US EPA REGION 1
QUALITY PROGRAM

EPA Region 1
Brownfields Program
Quality Assurance Project Plan Guidance

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Document Revision

Date	Revision #	Summary of Changes	Applicable Sections
6/18/2025	0	N/A	N/A

Contents

Acronyms and Abbreviations

ABCA	Analysis of Brownfields Cleanup Alternatives
CAM	Compendium of Analytical Methods
CAR	Cooperative Agreement Recipient
EPA	Environmental Protection Agency
LEP	Licensed Environmental Professional
LSP	Licensed Site Professional
PCB	Polychlorinated Biphenyls
PE	Professional Engineer
PM	Project Manager
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QEP	Qualified Environmental Professional
RCP	Reasonable Confidence Protocols
RLF	Revolving Loan Funds
RFA	Request for Assistance
SOP	Standard Operating Procedure
SSQAPP	Site-Specific QAPP
SVOC	Semi-Volatile Organic Compounds
VOC	Volatile Organic Compounds

1. Introduction

All Environmental Protection Agency and non-EPA organizations performing environmental information operations on behalf of the EPA including, but not limited to, Cooperative Agreement Recipients and Qualified Environmental Professionals, are required to participate in the EPA Agency-wide Quality Program. To ensure that the Agency's environmental decisions are supported by information of known and documented quality, all work performed by or on behalf of the EPA involving environmental information operations must be implemented in accordance with an EPA-approved Quality Assurance Project Plan before site work begins. Environmental data collection is a subset of environmental information operations. A QAPP captures the systematic planning process for ensuring projects collect data of known and documented quality; it documents how and why a project will be conducted. For QAPP requirements see the EPA QAPP Standard (CIO 2105-S-02) and for general QAPP guidance refer to the EPA Region 1 Quality Assurance Project Plan (QAPP) Program Guidance.

Since 2009, the EPA Region 1 Brownfields QAPP Program has been designed to help guide and streamline the QAPP development process for Brownfields projects that collect and evaluate environmental data as part of a site assessment or cleanup. This guidance document replaces the March 2009 *EPA-New England, Region 1 Planning and Brownfields Projects Generic Quality Assurance Project Plans, and Site-specific QAPP Addenda* guidance document. Brownfields grants requiring the use of QAPPs include Assessment, Multipurpose, Cleanup, and Revolving Loan Funds. Refer to Section 2 for specific grant process overviews.

The EPA Region 1 Brownfields QAPP Program uses a two-document approach to meet the EPA QAPP requirements. The two documents are used together when planning projects. **This document outlines the information to be included in the two documents – the Generic QAPP and the site-specific QAPP Addendum.**

- The **Generic QAPP** can be generated independent of EPA funding and consists of the routine processes and procedures that will be used by a QEP in performing Brownfields projects; it sets the foundation for all site-specific addenda. A Generic QAPP can be designed to operate in a single state or multiple states and must include the relevant state rules and regulations that will apply to site work for each state. Generic QAPPs include QEP field data collection method standard operating procedures that may be used for SSQAPP Addenda. Generic QAPPs can also include Quality Assurance/Quality Control information and SOPs from one or more laboratories or subcontractors frequently used for site work. Generic QAPPs are valid for five years from the approval date and are reviewed annually by the QEP and updated as appropriate. Annual updates must include copies of any new or updated SOPs. Annual QAPP reviews must be documented and available to the EPA regional quality assurance manager if requested. After the five-year approval window, the Generic QAPP must be revised, updated and resubmitted to the EPA for approval.

- **Site-specific QAPP Addenda** are detailed project plans for the site assessment, reuse and redevelopment planning, or cleanup work to be performed at a specific site. SSQAPP Addenda must reference the Generic QAPP and must be approved by the EPA prior to the start of site work. Any missing information or content issues in an approved Generic QAPP identified during the SSQAPP Addendum review must be addressed prior to SSQAPP Addendum approval. The SSQAPP Addendum provides the current conceptual site model for how contamination may be acting at the site and in the environment and provides the roadmap for a comprehensive sampling design. QAPP Addenda should reference the most recent versions of SOPs. If SOPs have been revised since the last Generic QAPP update, then copies of the relevant updated SOPs must be provided with the SSQAPP Addendum. The QEP should develop a sequential number system for SSQAPP Addenda to retain the context and flow of site planning, investigation or cleanup.

2. Brownfields Grant Process

The activities and sequence of Brownfields projects depend on the type of grant and the project goals and objectives. For all EPA grants that fund environmental data collection or evaluation, QAPPs play an important role in defining the tasks to be completed, outlining how the tasks will be done and describing how the results will be evaluated to determine if the project objectives were met.

For an assessment grant, the QAPP plays a significant role in evaluating or delineating the extent of contamination on a site to support the cleanup planning, the actual cleanup and redevelopment or reuse goals for the site or site closure per state regulations.

For a cleanup project on a Brownfields property, the QAPP shares its role with the comprehensive remediation plan for cleanup and redevelopment of the site. Most cleanup plans, including cleanup under Multipurpose and RLF grants, incorporate some form of environmental data collection that requires a Generic QAPP and subsequent SSQAPP Addendum. Cleanup planning, even during the assessment process, also requires the preparation of an Analysis of Brownfields Cleanup Alternatives. QEPs will need to evaluate how the data collected during the assessment phase will incorporate the needs of climate resiliency or address severe weather implications during the cleanup planning phase and implementation.

