the protocols of similar activities conducted across multiple sites. This can include sampling procedures, sample analyses, and quality assurance (QA) and quality control (QC) requirements that are handled the same way at each site that is covered by the Generic QAPP. A Site-Specific QAPP Addendum will then be prepared for each individual site. This Addendum will discuss all the site-specific information missing from the Generic QAPP (i.e.,

site background, project timeline, environmental issue/problems to be investigated, and associated sampling program). The Site-Specific QAPP Addendum will need to reference the Generic QAPP on the cover page so that the two documents are linked.

5. Required QAPP Elements

The table below provides a summary of the linkage between the EPA-required QAPP Standard Elements, the Region 2 Brownfields QAPP Guidance Sections, and the various Templates that make up this Region 2 Brownfields QAPP Guidance. The Templates are found in Appendix 1.

Summary of Region 2 Brownfields QAPP Sections and Templates		
EPA QAPP Standard Element	**R2 Brownfields QAPP Guidance Section**	**Template #**
Project Management and Information/Data Quality Objectives		
A1 and A2	Section 1: Title and Approval Page	Template #1
A3	Section 2: Table of Contents	Template #2
A7, A8, A9, A10 and A11	Section 3: Project Organization and Responsibilities	Templates #3a and #3b
A4, A5 and B1	Section 4: Problem Definition/Project Quality Objectives	Templates #4a and #4b
A5	Section 5: Project Timeline	Template #5
Implementing Environmental Information Operations		
A6 and B1	Section 6: Sampling and Analytical Requirements	Templates #6a, #6b, #6c, #6d, and #6e
B2	Section 7: Project Specific Method and SOP Reference	Template #7
B5 and B6	Section 8: Field Equipment Calibration/Corrective Action	Template #8
B5 and B6	Section 9: Laboratory Equipment Calibration/ Corrective Action	Template #9
B3	Section 10: Sample Handling and Custody Requirements	Templates #10a and #10b
B4	Section 11: Field Quality Control Summary	Template #11
A12 and B7	Section 12: Data Management and Documentation/ Project Reports	Templates #12a and #12b
Assessment/Oversight		
C1	Section 13: Planned Project Assessments	Template #13a
C2	Section 13: Assessment Findings/Corrective Action Responses	Template #13b
Environmental Information Review and Usability Determination		
D1	Section 14: Project Data Verification Process (Step I)	Template #14a
D1	Section 14: Project Data Validation Process (Step IIa and IIb)	Template #14b

D1	Section 14: Project Matrix/Analytical Validation Summary (Step IIa and IIb)	Template #14c
D2	Section 14: Usability Assessment (Step III)	Template #14d

The following table provides instructions for completing the various elements of the QAPP.

QAPP Elements
Project Management and Information/Data Quality Objectives
Section 1 – Title and Approval Page
Project Title Property/Project Name Property/Site Location Version Number Version Date Brownfields Co-operative Agreement or Contract Number Approving Officials (names, titles, signatures, and date signed) • Project Manager (Environmental Consultant) • Project Quality Assurance (QA) Officer (Environmental Consultant) • Grant Recipient Program Manager • EPA QAO* • EPA Project Officer* Note: A Title and Approval Page is required for both generic and site-specific QAPPs. *The EPA QAO and Project Officer will also document approval of the QAPP by signing the Region 2 Brownfields QAPP Approval Form.
Section 2 – Table of Contents
The Table of Contents shall include location of all QAPP sections and all appendices. Document Control information is used to identify the most current version of the QAPP and shall be included on every page, usually in a header. Document control information for the QAPP shall include at a minimum: • The title of the document (abbreviations are acceptable), • The version number of the document (original or revision number), • The date of the version, and • The page number in relation to the total number of pages.
Section 3a – Project Organization
Identifies the reporting/communication relationships between the organizations involved in the project. The following roles should be shown at a minimum: • Grant Recipient

- Environmental Consultant (including Project Manager [PM] and QA Officer)*
- Environmental Laboratory
- Data Validator
- Subcontractors
- State/Territory Regulatory Agency
- EPA Project Officer
- EPA QAO

*Note: The organizational chart should depict the independence of the QA Officer from the PM.

Section 3b – Personnel Responsibilities

Identifies responsible roles and specific project personnel for both consultant and subcontractors, with resumes for key personnel attached. This section of the QAPP will need to identify the following positions at a minimum:

- Grantee leader responsible for grant oversight and resource management
- Approval authority for the QAPP
- Environmental Consultant's Project Manager
- Environmental Consultant's QA Office
- Individual responsible for maintaining the QAPP
- Sampling Team
- Analytical Laboratory
- Other field operations teams/subcontractors (e.g., drillers)
- Data Validators
- Data Users

Indicate which individuals will be part of the QAPP distribution list. Provide information regarding communication procedures, including when things are elevated to EPA. Ensure personnel qualifications are discussed in the attached resumes and that copies of any certifications or licences are attached.

Section 4a – Problem Definition/Project Description (includes Sampling Design/Site Maps)

- Identifies the reasons for conducting the project including detailed site history; current property owner/use; and proposed future reuse/development plans for the site. Discuss likely chemicals/contaminants of concern. Provide a topographic map of the area around the site showing significant structures, terrain, previous sampling locations, and inferred groundwater flow direction to illustrate the problem. Include a description of other existing data applicable to the project. The information should clearly define the problem to be solved, decisions to be made, outcomes to be achieved, and environmental questions to be answered for the current investigation.

- Provide an outline for the tasks to be performed and the principal use of the data obtained for each task. Identify the media and parameters being sampled; field measurements (PID, low flow parameters), field and off-site analytical testing; distinguish between the critical data

which will drive decisions (specific analyses or compounds of concern) and non-critical data used for supporting purposes; cite regulatory standards or criteria to which the data will be compared; and provide a clear discussion on what the task is attempting to determine.

- Describe the project sampling approach. Provide the rationale for selecting the sampling locations and matrices for each analytical group and concentration level. Be specific with the locations and number of samples. Discuss the purpose behind a set or series of samples in a particular area and how the sampling design will address the whole site. When sampling locations, sampling depths and/or choice of analytical parameters cannot be predetermined, document the decision logic or input that will be used in the field to make those determinations. Include detailed sampling maps.

Section 4b – Project Quality Objectives

The Project Quality Objectives shall define the type, quantity and quality of data needed to answer specific environmental questions and support proper environmental decisions.

Section 5 – Project Schedule/Timeline

Provide the start and completion dates for all key project tasks including Site-Specific QAPP review and approval, field activities and sampling, laboratory results turnaround and reporting activities to be completed.

Implementing Environmental Information Operations

Section 6a – Sampling Methods and Locations

List all site locations that will be sampled and include the number of samples, matrix, and depths discussed in Section 4a in tabular format.

Section 6b – Analytical Methods and Requirements

Provide all analytical services including the matrix, analytical group, concentration level, analytical and preparation SOP references, sample volume, container number, size and type, preservation requirements, maximum holding time, in tabular format.