QEPs should evaluate how to potentially incorporate the EPA Factsheet "*How to Incorporate Changing Climate Conditions in an Analysis of Brownfields Cleanup Alternatives (ABCA) to support Grant-funded Activities*" (September 2024) in both their Generic QAPP and SSQAPP Addenda. Where applicable, a SSQAPP Addendum may need to be updated based on site conditions to support cleanup planning.

The following summarizes the general processes for Brownfields grants as related to QAPPs, though these may vary slightly depending on the needs of the project:

Assessment and Multipurpose Grants:

- QEP Contract signed with CAR.
- If not already in place, QEP prepares Generic QAPP and submits to the EPA for approval.
- Inventory and select potential Brownfields site(s) that meet program goals.
- Work with the EPA to determine site eligibility, or with the state for petroleum sites.
- QEP prepares a Phase I Environmental Site Assessment in accordance with the EPA's All Appropriate Inquiry rule, the ASTM E1527-21 Environmental Site Assessment Standard or the standard applicable at the time.
- QEP prepares SSQAPP Addendum to assess the extent of contamination on the site to support the Phase II investigation. Additional sampling may be required to delineate the extent of contamination and requires preparation and submittal of a subsequent addendum. The goal is to obtain sufficient environmental data to initiate cleanup planning and the proposed reuse/redevelopment as applicable.
- Evaluate cleanup options for the property and prepare appropriate state-required cleanup plans considering potential vulnerability of the cleanup to extreme weather as needed to address site-specific risks or as required by states. Cleanup planning should establish the reuse and redevelopment plans for the property including where buildings, pavement and open space will be established on the site.
- Repeat the process for additional Brownfields properties.

Cleanup and RLF Grants:

- QEP Contract signed with CAR.
- Enter the site(s) into the state's voluntary cleanup program.
- Prepare a Community Relations Plan for the project(s).
- QEP prepares an Analysis of Brownfields Cleanup Alternatives report to select a cleanup approach for the site. ABCA may include a draft and final report.
- QEP prepares the state-required remedial action plan(s).
- Hold a public meeting to review the cleanup alternatives and remediation plan for the site to seek input and comments, as applicable.
- QEP submits an EPA-approved Generic QAPP and prepares a SSQAPP Addendum for cleanup. The cleanup alternatives and SSQAPP Addendum may be combined with the remediation plan to streamline the documentation required for site cleanup.
- QEP finalizes the remediation plan.
- Submit the cleanup budget(s) for EPA approval.
- Coordinate with the contractor firm to conduct the cleanup according to the plans.
- QEP prepares final report(s) and closeout documentation supporting the cleanup and provides to the state for approval prior to finalization as applicable.

3. QAPP Contents

The EPA Region 1 Brownfields Program has developed the format in Table 3.1 for Generic and site-specific QAPPs to meet the requirements of the QAPP Standard.

Table 3.1: Region 1 Brownfields Program template.

Group	**Section**
Project Management	Section A: Title and Approval Page/ Introduction
	Section B: Project Organization
	Section C: Problem Definition
	Section D: Project Description/Timeline
Measurement Data Acquisition	Section E: Sampling Design & Site Figures
	Section F: Sampling & Analytical Method Requirements
	Section G: Methods & SOP Reference Table
	Section H: Field Equipment Calibration & Corrective Action
	Section I: Lab Equipment Calibration & Corrective Action
	Section J: Sample Custody & Handling Requirements
	Section K: Analytical Sensitivity & Project Criteria
	Section L: Field Quality Control Requirements
	Section M: Laboratory Quality Control Requirements
	Section N: Data Management & Documentation
Assessment/Oversight	Section O: Assessments & Response Actions
	Section P: Project Reports
Data Evaluation	Section Q: Field Data Evaluation
	Section R: Laboratory Data Evaluation
	Section S: Data Usability & Project Evaluation

For details on the content of each section see Appendix A. Appendix B contains example tables for specific sections.

QAPP documents should be submitted at least 60 days from the planned start of field work and must be approved prior to the start of environmental information operations (e.g., field work). See Section 5. QAPP Review and Approval for details on the review and approval process.

What makes a "good" QAPP?

While the specifics in a QAPP vary by project, there are key factors that improve the quality of a QAPP submission. Addressing these key factors can increase the efficiency of the EPA QAPP review and ultimately get a QAPP to approval more quickly.

Table 3.2: Considerations to improve the quality of a QAPP.

	Generic QAPP	**SSQAPP Addendum**
Accuracy	✓ A thorough internal review is conducted prior to submitting to the EPA ✓ SOPs are up-to-date	✓ A thorough internal review is conducted prior to submitting to the EPA ✓ Ensure the work is consistent with the RECs in the Phase I ESA
Completeness	✓ Be comprehensive in the SOPs you include. The following field SOPs are suggested at a minimum: ○ Low-Flow Groundwater Sampling ○ Indoor Air ○ Soil Vapor ○ Hazardous Building Material Surveys ○ Soil Sampling ○ Monitoring Well Installation ○ PFAS Sampling ○ Equipment Decontamination ○ Sample Handling ○ Field Instrument Calibration ✓ The following lab SOPs are suggested at a minimum: ○ Method 8270 SVOCs ○ Method 8260 VOCs ○ Petroleum Hydrocarbon Methods ○ Method 8082 PCBs ○ Methods 6010/6020 Metals ○ Methods 7470/7471 Mercury ○ Method 7196 Hexavalent Chromium ○ Method 1010 Flashpoint ○ Method 9045 Solid and Waste pH ○ Method 1311 TCLP ○ Method 600 Asbestos ○ Methods 1633/537.1/533 PFAS ○ Method 8151 Herbicides ○ Method 8081 Pesticides ✓ Ensure tables include all provided SOPs	✓ Provide any new or updated SOPs that were not included in the Generic QAPP or a Generic QAPP update Provide instrument manuals if they will be used for calibration but were not previously provided.
Detail	✓ Address state-specific requirements for all states the QAPP applies to	✓ Provide enough detail to describe the project, including explicitly stating any RECs that will not be addressed. ✓ Writing is clear and concise
Consistency	✓ Ensure all text and tables agree	✓ Ensure all text, tables and figures agree (e.g., number of samples, matrices, analyses) ✓ Properly label and reference tables, figures and appendices