Section 6c – Reference Limits and Evaluation

Identify the target analytes/contaminants of concern, applicable state regulatory criteria, and achievable laboratory detection and reporting limits. This section helps evaluate potential concerns with sensitivity of an analytical method in relation to the project regulatory standards/criteria, particularly primary contaminants of concern. Finally, the section is critical in understanding the usability of a data point when a sample result is near the project regulatory standards/criteria, which in turn is near the quantitation limits and/or detection limits of the method.

Section 6d – Analytical Laboratory Sensitivity and Project Criteria

Complete this section for **each** matrix, analytical group, and concentration level. Define the data quality indicators, performance criteria within the analytical method, and the associated QC sample(s) used to assess the specific criteria. Specify the QC sample(s) which are associated with

each specific analysis and the corrective action planned. Include each type of laboratory QC, frequency, and the laboratory acceptance criteria (control limits).

Typical Brownfields projects will include but are not limited to, the following:

- Organic Analyses – Method blanks, surrogates, internal standards, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spikes (MS) and matric spike duplicates (MSD), and others as per the specific analytical method.
- Inorganic Analyses – Method blanks, laboratory control samples (LCS), matrix spikes (MS), laboratory matrix duplicates (MD), and others as per the specific analytical method.

Section 6e – Secondary Data Criteria and Limitations Table

Identify all secondary data and information that will be used for the project, and their originating sources. Specify how the secondary data will be used, and the limitations on their use.

Section 7 – Project Specific Method and Standard Operating Procedures (SOPs) Reference

SOPs document the steps that are followed in collecting and analyzing environmental samples. A level of uniformity and consistency is established in the work being performed by defining the set of procedures that will be used. Therefore, provide a reference table of the field sampling SOPs, the analytical method references, and the analytical laboratory SOPs.

Section 8 – Field Equipment Calibration/Maintenance/Testing/Inspection

Provide the initial calibration (including standards and concentrations used), and continuing calibration checks used throughout the operation to check for drift (standards, blanks, etc.). Indicate the frequency that each check is performed (when and how often); indicate the acceptance criteria (control limits) that need to be met to proceed; and discuss the corrective actions taken in the field when the control limits are not met.

Section 9 – Analytical Laboratory Equipment Calibration/Maintenance/Testing/Inspection

Provide the initial calibration (include the number of initial calibration standards and calibrations range), the independent calibration check standards (include relevant concentrations) and the continuing calibration checks (calibration blanks and concentration of continuing calibration check standards) for the off-site laboratory equipment. For each calibration step include the frequency that each is performed, acceptance criteria (control limits), and laboratory corrective actions to be taken when control limits are not met.

Section 10a – Sampling Handling Systems

Identify components of the project-specific sample handling system. Record personnel and their organizational affiliations that are primarily responsible for ensuring proper handling, custody, and storage of field samples from the time of collection to laboratory delivery, and then to final sample disposal. Indicate the number of days field samples and their extracts/digestates will be archived prior to disposal.

Section 10b – Sample Custody Requirements

Describe the chain-of-custody (COC) procedures that will be followed to maintain sample custody and integrity while preparing the field sample for transport to the laboratory. Discuss sample identification and tracking. If an SOP is available, simply reference and include the SOP in the QAPP as an appendix. Provide a copy of the COC, sample label, and custody seal.

Section 11 – Field Quality Control Summary

Summarize by matrix, analytical group, and concentration level the type and number of field QC samples that will be collected and sent to the laboratory. Typical Brownfields projects will include field duplicate samples for each matrix and parameter, field rinsate/equipment blanks, trip blanks (for aqueous VOC samples), and matrix spike/matrix spike duplicate (MS/MSD) samples.

For field duplicate soil samples, document whether they are being collected as collocated duplicates (collected adjacent to each other) or as a split of a single homogenized sample. Collocated duplicate data is useful for evaluating the homogeneity of the soil/sediment matrix within a relative area.

Although MS/MSD samples are ***not*** discrete samples, they are considered part of the field QC program as (1) ***additional*** sample volume is required for use in the laboratory and (2) they are specified on the chain-of-custody (COC).

The information presented in the table is what will be used in the data evaluation/assessment process described in Section 14.

Section 12a – Data Management and Documentation

Identify the documents and records that will be generated for all aspects of the project including, but not limited to, sample collection and field measurement, on-site and off-site analysis (as applicable), and data assessment. Provide copies of all field forms that will be used.

Section 12b – Project Reports

Identify the frequency and type of planned Data Management Reports, the project delivery dates, the personnel responsible for report preparation, and the report recipients. Summary data tables of the field sample results should always include project criteria/standards for easy comparison and results exceeding criteria should be highlighted. Specify how long the project file will be maintained and stored, and its final disposition after that period.

Assessment/Oversight

Section 13a – Planned Project Assessments

Identify the type, frequency, and responsible parties of planned assessment activities that will be performed for the project. Since Brownfields projects are relatively short term, typical assessments might include project readiness reviews, oversight of the field team and subcontractors, laboratory performance evaluation (PE) samples and/or peer review of the final report.

Section 13b – Assessment Findings and Corrective Action Responses

For each type of assessment, describe procedures for documenting and correcting QAPP and project deviations encountered during the planned project assessments.

Environmental Information Review and Usability Determination

Section 14a – Project Data Verification Process (Step I)

Describe the processes that will be followed to verify project data. Describe how each item will be verified, when the activity will occur, and what documentation is necessary. Identify the person responsible (name/role and organization). See Table 1 for examples. Inputs determined to be missing during the verification process should be addressed with the laboratory or field samplers, and any pertinent information should be documented and/or provided in the final report.

Section 14b – Project Validation Process (Step IIa and Step IIb)

Describe the processes that will be followed to validate project data. Describe how each item will be validated, what documentation is necessary and identify the person responsible. See Table 1 for data elements. Evaluate the field QC sample results. For the field duplicates sample results, tabulate the relative percent difference (RPD) including these results in the final report as per Section 13c. If other field QC samples were submitted such as matrix spike/matrix spike duplicate samples, field rinse/equipment blanks and/or trip blanks, this data should be tabulated with the appropriate recoveries and reported accordingly as per Section 13c.

Section 14c – Project Matrix and Analytical Validation (Step IIa and Step IIb) Summary

Identify the matrices, analytical groups, and concentration levels that each entity performing validation will be responsible for, as well as the criteria that will be used to validate those data. See Table 1 for data elements. Include the evaluation of both field QC and laboratory QC results from Section 14b. Document the presence or absence of any problems or issues and note any sample data that may be impacted. Indicate how the results will be documented and what will be presented in the final report.