4. Project Organization and Responsibility

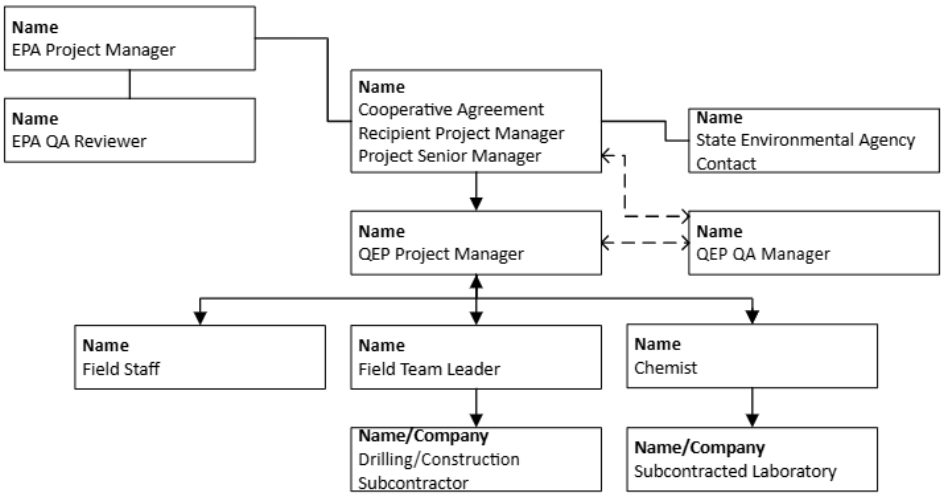


Figure 4.1 Typical Brownfields project organization. Note the direct line of communication from the project QA manager to the senior manager.

The QAPP Standard emphasizes three project organization roles that must be documented in a QAPP: the project operations manager, project QA manager and project senior manager. Individuals might not hold these titles in their organization. The individuals serving these roles fulfill the following duties on a Brownfields project:

- The senior manager has overall authority for the project or grant.
- The operations manager or project manager is responsible for the project's environmental tasks.
- The project QA manager is responsible for overall QA for the project, such as oversight and assessing compliance or effectiveness of the QAPP. The project QA manager is independent of environmental information operations and has the authority to report independently to the senior manager if necessary.

The state and the EPA also have distinct roles in a Brownfields project:

- The state environmental agency has the lead regulatory role in any Brownfields site investigation or cleanup. The site assessment and cleanup must conform to the state's procedures and meet all their appropriate rules and regulations.
    - In Massachusetts a privatized program has been established where the Massachusetts Licensed Site Professional, licensed by the Board of Registration of Hazardous Waste Site Cleanup Professionals, renders waste site cleanup opinions. If contamination above applicable state standards has been identified, an LSP is utilized to manage the assessment and cleanup of the site and meet regulatory closure.
    - Connecticut has a similar privatized program where a Licensed Environmental Professional, also licensed by the state, renders cleanup and assessment opinions.

- The EPA PM oversees and monitors the grant. The EPA PM must ensure grant processes are followed and the terms and conditions of the grant are met. If the sequence for conducting site assessments or site cleanups is overstepped, not followed or performed without proper and applicable approval, there is a serious risk that costs could be considered ineligible.
- The EPA QA reviewer reviews the Generic QAPP and SSQAPP Addenda against Agency requirements. The QA reviewer may also provide technical assistance to the EPA PM.

Project Team Communication

Communication is critical to the success of a project. The effective use of meetings, calls and email will play an important role in communicating, planning and disseminating information on a project.

The EPA recommends email for project communication. The EPA maintains email correspondence for a period of 10 years; therefore, communications should be concise and direct. Emails should include the complete project team on site activities. The project team includes the EPA PM, the CAR, and the QEP; it may also include a state environmental agency contact.

Specifically, project team email correspondence should include the following:

- Subject Line – SSQAPP QA tracking number, Site Name, State.
- Site name, location, address, Brownfields Grant Tracking Number.
- Identify the QEP, the CAR, the EPA PM, others as applicable.
- State the question, issue, conflict, request to be considered by the project team.
- Identify the potential resolution and seek opinions and clarification as necessary.