Section 14d – Usability Assessment (Step III)

Describe the procedures/methods/activities that will be used to determine whether data are of the right type of quality and quantity to support environmental decision-making for the project. Describe how data quality issues will be addressed and how limitations on the use of the data will be handled. Tabulate the field sample data together with the state/federal standards for presentation in the final report. Highlight any sample results exceeding criteria. Check the table for correctness and appropriate units. Prepare site figures/maps and other graphical representations, as appropriate, and check for correctness and accuracy. Evaluate the field sample results at the parameter level. Document any limitations on how the data should be used and/or interpreted.

Some items to consider:

- Pay attention to contaminants of concern where the concentration is near the regulatory standard (whether these are Federal, State, or Territory standards) and/or the reporting

limits for the method. Are there sufficient surrounding data points to support a trend of real contamination? Or is more data needed to support a conclusion or decision?

- Look at the field duplicate results in evaluating the heterogeneity of a particular matrix. The variability can impact the usability of low-level results near the project criteria. Are more data needed to support a conclusion or decision? Or was it a solo hit just above the criteria?
- Look at sample results that are reported at elevated limits due to dilution of the sample during analysis. Is the usability of the data compromised because the reporting limits are greater than the project criteria? Does the laboratory need to be contacted to determine the reason for the dilution? Can cleanup and reanalysis be performed to enhance quality of the data?
- When applicable, look at the groundwater quality data from low-flow sampling. Does the turbidity data impact the use of the semi-volatiles, PCBs, and/or metals data, especially where the concentration is near the project criteria and/or the reporting limits for the method?

Based on the results of the data usability summary above, use summary tables and site maps to perform the overall project evaluation. Document any observations, anomalous trends, or data gaps that may exist. Evaluate how the sample results have impacted the goals for the property, and whether the project objectives have been met. Draw conclusions and recommendations from all the information obtained above, and document appropriately in the final report.

6. References

EPA-New England, Region 1 Planning and Documenting Brownfields Projects, Generic Quality Assurance Project Plans and Site-Specific QAPP Addenda, Brownfields QAPP Program, Revision FINAL, March 2009.

Quality Assurance Guidance for Conducting Brownfields Assessments, EPA 540-R-98-038, September 1998.

Uniform Federal Policy for Quality Assurance Plans, Part 1: UFP-QAPP Manual, EPA-505-B-04-900A, Final Version 1, March 2005.

Uniform Federal Policy for Quality Assurance Plans, Part 2A: UFP-QAPP Workbook, EPA-505-B-04-900C, Final Version 1, March 2005.

Quality Assurance Project Plan Standard, Directive No: CIO 2105-S-02.1, April 2024.

Appendix 1

Brownfields Site-Specific QAPP Templates

Use these templates to help plan your project and develop your QAPP. While Brownfields projects can be similar, every site is unique. Edit these QAPP Templates to meet the specific needs of your project. Additional text revisions may be needed throughout to assure that the QAPP templates adequately describe your specific project. Text in the grey boxes provides direction and guidance for developing your QAPP, while italicized text provides examples. These instructional text boxes should be removed from your QAPP.

Before submitting a QAPP to your EPA Project Officer for review and approval:

- Replace generic information with project-specific information
- Add additional information as necessary to reflect your project
- Remove the grey boxes that contain guidance and instructions, including information to consider for each section
- Revise the examples imbedded into the template in italics with project-specific information as applicable
- Include a header with the required document control information
- Update the table of contents and lists of tables and/or figures

Brownfields QAPP Template #1
Title and Approval Page

Title:

Project Name/Property Name:

Property/Site Location:

Version Number/Date:

Grant or Contract Number:

Environmental Consultant Project Manager:

_____

Name/Organization **Signature/Date**

Environmental Consultant Quality Assurance Officer:

_____

Name/Organization **Signature/Date**

Grant Recipient Program Manager:

_____

Name/Organization **Signature/Date**

EPA Brownfields Program Project Officer:

_____

Name/Organization **Signature/Date**

EPA Quality Assurance Officer:

_____

Name/Organization **Signature/Date**

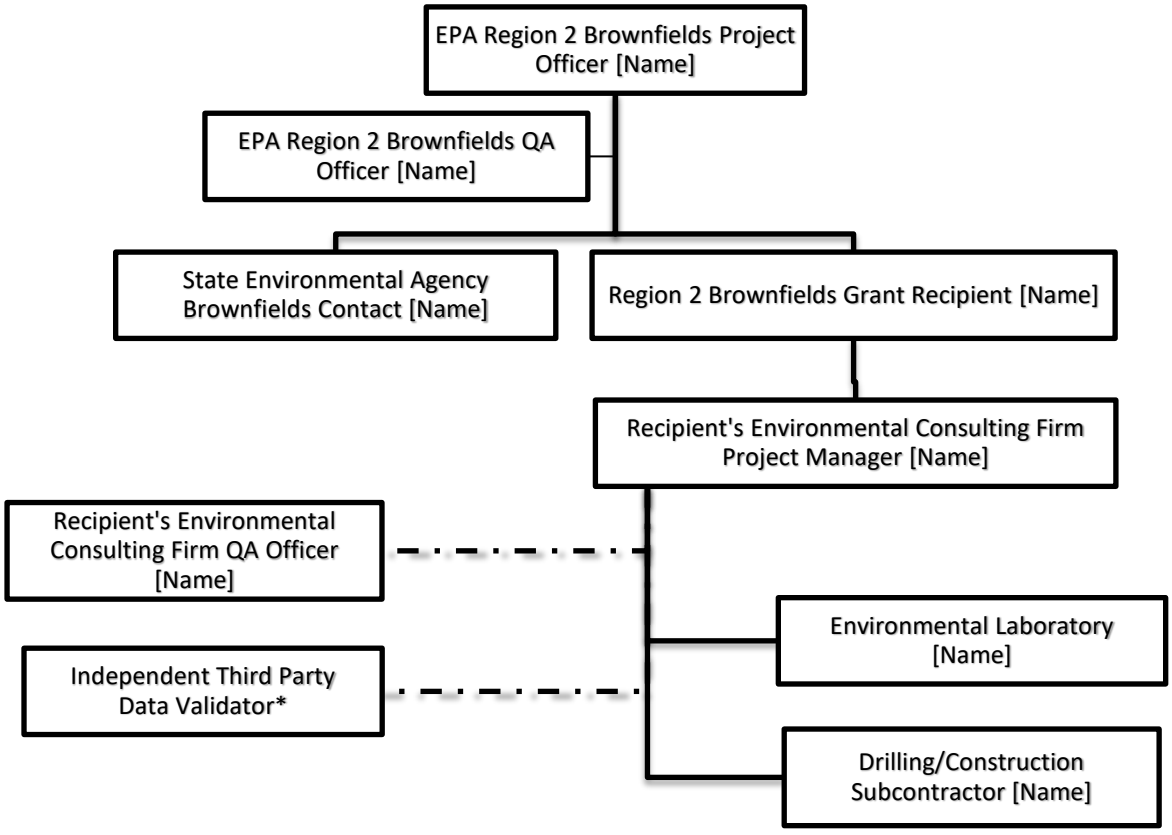
Brownfields QAPP Template #2
Table of Contents

Create a Table of Contents to include **all** required elements/templates and attachments. Include page numbers associated with each section.

Brownfields QAPP Template #3a
Project Organizational Chart

Create an organization chart for the project. Depict both reporting and communication lines. Be sure to show independence of the Environmental Consultant QA Officer and the data validator(s).

Template #3a is the Project Organizational Chart that identifies the reporting relationship and communication lines between all parties involved in the project.



*Data validation to be performed by third party – independent of data collection activities (can be within Environmental Consulting firm or subcontracted to a data validation firm).

Brownfields QAPP Template #3b
Personnel Responsibilities

1. Include resumes of key personnel as an appendix to the QAPP.
2. Data validation to be performed by third party – independent of data collection activities (can be within Environmental Consulting firm or subcontracted to a data validation firm).
3. The contracted laboratory must be Accredited/Certified by NELAP or the State or have other means of demonstrating competency. Include current Certifications as an appendix.
4. Identify required qualifications in attached resumes, including any licensing requirements. Include copies of licenses as an appendix to the QAPP.
5. Identify the QAPP approval authority.

Name	Title	Telephone Number / Email	Organizational Affiliation	Responsibilities	QAPP Distribution List (Y/N)
	Project Manager		*Name of Environmental Consulting Firm*	*Overall project management, including elevating issues to EPA, as needed. Assures competency of project personnel. Maintains documentation of required trainings, licensing and certifications.*	
	Sampling Team Leader		*Name of Environmental Consulting Firm*	*Conducts sampling in accordance with the requirements of the QAPP and SOPs. Documents and notifies QAO of any deviations from protocol.*	
	Quality Assurance Officer		*Name of Environmental Consulting Firm*	*Review and approve QAPP. Oversees quality-related processes and procedures.*	
	Brownfields Recipient Program Manager		*Name of Brownfields Recipient*	*QAPP maintenance, communication with EPA PM, Data User*	
	State Brownfields Contact		*Name of State Environmental Agency*	*Data User*	
	EPA Brownfields Project Officer (BPO)		*EPA Region 2*	*Oversee grant on behalf of EPA. Review and approve QAPP.*	*Y*
	EPA Brownfields Quality Assurance Officer (QAO)		*EPA Region 2*	*Review and approve QAPP.*	*Y*
	Environmental Laboratory Contact		*Name of Environmental Laboratory*		
	Data Validator		*Name of Third-Party Data Validator*		

Name	Title	Telephone Number / Email	Organizational Affiliation	Responsibilities	QAPP Distribution List (Y/N)
	Other personnel as applicable				

Brownfields QAPP Template #4a
Problem Definition/Project Description

PROBLEM DEFINITION

Discuss the purpose or reason for the sampling event, the problem to be addressed, and the environmental questions being asked.

PROJECT DESCRIPTION

Site Location and Description

Provide a description of the site. Include a topographic map showing site environs.

Site History

Discuss the site history, including current property use and future reuse/development plans, contaminants of concern, environmental indicators, historical results, and any previous actions at the site.

PROJECT APPROACH

Summarize the project tasks and data to be collected. Discuss the sampling approach, providing the rationale for selecting sample locations and matrices for each analytical group and concentration level. Include a detailed map showing sampling locations. Describe the sampling methods to be used along with the referenced Standard Operating Procedures (SOPs). May refer to Template #7 for SOP information. Discuss any field measurements to be obtained, as well as any QA/QC samples to be collected.

Example: [name of Environmental Consultant] will collect approximately [number] [matrix] samples from [location(s)] to evaluate the [specific/general issue]. The [matrix] samples will be obtained using a [equipment type] (SOP #1) and will be analyzed by [name of laboratory] for the following parameters: [list of analyses]. One (1) field duplicate sample will be collected for QC purposes. Additional volume will also be collected at a rate of one per 20 samples for matrix spike/matrix spike duplicate (MS/MSD) as required by the analytical method.

PROJECT DECISION STATEMENTS

Link the data results with possible actions.. Include:

1. If….., then…..statement for general purpose of sampling.
2. If….., then…..statement for specific sampling type.
3. If….., then…..statement for result and action level.
4. If necessary, additional "If….., then….." statements.

Example: A residential community is proposed for the site. If the concentration of lead in the soil sample data results is above the State regulatory residential cleanup levels throughout the site, then it can be concluded that the site is not clean, and a cleanup remedy must be performed until the cleanup levels for lead are achieved.

Brownfields QAPP Template #4b
Project Quality Objectives

Develop the project quality objectives (PQOs) that define the type, quantity and quality of data needed to answer specific environmental questions and support proper environmental decisions. The questions below are examples **only** and are neither inclusive nor appropriate for all projects. Provide all necessary information.

Overall project objectives include:

- Prove objective(s) of sampling event

Who will use the data?
Data will be used by the EPA Region 2 Brownfields Recipient to determine …….

What will the data be used for?
Explain the ultimate use of data.

What types of data are needed?

- Target analytes and matrix
- Field screening, on-site analytical and/or off-site laboratory techniques
- Sampling techniques (e.g., low-flow sampling)

How "good" do the data need to be to support the environmental decision?
The quality of data is determined by establishing criteria for performance measures that include precision, accuracy/bias, sensitivity (quantitation limit), data comparability representativeness and completeness.

How much data are needed?
Number of samples, matrix, and analysis

Where, when, and how should the data be collected/generated?
Sample locations, critical samples, time frame, etc.

Who will collect and generate the data?
Name of Environmental Consultant

How will the data be reported?
Data will be reported…

How will the data be archived?
Data will be archived in…

Brownfields QAPP Template #5
Project Schedule/Timeline

List ***all*** project activities that will be performed during the project. Include the anticipated start and completion dates.

Activities	Organization	Dates (MM/DD/YY)		Deliverable	Deliverable Due Date
		Anticipated Date(s) of Initiation	Anticipated Date of Completion		
Preparation of QAPP	*Name of Environmental Consultant*			*QAPP*	
Review of QAPP	*Names of EPA Region 2 BPO and QAO*			*Approved QAPP by EPA Region BPO*	
Preparation of Health and Safety Plan	*Name of Environmental Consultant*			*HASP*	
Procurement of Equipment	*Name of Environmental Consultant*			*N/A*	
Laboratory Request	*Name of Environmental Consultant*			*N/A*	
Field Reconnaissance/Access	*Name of Environmental Consultant*			*N/A*	*N/A*
Collection of Field Samples	*Name of Environmental Consultant*			*N/A*	*N/A*
Laboratory Analyses	*Name of Laboratory*			*Unvalidated data package*	
Validation of Laboratory Results	*Name of Environmental Consultant or Third-Party Data Validator* [1]			*Validated data Packages*	
Data Evaluation/ Preparation of Final Report	*Name of Environmental Consultant*			*Final Report*	

[1]Data validation to be performed by third party – independent to site collection activities (can be within Environmental Consulting firm or subcontracted to data validation firm).