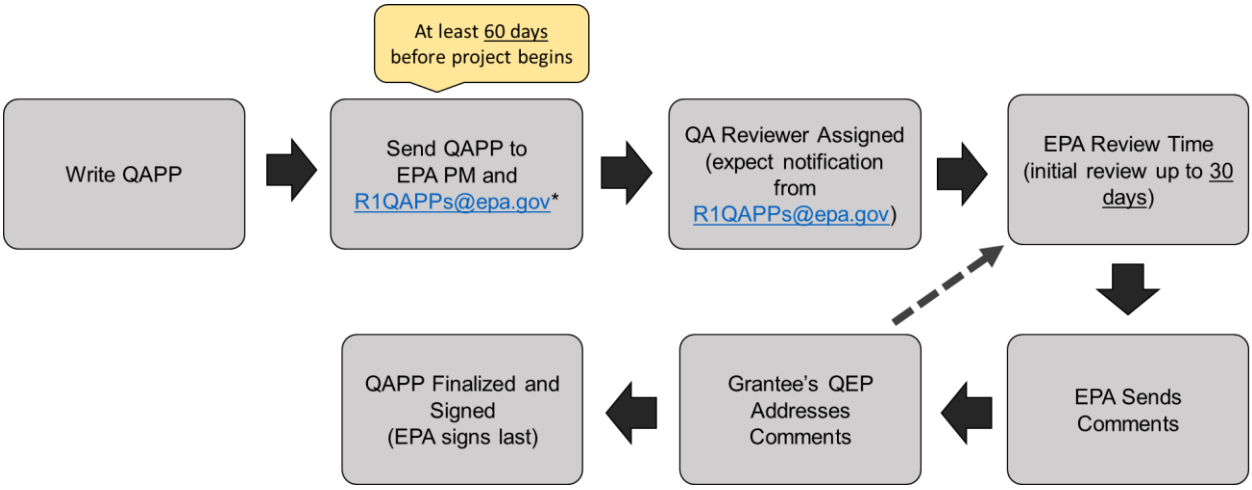
All outputs generated with grant funds are to be distributed to the project team. The CAR and their QEP should work with the EPA PM and state project manager to understand the documents and records that need to be maintained and distributed under the grant.

5. QAPP Review and Approval

All Generic QAPPs are sent to the EPA Region 1 QA Branch general inbox, R1QAPPs@epa.gov, and the EPA Brownfields QA Lead for review. All SSQAPP Addenda are sent to the EPA Region 1 QA Branch general inbox, R1QAPPs@epa.gov, and the EPA PM for review. **Copy the EPA PM on all emails to the EPA QA Branch.** The QA Branch manager assigns an EPA QA reviewer. The assigned QA reviewer is the QA Branch contact for that Generic QAPP or SSQAPP Addendum reviewing all revisions until the document is finalized. The process of QAPP review and approval is depicted in Figure 5.1.

Importantly, certain states also review and approve Generic QAPPs and SSQAPP Addenda for work conducted in their state. The QEP can contact the EPA QA Branch or the applicable state Brownfields contact(s) for questions regarding state review and approval. **The QEP is responsible for ensuring the state(s) receive copies of EPA-approved Generic QAPPs and SSQAPP Addenda as applicable.**

The QA reviewer will assign a five-digit QA tracking number, formerly Request for Assistance or RFA number, to the Generic QAPP. The QA tracking number will be added to the title page of the Generic QAPP by the QAPP writer before it is finalized. Site-specific QAPP Addenda will have the same QA tracking number as the Generic QAPP. The QEP should establish a numbering or naming system to identify each SSQAPP Addendum (e.g., QA#25001 A1).



*When applicable, also submit the QAPP to the applicable state(s) for review.

Figure 5.1. The EPA Region 1 QAPP review and approval process.

In certain extenuating circumstances an expedited review (i.e., <30 days) may be desired. All requests for an expedited review must be submitted through the EPA PM, not the Quality Assurance Branch or the QA Reviewer. Expedited reviews must be requested for a justifiable reason and cannot be guaranteed. Otherwise, allow 30 days for initial EPA review; however, up to 60 days may be required to address revisions prior to approval.
No on-site work can begin without an EPA-approved Generic QAPP and an EPA-approved SSQAPP Addendum.

Electronic signatures are encouraged for approval of the Generic QAPP and SSQAPP Addenda. Once the document is ready for approval, the finalized document or signature page is circulated. All non-EPA signatures are collected first. Then the EPA QA reviewer and the EPA PM sign; the EPA PM signs last. Following QAPP approval, the Generic QAPP or SSQAPP Addendum must be distributed to the project team. Similarly, any QAPP updates must be distributed to the project team. The individual responsible for QAPP distribution will be indicated in the Generic QAPP or SSQAPP Addendum.

QAPP Modifications

When a Generic QAPP or SSQAPP Addendum needs to be modified to reflect changes to project objectives, data quality objectives, sampling design or methods, assessment or data review procedures the QAPP must be amended. The amendment must be reviewed and approved by the EPA PM and the QA reviewer that originally approved the Generic QAPP or SSQAPP Addendum. The amendment must contain a title and approval page with updated dates and signatures. Amendments must be approved before changes are implemented.

Verbal or email approval of modifications may be obtained to expedite project work. Descriptions of modifications and verbal approvals must be documented in email or memoranda which are retained in the project file. The modification must also be documented in an amendment to the QAPP and submitted to the EPA on a mutually agreed date for formal signature approval.

When minor changes are needed, formal approval is not required. The following are examples of minor changes:

- Staffing or sampling subcontractor updates
- Schedule changes
- Addition of sampling locations with the same matrix, analytical suite and sampling methods
- Providing revised SOPs

Examples of changes that are not minor and would require an amendment with formal approval include:

- Switching laboratories
- Addressing an additional recognized environmental condition
- Sampling a new matrix
- Expanding the analytical suite. For example, adding waste characterization.
- Expanding the investigation off-site

Notify the EPA Region 1 PM and QA reviewer by email or memorandum of all changes and the corresponding page(s) or section(s) of the QAPP. Note, the EPA PM and QA reviewer must agree that the modifications constitute a minor change.

Annual Review and Five-year Period of Applicability

Generic QAPPs must be reviewed annually to ensure they remain current and accurate. Documentation of the annual review and any revisions must be documented by the QEP and made available to the EPA upon request. Annual updates must include copies of any new or updated field and laboratory SOPs.