Brownfields QAPP Template #6a
Sampling Methods and Locations

List ***all*** site locations that will be sampled and include sample identification (ID) number. Specify matrix, and if applicable, depths at which samples will be taken. Only a short reference for the sampling location rationale is necessary for the table. The QAPP text should clearly identify the detailed rationale associated with each reference. Complete all required information using additional copies of the template if necessary.

Matrix	Sampling Location(s)	Sample ID	Depth (*units*)	Analytical Group[1]	No. of Samples (*identify field duplicates*)	Sampling SOP Reference	Rationale for Sampling Location
Groundwater	*EPA-2*	*EPA-2-GW*	*16 ft*	*VOCs*	*1 (1)*	*EPA Low Flow Sampling SOP*	*Wells selected were chosen based on the direction of groundwater flow relative to the source.*
Groundwater	*EPA-7*	*EPA-7-GW*	*18 ft*	*VOCs*	*1 (0)*	*EPA Low Flow Sampling SOP*	*Wells selected were chosen based on the direction of groundwater flow relative to the source.*
Soil	*SB-1*	*SB-1-0002*	*0-2 ft*	*VOCs, PCBs*	*1 (1)*	*Hand auger*	*Potential leaking UST.*
Soil	*SB-1*	*SB-1-0204*	*2-4 ft*	*PCBs*	*1 (0)*	*Hand auger*	*Potential leaking UST.*
Soil	*SB-1*	*SB-1-0406*	*4-6 ft*	*PCBs*	*1 (0)*	*Hand auger*	*Potential leaking UST.*

[1]Analytical Groups include volatiles; semi-volatiles; pesticides; PCBs, total metals; cyanide, asbestos, etc.

Brownfields QAPP Template #6b
Analytical Methods and Requirements

Identify ***all*** laboratory or organization(s) that will provide analytical services for the project, including on-site screening and/or off-site laboratory analytical work. Group by matrix, analytical group, concentration level, analytical/preparation method SOP, sample volume container size, preservation of samples, maximum holding time, and laboratory. If applicable, identify the subcontractor laboratory.

Matrix	**Analytical Group**	**Concentration Level**[1]	**Analytical & Preparation Method/ SOP Reference**	**Sample Volume**	**Containers (*Number, size, type*)**	**Preservation Requirements (*chemical, temperature, light protected)***	**Maximum Holding Time (*preparation/ analysis)***	**Responsible Laboratory/ Organization *(name)***
Groundwater	*VOCs*	*Trace*	*SW-846 Method 8260*	*120 ml*	*(3) 40 ml VOA vials w/Teflon lined septum*	*1:1 HCl to pH<2; cool to 4±2°C*	*10 days*	*XYZ*
Groundwater	*SVOCs*	*Low*	*SW-846 Method 8270 / Method 3510 (or 3520)*	*2 L*	*(2) 1 L bottles*	*cool to 4±2°C*	*14 days / 40 days to analysis*	*LMN, subcontractor to XYZ*

[1]Concentration Level refers to the relative concentration (Trace; Low; Medium; High) of the sample.

Brownfields QAPP Template #6c
Reference Limits and Evaluation Table

Complete a copy of this table for **each** sample matrix, analytical group and concentration level. Identify the target analytes/contaminants of concern, the applicable state regulatory criteria (project-required action limits), and the published achievable detection and reporting limits for each analyte from the laboratory.

Matrix *Aqueous*
Analytical Group *VOCs*
Concentration Level *Trace*

Analyte	CAS Number	Regulatory Standards/ Criteria	Name of State/Territory/Tribal: Regulatory Standards/Criteria[1]	Achievable Laboratory Method Detection Limit	Laboratory Reporting Limit
Benzene	*71-43-2*	*0.45 ug/L*	*NJDEP Class IIA Ground Water Quality Standards, 3 February 2025, https://dep.nj.gov/wp-content/uploads/standards/ground-water-standards.pdf. Accessed 16 April 2025.*	*0.2ug/L*	*0.45 ug/L*

1 Provide the full reference for the criteria used, including published date.

Brownfields QAPP Template #6d
Analytical Laboratory Sensitivity and Project Criteria

Complete a copy of this table for **each** matrix, analytical group, and concentration level. Define the data quality indicators, performance criteria within the analytical method, and the associated QC sample(s) used to assess the specific performance criteria. Specify whether the QC sample(s) is associated with potential sample and/or analysis error and what corrective action will be taken if the performance criteria are not met.

Matrix *Aqueous*
Analytical Group *VOCs*
Concentration Level *Trace*

Analytical Method/ SOP	Data Quality Indicators[1]	Performance Criteria (related to analytical method)	QC Sample Used to Assess Performance Criteria	Number / Frequency	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)	Corrective Action
EPA Method 624	*Precision* *Accuracy*	*RPD ≤ 20%* *Recovery Limits 70-130%*	*LCS & LCS Duplicate*	*1 per preparatory batch of up to 20 samples*	*A*	*Verify properly calibrated and tuned; check for leaks in system, including purge-trap unit or sample introduction system; reanalyze; flag outliers.*
	Accuracy	*Factor of two (-50% to + 100%) from the initial/continuing calibration*	*Internal standards*	*Each calibration standard, sample, and QC sample*	*A*	*Check calculations and instruments, reanalyze affected samples.*
	Accuracy *Precision*	*Compound Specific (full range: 17-259%)* *RPD ≤ 20%*	*MS & MSD*	*1 per preparatory batch of up to 20 samples*	*S&A*	*Reanalyze; flag outliers.*
	Accuracy	*Recovery Limits 70-130%*	*Surrogate Compounds*	*Added to all samples*	*A*	*Check calculations and instruments, reanalyze affected samples.*
	Bias/ cross contamination	*< Reporting Limit*	*Method Blank*	*One per preparatory batch of up to 20 samples*	*A*	*Suspend analysis until source investigated/ rectified; re-extract and reanalyze affected samples.*

[1]Defined as Precision; Accuracy/Bias; Sensitivity/Quantitation Limits, Representativeness; Comparability, Completeness

Brownfields QAPP Template #6e
Secondary Data Criteria and Limitations Table

Identify ***all*** secondary data and information that will be used for the project, and their originating sources. Specify how the secondary data will be used, and the limitations on their use.

Secondary Data	Data Source (Originating Organization, Report Title, and Date)	Data Generator(s) (Originating Org., Data Types, Data Generation/ Collection Dates)	How Data Will Be Used	Limitations on Data Use
Previous Investigation and/or Sampling Results	*[Document with results, i.e., Report]*	*[Who collected the data and when]*	*[i.e., Evaluate the purpose and scope of previous studies and compare with current study objectives]*	*[Reason for additional sampling, i.e., data gaps, and discussions on comparability issues, incomplete data sets as well as qualified data]*
Municipality Drinking Water Data	*XYZ Municipality. Quarterly Drinking Water Check Report. 6/95 -- 6/96*	*Smith Laboratories Inc. – Volatiles Drinking Water Data; Sample Collection Dates - 6/12/95, 9/15/95, 12/10/95, 3/6/96, 6/12/96*	*To assess existing groundwater contamination*	*1. Unvalidated data used to generate the report* *2. Limited number of wells exist to sample*

Brownfields QAPP Template #7
Project Specific Method and Standard Operating Procedures (SOPs) References

List ***all*** field SOPs, analytical method references (for preparation and analysis of the samples) and corresponding analytical laboratory SOPs that will be used for the Brownfields project. Include copies of the SOPs in an Appendix to this QAPP. Field SOPs include sample collection, sample preservation, equipment decontamination, preventive maintenance, etc.

FIELD SOPs (*Include document title, date, revision number, and originators' name)*
1a.
2a.
3a.
ANALYTICAL METHOD REFERENCE (*Include document title, method name/number, revision number, date)*
1b.
2b.
3b.
ANALYTICAL LABORATORY SOPs (*Include document title, date, revision number, and originators' name)*
1c.
2c.
3c.

Brownfields QAPP Template #8
Field Equipment Calibration, Maintenance, Testing, and Inspection

Identify ***all*** field equipment and instruments (other than off-site laboratory analytical instrumentation) that require calibration, maintenance, testing, and/or inspection and provide the SOP reference number for each type of equipment. In addition, document the frequency of activity, acceptance criteria, and corrective action requirements on the template.

Field Equipment	Calibration Activity	Maintenance Activity	Testing/ Inspection Activity	Frequency	Acceptance Criteria		Corrective Action	SOP Reference
YSI or equivalent	*Calibrate with standard solutions as per manufacturing recommendations*	*As per manufacturing recommendations*	*As per manufacturing recommendations*	*Prior to day's activities; end of day's activities; anytime anomaly suspected*	*pH Meter*	*+/- 0.1 units*	*Clean probe, replace battery, replace membrane, replace probe*	
					Dissolved Oxygen	*± 3%*		
					Specific Conductivity	*± 1%*		
					Temperature	*± 0.1 °C*		
					Turbidity	*± 2 NTU*		

Brownfields QAPP Template #9
Analytical Laboratory Instrument and Equipment Maintenance, Testing, and Inspection

Identify ***all*** off-site laboratory analytical instrumentation that requires maintenance, testing, and/or inspection and provide the SOP reference for each. Document the frequency, acceptance criteria, and corrective action requirements on the template

Analytical Laboratory Instrument Maintenance, Testing, and Inspection

Instrument/ Equipment	Maintenance Activity	Testing/Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	Analytical SOP Reference
ICP-MS	*As per instrument manufacturer's recommendations*	*As per instrument manufacturer's recommendations, check connections*	*As per instrument manufacturer's recommendations*	*Acceptable recalibration; see table below*	*Inspect the system, correct problem, recalibrate and/or reanalyze samples*	*Laboratory ICP-MS Technician*	*Lab Analytical SOP (or SW-846 Method 6020)*

Identify ***all*** off-site laboratory analytical instrumentation that requires calibration and provide the SOP reference number for each. Document the frequency, acceptance criteria, and corrective action requirements on the template.

Analytical Laboratory Instrument Calibration

Instrument/ Equipment	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action	Responsible Person	Analytical SOP Reference
ICP-MS	*As per instrument manufacturer's recommended procedures, with at least two standards. A minimum of three replicate integrations are required for data acquisition.*	*Initial calibration: daily or once every 24 hours and each time the instrument is set up. Continuing calibration: beginning and end of run, and frequency of 10% or every 2 hours during an analysis run.*	*Initial calibration: Correlation coefficient ≥0.995* *Continuing calibration: 90-110%R*	*Inspect the system, correct problem, re-calibrate, re-analyze samples.*	*Laboratory ICP-MS Technician*	*Lab Analytical SOP (or SW-846 Method 6020)*

Brownfields QAPP Template #10a
Sample Handling System

Identify components of the project-specific sample handling system. Record personnel and their organizational affiliations primarily responsible for ensuring proper handling, custody, and storage of field samples from the time of collection to laboratory delivery, and then to final sample disposal. Indicate the number of days field samples and their extracts/digestates will be archived prior to disposal.

SAMPLE COLLECTION, PACKAGING, AND SHIPMENT
Sample Collection (Personnel/Organization):
Sample Packaging (Personnel/Organization):
Coordination of Shipment (Personnel/Organization):
Type of Shipment/Carrier:
SAMPLE RECEIPT AND ANALYSIS
Sample Receipt (Personnel/Organization):
Sample Custody and Storage (Personnel/Organization):
Sample Preparation (Personnel/Organization):
Sample Determinative Analysis (Personnel/Organization):
SAMPLE RETENTION
Field Sample Storage Time (duration from sample collection to sample shipment): *Samples to be shipped within [enter time –hours/days] and arrive at laboratory within [enter time – hours/days] of sample shipment.*
Analytical Sample Storage Time (duration from sample receipt to sample preparation/analysis): [1] *As per analytical methodology; See Template #6b for holding times.*
SAMPLE DISPOSAL
Personnel/Organization:
Duration from Analysis to Disposal: *Samples will be kept until analyses and all QA/QC checks are completed and as per laboratory's standard sample retention protocols.*

[1] Also indicate the duration of archiving if any samples and/or extracts/digests will be held by the laboratory for future analysis.

Brownfields QAPP Template #10b
Sample Custody Requirements

Describe the procedures that will be used to maintain sample custody and integrity for the site-specific project. Include examples of chain-of-custody forms, traffic reports, sample identification, custody seals, laboratory sample receipt forms, and laboratory sample transfer forms. Attach these items or reference the applicable SOPs where these items can be found.

Sample Identification Procedures: Describe the sample identification procedure in this section for the site-specific project. Provide an example.

Field Sample Custody/Tracking Procedures (sample collection, packaging, shipment, and delivery to laboratory): Describe the field sample custody/tracking procedures in this section for the site-specific project. Provide examples.

Laboratory Sample Custody/Tracking Procedures (receipt of samples, archiving, and disposal): Describe the laboratory sample custody/tracking procedures in this section for the site-specific project. Provide examples.

Chain-of-Custody Procedures: Describe the chain-of-custody procedures in this section for the site-specific project. Provide examples.

Brownfields QAPP Template #11
Field Quality Control Summary

Complete a separate template for **each** matrix, analytical group, and concentration level the number of field QC samples that will be collected and sent to the laboratory.
Note: Region 2 does not recommend or require the use of trip blanks for VOCs soil samples.