Generic QAPPs are valid for five years. After the five-year approval window Generic QAPPs must be reviewed, revised as necessary and resubmitted for EPA review and approval.

Appendix A

Table A1. Generic QAPP and site-specific QAPP Addendum contents.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	Project Management	
Section A: Title and Approval Page, Introduction, Table of Contents (Elements A1-A3)	Title and Approval Page includes: ✓ Title, must include "Generic QAPP" and the state(s) the Generic QAPP applies to. For example, "[QEP] Generic QAPP for Maine and New Hampshire"; ✓ The EPA QA tracking number (QA#); ✓ Plan date and revision number; ✓ Prepared for and prepared by; and ✓ Signature lines for approving officials. Introduction: ✓ State the document was prepared in accordance with the EPA Region 1 Brownfields Program; ✓ Identify the state(s) the Generic QAPP applies to, state guidance documents, rules and regulations, state standards and criteria that data are evaluated against; ✓ State commitment to maintain document with annual updates, modifications and additions as necessary; ✓ State the Generic QAPP has a five-year period of applicability; and ✓ State commitment and understanding of site-specific QAPP Addendum program, including: • Addendum approval prior to conducting site work, • Project work done in accordance with processes described in the Generic QAPP, • Addenda will include any relevant modifications or additions to the Generic QAPP. Table of Contents	Title and Approval Page includes: ✓ Project title; ✓ The EPA QA tracking number (QA#) of the associated Generic QAPP ✓ Addendum sequence number (recommended); ✓ The EPA Brownfields Grant Number; ✓ Plan date and revision number; ✓ Prepared for and prepared by information; and ✓ Signature lines for approving officials. Introduction: ✓ Identify CAR and type of grant; ✓ State document was prepared in accordance with the EPA Region 1 Brownfields Program. ✓ Identify the Addendum's association with the approved Generic QAPP, include Generic QAPP title, date and QA#; ✓ State work described in Addendum will be performed in accordance with processes described in the Generic QAPP; ✓ Include any other relevant information that sets the stage for the project; and ✓ Indicate that a QAPP Addendum amendment will be submitted if there are any significant changes to the project scope or activities (see Section 5). Table of Contents

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
Section B: Project Organization and Responsibility (Elements A7-A11)	Include: ✓ Organization chart that includes the EPA PM, EPA QA reviewer, QEP roles, including an operations manager and QA manager. Include a place holder for a senior manager for the grant who will be identified in the site-specific QAPP Addendum. Also include known subcontractors and place holders for remaining grant-specific personnel; ✓ Project QA manager must have an independent line of communication to the senior manager See also Section 4. Project Organization.	Include: ✓ Updated site/project-specific organization chart that includes the names, titles, organizations and contact information for key project individuals.
Section C: Problem Definition (Element A4)	✓ State that a project's problem definition will be provided in a site-specific QAPP Addendum.	Include: ✓ Detailed description of the site history and environmental problem. For follow-up work on an on-going site the section need only describe 1) what happened in the previous investigation that caused the need for additional work; 2) clear explanation of the problem(s) to be solved, decisions to be made or outcomes to be achieved. ✓ Background information: • Identify a current AAI-compliant Phase I ESA. • Identify the current property owner and proposed future reuse/development plans for the property. • Describe pertinent historical and current uses of the property and any adjacent properties that may impact the site. Include known or likely chemicals/ contaminants of concern. Identify specific primary contaminants of concern and indicate where any known contamination is present and its magnitude. • Present the current understanding of the conceptual site model for the project:

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
		○ How contamination may be acting in the environment ○ Property size ○ Pertinent site hydrology and geology, including groundwater flow direction, depth to groundwater, depth to bedrock, soil characterization, etc. ○ Reference any documents or reports used in developing the conceptual site model. ○ Provide a topographic map of the area around the site and a site map showing significant structures, terrain, previous sampling locations, inferred groundwater flow direction and relevant summary data to illustrate the problem. ✓ The limits of the investigation, including any recognized environmental conditions or areas of concern that will not be addressed. ✓ The problem(s) to be solved, decisions to be made and outcomes to be achieved.
Section D: Project Description, Project Timeline (Element A5, A6)	✓ State that a project's project description and timeline will be provided in a site-specific QAPP Addendum.	✓ Provide an outline of tasks to be performed and the principal use of the data obtained from each task. ✓ Identify the media and parameters to be sampled. ✓ Identify the field measurements, field analytical testing and off-site laboratory testing to be performed. ✓ Describe the data quality needs of the project at the decision level. ✓ Define data quality indicators and the performance or acceptance criteria that they will be measured against. These include precision, accuracy, representativeness and comparability.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
		• Distinguish between critical data that will drive decisions and non-critical data to be used for supporting purposes (e.g., completeness). • Cite the specific regulatory standards or criteria that data will be compared against. Ensure relevant protocols are addressed. For example, projects in CT must address the Reasonable Confidence Protocols or RCP and projects in MA must address the Compendium of Analytical Methods or CAM. ✓ Define conditions under which samples will be collected. ✓ Clearly communicate how project tasks relate to resolving problems/issues stated in Section C. ✓ Provide the projected timeline for key tasks including QAPP review and approval (60 days), field activities and sampling, laboratory results turnaround time and reporting
Measurement Data Acquisition		
Section E: Sampling Design and Site Figures (Elements B1, B2)	✓ State that a project's sampling design and site figures will be provided in a site-specific QAPP Addendum.	Provide the details and design elements for the sampling tasks to be performed. This section describes the logic and rationale behind the design of the sampling program. ✓ Specify the locations, number of samples and analytical parameters for each task, including test pits, soil borings, monitoring wells, groundwater and surface water sampling, etc. ✓ Indicate the minimum number of samples or analytical data points needed to meet project goals. • If analytical suite varies by sampling location or depth indicate which analyses will be run for each location. For an example table see Appendix B Table E.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
		✓ Provide the rationale for the sample locations including the purpose behind a set or series of samples in a particular area or location and how the sampling design addresses the whole site. • Indicate any back-up location rationale should the proposed sampling locations not be successfully installed. ✓ Discuss any project-specific communication or instructions that need to occur between the field contractor and the laboratory to address special methods, matrixes, samples, etc. ✓ If sampling locations, depths 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 and explain how the process will be documented and reported. ✓ Include detailed sampling maps that clarify and reflect the described design. Include a north arrow, symbols for sample types, inferred groundwater flow direction, etc.
Section F: Sampling and Analytical Methods Requirements (Element B2 & B6)	✓ Provide an example sampling and analytical methods requirements table. Include all pre-established analytical information and space holders for project specific information. Include: • Sample matrix, • Parameter, • Number of field samples, • Number and type of QC samples, • Sampling method reference number, • Preparation and analytical method reference, • Laboratory SOP reference numbers,	✓ Provide the project-specific sampling and analytical methods requirements table that reflects the described sampling design. Include: • Sample matrix, • Parameter, • Number of field samples, • Number and type of QC samples, • Sampling method reference number, • Preparation and analytical method reference, • Laboratory SOP reference numbers, • Field sampling SOP reference number(s),

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	• Field sampling SOP reference number(s), • Sample containers (number per sample, size, type), • Sample preservation requirements, • Maximum holding time requirements ✓ Describe how the quality of supplies and services is addressed and documented. Acceptance of supplies should be on items or traceable to items.	• Sample containers (number per sample, size, type), • Sample preservation requirements, • Maximum holding time requirements If a project includes investigation derived waste disposal, include relevant information about waste characterization in this section. For an example table see Appendix B Table F.
Section G: Method and SOP Reference Table (Element B2)	✓ Provide a reference table of field and laboratory SOPs that will be routinely used for projects. Use a reference numbering system. Include: • Field sampling SOP title, revision number and date • Analytical method references for sample preparation and analysis. Include title, method name and number, version number and date. • Laboratory SOP title, revision number, date and author (i.e., laboratory). Include SOPs for sample preparation and analysis. ○ Note: Align method references with state requirements. For example, CT requires most recent version of SW-846 methods. ✓ Provide copies of all field and laboratory SOPs as an appendix. The Generic QAPP can include SOPs from multiple laboratories. Annual updates to the Generic QAPP should include copies of any new or updated field and laboratory SOPs. ✓ Identify the person responsible for updating SOPs.	✓ Provide a reference table of field and laboratory SOPs relevant to this QAPP Addendum, include SOP title, revision number and date. SOP references must match those provided in the Generic QAPP. ✓ Identify any project-specific modifications made to a standard procedure. ✓ Provide any SOPs required for the project that were not included in the Generic QAPP. Ensure any other QAPP sections are updated as appropriate. • For SOPs not in the Generic QAPP but used for multiple projects provide a reference to which SSQAPP Addendum contains a copy of the SOPs. It is suggested to include a copy of those SOPs in the Generic QAPP annual update. For an example table see Appendix B Table G.
Section H: Field Equipment Calibration and Corrective Action (Element B5)	✓ Provide a field equipment calibration table for the various types of equipment routinely used on	✓ Identify field equipment required for the site-specific project and provide the associated calibration information.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	Brownfields projects. For initial calibration and calibration checks, include: • Frequency of calibrations and checks, when and how often • Standards and concentrations of standards used, • Acceptance criteria, • Corrective actions taken in the field when acceptance criteria are not met. Field SOPs can be referenced if the information is clearly contained in the SOP. Include a copy of equipment manuals if those are referenced for calibrations and corrective actions.	✓ Identify the person/role responsible for equipment calibration. ✓ Include a copy of equipment manuals if those referenced for calibrations and corrective actions and not included in the Generic QAPP. For an example table see Appendix B Table H.
Section I: Laboratory Equipment Calibration and Corrective Action (Element B5)	✓ Provide a laboratory equipment calibration table for the methods routinely used on Brownfields projects. For initial calibrations, independent calibration checks and continuing calibration checks include: • Number of calibration standards and calibration range, • Standard concentrations, • Frequency of calibrations and checks, • Acceptance criteria, • Corrective actions to be taken when acceptance criteria are not met. Laboratory SOPs can be referenced in the information is clearly contained in the SOP.	✓ Identify laboratory equipment required for the site-specific project and provide the associated calibration information. For an example table see Appendix B Table I.
Section J: Sample Handling and Custody Requirements (Element B3)	✓ Describe standard chain of custody procedures. If the process is described in an SOP, simply reference and include a copy of the SOP. ✓ Describe the routine sample documentation and transfer procedures.	✓ Indicate any site-specific project sample handling and custody requirements. • Ensure special requirements such as for PFAS or trace metals sampling are fully described