Matrix	*Aqueous*
Analytical Group	*VOCs*
Concentration Level	*Low*
Sampling SOP(s)	*ABC Consultants SOP #123*
Analytical Method/SOP Reference	*SW846 8260D*
Sampler's Name	*John Smith*
Field Sampling Organization	*ABC Consultants*
Analytical Organization	*XYZ Laboratory*
No. of Sample Locations	*10*

Quality Control (QC) Sample:	Frequency/ Number	Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)
Equipment Rinsate Blank (EB)	*1 per day or per decontamination event (minimum of 1 per 20 samples)*	*No constituent > RL*	*Investigate the cause of blank contamination, re-train samplers, if appropriate.*	*Sampling Team Leader; QA Officer*	*Bias / Cross contamination.*
Field Duplicate (FD) (Co-located or split for soil samples)	*1 per 20 samples*	*RPD ≤ 30% (recommended for aqueous matrices)*	*Investigate cause of excess RPD and take appropriate actions, if necessary (i.e. improper sampling technique)*	*Sampling Team Leader; QA Officer*	*Precision*
Trip Blank (TB)	*1 per cooler of aqueous VOCs*	*No constituent > RL*	*Investigate the cause of blank contamination, re-train samplers, if appropriate.*	*Sampling Team Leader; QA Officer*	*Bias / Cross contamination.*
Field Blank (FB)	*1 per 20 samples*	*No constituent > RL*	*Investigate the cause of blank contamination, re-train samplers, if appropriate.*	*Sampling Team Leader; QA Officer*	*Bias / Cross contamination.*
MS/MSD (additional volume)	*1 per 20 samples*	*See Template #6d for requirements.*			

Brownfields QAPP Template #12a
Data Management and Documentation

Describe the documentation that will be generated for the project, and the data management procedures that will be used in handling that information. The three basic areas to cover are field data, laboratory data, and data assessment (verification and validation of data) presented in the final report. Clearly specify what documentation will be provided in the final report and what documentation goes into the project files. Below is a list that includes but not limited to the types of documentation that may be routinely generated, collected and managed in a Brownfields project.

Field Sample Collection Documents and Records	Analytical Laboratory Documents and Records	Data Assessment Documents and Records	Project File
• Site and field logbooks • Boring logs • Well construction diagrams • Chain-of-Custody (COC) forms • Well Data Sheets • Field Data Sheets	• Sample receipt logs • Internal and external COC forms • Equipment calibration logs • Sample preparation worksheets/logs • Sample analysis worksheets/run logs • Laboratory Analytical Data Package • Telephone/email logs • Corrective action documentation	• Data validation reports • Field inspection checklist(s) • Laboratory Audit checklist (if performed) • Review forms for electronic entry of data into database • Corrective action documentation	• *How long will the project file be maintained, stored, and its final disposition after that period.*

Brownfields QAPP Template #12b
Project Reports

Identify the types of reports that will be routinely provided during the Brownfields project (e.g., status reports, final reports, etc.). Include the type of report, frequency of reporting, the project delivery dates, the personnel responsible for report preparation, and the report recipients.

Type of Report	Frequency	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation (Title and Organizational Affiliation)	Report Recipient(s) (Title and Organizational Affiliation)
Status Reports	*Weekly*	*Before 12 noon on Monday of following week*	*Sampling Team Leader, ABC Consultants*	*Grant Recipient Program Manager*
Site Assessment Report	*Once, at end of program*	*August 2025*	*Project Manager, ABC Consultants*	*Grant Recipient Program Manager, EPA Region 2 Brownfields Project Officer*

Brownfields QAPP Template #13a
Planned Project Assessments

Identify the type, frequency, and responsible parties of planned assessment activities that will be performed for the project. Some example assessments applicable to the Brownfields Program are included in italics below. Please update with information specific to your project.

Assessment Type	Frequency	Internal or External	Organization Performing Assessment	Person(s) Responsible for Performing Assessment	Person(s) Responsible for Responding to Assessment	Person(s) Responsible for Identifying and Implementing Corrective Actions	Person(s) Responsible for Monitoring Effectiveness of Corrective Actions
Project Readiness Review							
Field Observations/ Deviations from Plan							
On-Site Field Inspection							
Laboratory Technical Systems/ Performance Audit							
Performance Evaluation Samples							
Peer Review of Report							

Brownfields QAPP Template #13b
Assessment Findings and Corrective Action Responses

For each type of assessment in Template #13a, describe procedures for handling QAPP and project deviations encountered during the planned project assessments.

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notfiied of Findings (Name, Title, Org.)	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response (Name, Title, Org.)	Timeframe for Response
Project Readiness Review	*Checklist or logbook entry*			*Checklist or logbook entry*		
Field Observations/ Deviations from Plan	*Logbook*			*Logbook*		
On-Site Field Inspection	*Written Report*			*Letter/Internal Memorandum*		
Laboratory Technical Systems/ Performance Audit	*Written Report*			*Letter*		
Performance Evaluation Samples	*Electronic Data Report*			*Letter or Written Report*		
Peer Review of Report	*Comments*			*Response to Comments*		

Brownfields QAPP Template #14a
Project Data Verification Process (Step I) [1]

Describe the processes that will be followed to verify project data. Describe how each item will be verified, when the activity will occur, and what documentation is necessary, and identify the person responsible for verification. Below (in italics) are examples of such information.
See Table 1 for additional examples of data elements.

Verification Input	Description	Responsible for Verification (Individual Name, Organization)
Site/Field Logbooks	*Field notes will be prepared daily by the Environmental Consultant Sampling Team Leader and will be complete, appropriate, legible, and pertinent. Upon completion of field work, logbooks will be placed in the project files.*	*Project Manager, ABC Consultants*
Chains of custody	*COC forms will be reviewed against the samples packed in the specific cooler prior to shipment. The reviewer will initial the form. An original COC will be sent with the samples to the laboratory, while copies are retained for (1) the Sampling Trip Report and (2) the project files.*	*Daily: Sampling Team Leader, ABC Consultants* *Completion of Field Work: QA Officer, ABC Consultants*
Laboratory analytical data package	*Data packages will be reviewed/verified internally by the laboratory performing the work for completeness and technical accuracy prior to submittal.*	*Project Coordinator, XYZ Laboratory*
Laboratory analytical data package	*Data packages will be reviewed as to content and sample information upon receipt by the Environmental Consultant Project Manager and the Third-Party Data Validation Personnel.*	*Project Manager, ABC Consultants* *Data Validator, DVQ Company*
Final Sample Report	*The project data results will be compiled in a sample report for the project. Entries will be reviewed/verified against hardcopy information.*	*Project Manager, ABC Consultants*

[1]Step I – Completeness Check

Brownfields QAPP Template #14b
Project Data Validation Process (Steps IIa and IIb) [1]

Describe the processes that will be followed to validate project data. Describe how each item will be validated, what documentation is necessary and identify the person responsible. Below (in italics) are examples of such information. See Table 1 for additional examples of data elements.