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	✓ Provide a copy of a chain of custody form, sample label and custody seal in this section or in an appendix. ✓ Include the process to ensure lab accreditation and certification for analyses.	
Section K: Analytical Sensitivity and Project Criteria (Element B2)	Providing analytical method sensitivity and project criteria tables is optional in the Generic QAPP and required in SSQAPP Addenda. If including the table in the Generic QAPP: ✓ Provide analytical and criteria information for analytical methods that will be routinely performed on Brownfields projects. Include: • The laboratory • Analytical method reference • Sample matrix • Analyte/compound list • Method Detection Limit (MDL) • Quantitation/Reporting Limit (QL/RL) • Relevant state/federal criteria or standard associated with each analyte and each matrix o Projects in CT address the RCP. o Projects in MA address the CAM. The EPA expects the reporting limit to be based on the low calibration standard and for the value to be less than the appropriate action limit. ✓ Include how data will be handled if the routine reporting limit is greater than the action limit. If the analyte is a primary contaminant of concern, an alternate method with a lower limit of detection should be used to verify the absence of the analyte.	✓ Clearly identify the laboratory or laboratories being used on the project. ✓ Provide analytical method sensitivity and project criteria tables for the analytical methods that will be used for the site-specific project. Only include criteria relevant to the project. • If the project includes investigation derived waste disposal, include reporting limits for waste characterization analyses. ✓ Include the statement: "The reporting limits and reference standards have been reviewed and are current and accurate as of the date of the site-specific QAPP Addendum." The EPA expects the reporting limit to be based on the low calibration standard and for the value to be less than the appropriate action limit. **Flag instances where the reporting limit is greater than the action limit.** ✓ Include how data will be handled if the routine reporting limit is greater than the action limit. If the analyte is a primary contaminant of concern, an alternate method with a lower limit of detection should be used to verify the absence of the analyte. ✓ Ensure the appropriate units are specified and that method and project criteria units are the same. For an example table see Appendix B Table K.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	✓ Ensure the appropriate units are specified and that method and project criteria units are the same.	
Section L: Field Quality Control Requirements (Element B4)	✓ Describe the field QC program that will be routinely performed on Brownfields projects. For each matrix, provide: • Each type of field QC sample • Frequency of QC samples • Acceptance criteria • Actions to be taken when acceptance criteria are exceeded. ✓ For field duplicate soil samples document if they are being collected as collocated or split samples. ✓ Include any state-required matrix spike samples in this table.	✓ Indicate the specific field QC elements for the project. For each matrix provide: • Each type of field QC sample • Frequency of QC samples • Acceptance criteria • Actions to be taken when acceptance criteria are exceeded. For an example table see Appendix B Table L.
Section M: Laboratory Quality Control Requirements (Element B4)	✓ Provide a laboratory analytical QC table for the QC data to be routinely included with the laboratory's data package. Present the information by parameter and matrix as appropriate based on the information provided by the laboratory. Include: • Each type of laboratory QC sample • Frequency of QC samples • Acceptance criteria • Actions to be taken when acceptance criteria are exceeded. Typically, Brownfields projects will include the following laboratory QC samples: • Organic analyses: method blanks, surrogate data and lab control samples and lab control sample duplicates • Inorganic analyses: method blanks, lab control samples	✓ Indicate the site-specific project laboratory quality control requirements. For an example table see Appendix B Table M.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	Method blanks and laboratory control samples are QC samples that are brought through the identical extraction and analysis procedures as the field samples. ✓ Include any state-specific laboratory QA/QC requirements.	
Section N: Data Management and Documentation (Elements A12, B7)	✓ Describe the documentation that will be generated and the data management procedures that will be used for the project. Specify what documentation goes into the project file and what will be provided in the final report. <u>Field Documents and Records:</u> For each type of document and record routinely generated, including field notes, field screening and analytical data, boring logs, photographs, etc.): • Describe the collection and organization process and the relevant data reduction steps that are routinely performed. Include the procedure for taking daily field notes if not provided as an SOP. • Describe any QA checks that will be performed such as for completeness, consistency, accuracy). • Provide copies of all field forms that will be routinely used in an appendix. <u>Laboratory Documents and Records:</u> Specify the contents of routine laboratory data packages. The following minimum deliverable is recommended: • Project narrative that contains an explanation of any qualified data and any observations or deviations encountered during analysis	Requesting complete data packages at the time the work is performed should be considered if the ability to perform an in-depth evaluation of the data is desired or if cost recovery or data defensibility is anticipated in the future. ✓ Describe the purpose of any full data packages deemed appropriate. Specify the contents of what is being required in the deliverable. Full data packages include project narrative, data results sheets, laboratory QC package, plus recalculation checks, recalculation of toxic equivalents and review of instrument outputs.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	• Data results sheets including preparation and analysis dates, percent solids for soil or sediment samples, sample concentrations, units, reporting limits, etc. • Laboratory QC package: method blanks, surrogates, laboratory control samples, MS/MSDs if requested. Individual states may have specific QA/QC program requirements, these take precedence and must be reflected in this section. <u>Post Laboratory Data Manipulation:</u> Describe the routine data entry/manipulation process for further evaluation and reporting, include: • Relevant QC data that are manipulated for presentation • Descriptions of checks that will be performed to detect and correct errors and to prevent loss of data during data reduction, data reporting and data entry into forms, reports, or databases • Identify applicable software routinely used in data manipulation. <u>Project File</u>: Specify how long the project file will be maintained and stored and its final disposition.	
Assessment and Oversight		
Section O: Assessments and Response Actions (Element C1)	✓ Describe the assessment and oversight plan that will be routinely followed with each project include: • Types of assessments and oversight • Frequency • The person responsible for assessments and oversight and where results will be documented. The person responsible must be free of conflicts of interest.	✓ Describe any site-specific project assessment or oversight activities not included in the Generic QAPP.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	• People who will receive assessment and oversight reports. Indicate if reports are written or verbal. • Who will be responsible for corrective actions and follow up on assessment and oversight • Indicate the timeframe for responding to corrective actions • Indicate how corrective actions will be developed and tracked Typically, assessment plans include 1) oversight of the field team and subcontractors by an experienced field leader; 2) peer review of the final report. ✓ State that when additional assessment or oversight is planned for a project the scope and purpose will be described in the site-specific QAPP Addendum.	
Section P: Project Reports (Element C2)	✓ Identify the types of written and verbal reports that will routinely be provided include: • Type of report • Frequency • Positions of the person(s) responsible for preparing the reports • Identify the organizations that will receive reports, including the EPA PM. ✓ Provide a fairly detailed description of the contents, including primary components of the main body of the document, routine tables and graphics and appendices that will be included in final project reports.	✓ Indicate the reports that apply to the site-specific project. Describe any project-specific reports not described in the Generic QAPP. For an example table see Appendix B Table P.
Data Evaluation		
Section Q: Field Data Evaluation (Element D1)	✓ Describe the final data evaluation process that will be routinely performed on field data. For each component of field data evaluation:	✓ Describe any site-specific project field data evaluation activities not included in the Generic QAPP.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	• Indicate how results will be documented and presented in the final report • Indicate who will perform the evaluation	
Section R: Laboratory Data Evaluation (Element D1)	✓ Describe the final data evaluation process that will be routinely performed on laboratory data. Basic steps include: • Completeness check of the laboratory data package to ensure it is compliant with QAPP requirements. • Review chain-of-custody, sample preservation and holding time results • Evaluate field QC sample results • Evaluate laboratory QC results For each component of the laboratory data evaluation: • Indicate how results will be documented and what will be presented in the final report. • Indicate who will perform the evaluation.	✓ Describe any site-specific project laboratory data evaluation activities not included in the Generic QAPP.
Section S: Data Usability and Project Evaluation (Element D2)	✓ Describe the overall project evaluation process that will be routinely performed to determine the nuances in the usability of the data, update the conceptual site model and determine if project objectives have been met. The basic steps include: • Tabulate field sample data with the state/federal standards. Highlight samples exceeding criteria. • Prepare site figures or maps and other graphical representations • Evaluate the usability of field sample results at the parameter level. Document any limitations on data use or interpretation. Draw on: o Sensitivity criteria in Section K o Results of field data evaluation (Section R)	✓ Describe any site-specific project data usability and project evaluation activities not included in the Generic QAPP.

SECTION (QAPP STANDARD ELEMENT)	GENERIC QAPP CONTENTS	SITE-SPECIFIC QAPP ADDENDUM CONTENTS **Note:** The Generic QAPP must be approved prior to approval of a SSQAPP Addendum.
	○ Results of laboratory data evaluation (Section Q) ○ Look for the following: ▪ Contaminants of concern where concentration is near the project criteria and reporting limits. Are there sufficient data to support a trend of real contamination? Are more data needed to support a decision? ▪ Heterogeneity of a particular matrix in field duplicate results. Variability can impact the usability of low-level results near project criteria. ▪ Sample results reported at elevated reporting limits due to sample dilution. Is data usability compromised because reporting limits are great than project criteria? Should the laboratory be contacted to determine the reason for dilution? Can cleanup and reanalysis be performed to salvage the data? ▪ Low flow groundwater quality data. Does turbidity data impact use of SVOC, PCB or metals data? Etc. • Document any observations, trends, anomalies or data gaps based on overall project evaluation. Evaluate how sample results have impacted the conceptual site model and whether project objectives were met. • Document conclusions and recommendations in the final report. ✓ Indicate who will perform the data usability and project evaluation.	

Appendix B. QAPP Table Templates

The following tables are examples. They can be adjusted to fit the project and are not required to be used. The table lettering refers to the QAPP section letter where the information would be included.

Table E. Example summary of sampling and analysis plan

Sampling Location	Sample ID	Depth	PCBs	Metals	VOCs
Location 1	L1-01	0-1 ft bgs	X	X	X
Location 1	L1-10	10- 15 ft bgs			X
Location 2	L2-01	0-1 ft bgs		X	
Location 3	L3-01	0-1 ft bgs		X	

Table F. Sampling and analytical methods requirements

Matrix	Parameter	# of Samples	QC Samples (# and type)	Field Sampling SOP	Analytical Method/ SOP (preparation and analysis)	Sample Container	Preservation	Holding Time

Table G. Methods and SOP reference table

SOP Reference ID	Reference Method	Title and version number	Date	Originating Organization

Attach SOPs listed in the same order as listed in the table.

Table H. Field equipment calibration and corrective action

Instrument/ Equipment	Activity*	SOP Reference	Frequency	Standards and concentrations used	Acceptance Criteria	Corrective Action
pH meter	Calibration	SOP 1	Daily	pH 4, pH 7 buffers	+/- 0.01	Recalibrate, replace

*Activity types may include calibration, calibration check, visual inspection

Table I. Laboratory equipment calibration and corrective action

Instrument/ Equipment	Activity	SOP Reference	Frequency	Standard concentrations	Calibration range	Acceptance Criteria	Corrective Action

Table K. Analytical sensitivity and project criteria

Analytical Laboratory	Analytical method	Sample matrix	Analyte	Method Detection Limit	Reporting Limit	Action Limit	Action limit Reference	Units

Flag instances where the reporting limit is greater than the action limit.

Table L. Field quality control sample summary

Matrix	Parameter	QC Sample Type	Frequency	Acceptance Criteria	Corrective Action

Table M. Laboratory quality control sample summary

Matrix	Parameter	QC Sample Type	Frequency	Acceptance Criteria	Corrective Action

Table P. Project reports

Type of Report	Frequency	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation	Report Recipients