Step IIa/IIb[1]	Validation Input	Description	Responsible for Validation (Name/Role, Organization)
IIa	*SOPs*	*Ensure that the sampling methods/ procedures outlined in QAPP were followed, and that any deviations were noted/approved.*	*Sampling Team Leader, ABC Consultants*
IIb	*SOPs*	*Determine potential impacts from noted/approved deviations, regarding to PQOs.*	*QA Officer, ABC Consultants*
IIa	*Chains of custody*	*Examine COC forms against QAPP and laboratory contract requirements (e.g., analytical methods, sample identification, etc.).*	*QA Officer, ABC Consultants*
IIa	*Laboratory data package*	*Examine packages against QAPP and laboratory contract requirements, and against COC forms (e.g., holding times, sample handling, analytical methods, sample identification, data qualifiers, QC samples, etc.).*	*Data Validator, DVQ Company*
IIb	*Laboratory data package*	*Determine potential impacts from noted/approved deviations, regarding to PQOs. Examples include PQLs and QC sample limits (precision/accuracy).*	*Data Validator, DVQ Company*
IIb	*Field QC Samples*	*Verify that all field QC samples were collected and analyzed as described in Template 10.*	*QA Officer, ABC Consultants*

[1]Step IIa – Compliance with Methods, Procedures, and Contracts

[1]Step IIb – Comparison with Performance Criteria in QAPP

Brownfields QAPP Template #14c
Project Matrix and Analytical Validation (Steps IIa and IIb) [1] Summary

Identify the matrices, analytical groups, and concentration levels that each entity performing validation will be responsible for, as well as the criteria that will be used to validate those data. Below (in italics) is an example of such information. See Table 1 for additional examples of data elements.

Step IIa/IIb[1]	Matrix	Analytical Group	Concentration Level	Validation Criteria	Data Validator (title and organizational affiliation)
IIa / IIb	*Aqueous*	*VOCs*	*Trace*	*Data Validation SOP for Organic Analysis of Trace Concentration VOCs (e.g., National Functional Guidelines for Data Review [NFGs] or Region 2 DV SOPs)*	*Data Validator, DVQ Company*
IIa / IIb	*Soil/Sediment*	*VOCs*	*Low*	*Data Validation SOP for Organic Analysis of Low Concentration VOCs (e.g., NFGs or Region 2 DV SOPs)*	*Data Validator, DVQ Company*

[1]Step IIa – Compliance with Methods, Procedures, and Contracts
[1]Step IIb – Comparison with Performance Criteria in QAPP

Brownfields QAPP Template #14d
Usability Assessment (Step III) [1]

Describe the procedures/methods/activities that will be used to determine whether data are of the right type, quality, and quantity to support environmental decision-making for the project. Describe how data quality issues will be addressed and how limitations on the use of the data will be handled.

Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used:
Review the sampling design for consistency with stated objectives. Assess deviations from planned activities (e.g., number and locations of samples, holding time exceedances, damaged samples, etc.) and determine potential impact on data usability.

Review data verification and data validation outputs. Perform basic calculations and summarize the data (using graphs, maps, tables, etc.). Look for patterns, trends, and anomalies (i.e., unexpected results). If verification and validation are not acceptable, then take corrective action (i.e., determine cause and potential data impact, evaluate the impact and document the rationale for selected corrective action such as resampling).

Describe the evaluative procedures used to assess overall measurement error associated with the project:
Determine if the QC data are within the performance criteria (i.e., precision, accuracy, etc) through validation process Step IIb (Validation Activities).

Identify the personnel responsible for performing the usability assessment:
Project Management Team –Consisting of the Environmental Consultant Project Manager; Data Validator Personnel; Brownfields Recipient Project Manager.

Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:
The Usability Report will describe the rationale for use of the data and the presentation of any data limitations. For example, if the performance criteria were not met and the data are not usable to address the regulatory requirements or support the project-decision for the Brownfields Recipient, then the report should address how this problem will be resolved and discuss the alternative approach.

[1]Step III – Usability Assessment

Table 1: Data Elements for Data Review Process				
Item	***Step I - Data Verification***	***Step IIa - Data Validation Compliance***	***Step IIb - Data Validation Comparison***	***Step III - Data Usability***
Planning Documents				
Evidence of approval of QAPP	X			Use outputs from previous steps
Identification of personnel	X			
Laboratory name	X			
Methods (sampling & analytical)	X	X	X	
Performance requirements (including QC criteria)	X	X		
Project quality objectives	X		X	
Reporting forms	X	X		
Sampling plans – locations, maps, grids, sample ID numbers	X	X		
Site identification	X			
SOPs (sampling & analytical)	X	X		
Staff training & certification	X			
List of project-specific analytes	X	X		
Sampling Documents				
Chain of custody	X	X		Use outputs from previous steps
Communication logs	X	X		
Corrective action reports	X	X	X	
Documentation of corrective action results	X	X	X	
Documentation of deviation from methods	X	X	X	
Documentation of internal QA review	X	X	X	
Electronic data deliverables	X	X		
Identification of QC samples	X	X	X	
Meteorological data from field (e.g., wind, temperature)	X	X	X	
Sampling instrument decontamination records	X	X		
Sampling instrument calibration logs	X	X		
Sampling location and plan	X	X	X	
Sampling notes, drilling logs, field forms	X	X	X	
Sampling report (from field team leader to project manager describing sampling activities)	X	X	X	

Table 1: Data Elements for Data Review Process				
Item	***Step I - Data Verification***	***Step IIa - Data Validation Compliance***	***Step IIb - Data Validation Comparison***	***Step III - Data Usability***
Analytical Data Package				
Case narrative	X	X	X	Use outputs from previous steps
Internal lab chain of custody	X	X		
Sample condition upon receipt, storage records	X	X		
Sample chronology (time of receipt, extraction/digestion, analysis)	X	X		
Identification of QC samples (sampling/lab)	X	X		
Communication logs	X	X		
Copies of lab notebooks, records, prep sheets	X	X		
Corrective action reports	X	X		
Definition of laboratory qualifiers	X	X	X	
Documentation of corrective action results	X	X	X	
Documentation of individual QC results (e.g., spike, duplicate, LCS)	X	X	X	
Documentation of laboratory method deviations	X	X	X	
Electronic data deliverables	X	X		
Instrument calibration reports	X	X	X	
Laboratory name	X	X		
Laboratory sample identification nos.	X	X		
QC sample raw data	X	X	X	
QC summary report	X	X	X	
Raw data	X	X	X	
Reporting forms, completed with actual results	X	X	X	
Signatures for laboratory sign-off (e.g., laboratory QA manager)	X	X		
Standards traceability records (to trace standard source from NIST, for example)	X	X	X	
External Reports				
External audit report (If applicable)	X	X	X	Use outputs from
Laboratory assessment	X	X		
Laboratory QA plan	X	X		

Table 1: Data Elements for Data Review Process				
Item	***Step I - Data Verification***	***Step IIa - Data Validation Compliance***	***Step IIb - Data Validation Comparison***	***Step III - Data Usability***
NELAP accreditation	X	X		previous steps