**Appendix 1**

**Brownfields Site-Specific QAPP Templates**

**Brownfields QAPP Template #1**

**Title and Approval Page**

|  |
| --- |
| **Title:** Project Title/Property Name Quality Assurance Project Plan (QAPP) |
| **Project Name/Property Name**: [ ] |
| **Property/Site Location**: [ ] |
| **Revision Number: [ ]** |
| **Revision Date: [ ]**  **Brownfields Cooperative Agreement Number:\_\_\_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

|  |
| --- |
| [Name of Brownfields Recipient] |
| **Brownfields Recipient** |
| [Name of the Environmental Consultant/Firm] |
| **Preparer’s Name and Organizational Affiliation**  **Preparer’s Address, Telephone Number, and E-mail Address** |
| [Date] |
| **Preparation Date (Day/Month/Year)** |

|  |  |
| --- | --- |
| Brownfields Recipient Program Manager: |  |
|  | Signature |
| [Name of Brownfields Recipient Program Manager and Date] | |
| **Printed Name/Organization/Date** | |
| Environmental Consultant Quality Assurance Officer:  (QAO) |  |
|  | Signature |
| [Names of Environmental Consultant QAO and Date] | |
| **Printed Name/Organization/Date** | |
| EPA Region 2 Brownfields Project Officer: |  |
|  | Signature |
| [Name of EPA Region 2 Brownfields Project Officer and Date] | |
| **Printed Name/Organization/Date** | |

**Brownfields QAPP Template #2a**

**Project Organizational Chart**

Fill in all necessary information

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

**Brownfields QAPP Template #2b**

**Personnel Responsibilities**

| **Name** | **Title** | **Telephone Number** | **Organizational Affiliation** | **Responsibilities1** |
| --- | --- | --- | --- | --- |
| [ ] | Environmental Consultant Project Manager |  | Name of Environmental Consulting Firm |  |
| [ ] | Sampling Assistance(s) |  | Name of Environmental Consulting Firm |  |
| [ ] | Brownfields Recipient Program Manager |  | Name of Brownfields Recipient |  |
| [ ] | State Brownfields Contact |  | Name of State Environmental Agency |  |
| [ ] | EPA Brownfields Project Officer (BPO) |  | EPA Region 2 |  |
| [ ] | EPA Brownfields Quality Assurance Officer (QAO) |  | EPA Region 2 |  |
| [ ] | Environmental Laboratory Contact |  | Name of Environmental Laboratory |  |
| [ ] | Third Party Data Validator2 |  | Name of Third Party Data Validator |  |
|  |  |  |  |  |
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Fill in all necessary information

1Include resumes as an appendix to the Site-Specific QAPP

2Data validation to be performed by third party – independent to project (can be within Environmental Consulting firm or subcontracted to a data validation firm).

**Brownfields QAPP Template #3a**

**Problem Definition/Project Description**

**PROBLEM DEFINITION**

[Discuss the purpose or reason for this particular 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 and sampling locations and how they were chosen. Provide the rationale for selecting sample locations and matrices for each analytical group and concentration level. For example, Environmental Consultant [name of consultant] will collect approximately [number and type] of samples from [location]. The [type] samples will be analyzed by [name of laboratory]. Include a detailed map showing sampling locations. Discuss the Quality Assurance/Quality Control (QA/QC) samples to be collected; the sampling methods to be used along with the referenced sampling methods Standard Operating Procedures (SOPs). May refer to Template #6 for SOP information.

**Site History**

[Description of the site history, include contaminants of concern, environmental indicators, historic results and any actions at the site]

**PROJECT DECISION STATEMENTS (linking data results with possible actions)**

**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.**

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…..statement”]
5. [If necessary, additional “If….., then…..statement”]

Fill in all necessary information

**Brownfields QAPP Template #3b**

**Project Quality Objectives/Systematic Planning Process Statements**

Use this template to 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. Fill in all necessary information.

**Overall project objectives include:**

* [Explain objective of sampling event]
* [Contaminants and matrix of 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 in order 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. Refer to Template #12.]

**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?**

[All data will be reported…….]

**How will the data be archived?**

[Data will be archived in….]

**Brownfields QAPP Template #4**

**Project Schedule/Timeline**

List all project activities that will be performed during the course of 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, QAO and Hydrogeologist |  |  | 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 Package Received | Name of Environmental Consultant |  |  | 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 |  |

Fill in all necessary information

1Data validation to be performed by third party – independent to project (can be within Environmental Consulting firm or subcontracted to data validation firm).

**Brownfields QAPP Template #5a**

**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 templates if necessary. **Below (in italics) is an example of such information.**

| **Matrix** | **Sampling**  **Location(s)** | **Depth**  **(*units*)** | **Analytical Group1** | **No. of Samples (*identify field duplicates*)** | **Sampling SOP Reference** | **Rationale for Sampling Location** |
| --- | --- | --- | --- | --- | --- | --- |
| *Groundwater* | *EPA-2* | *16 ft* | *VOCs* | *1* | *EPA Low Flow Sampling SOP* | *Wells selected were chosen based on the direction of groundwater flow relative to the source.* |
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Fill in all necessary information

1Analytical Groups include: volatiles; semivolatiles; pesticides; PCBs, total metals; cyanide, etc.

**Brownfields QAPP Template #5b**

**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 the laboratory contact information. If applicable, identify the subcontractor laboratory and backup laboratory or organization that will be used if the primary laboratory or organization cannot be used. **Below (in italics) is an example of such information.**

| **Matrix** | **Analytical**  **Group** | **Concentration**  **Level1** | **Analytical & Preparation Method/**  **SOP Reference** | **Sample**  **Volume** | **Containers**  **(*number, size, type*)** | **Preservation**  **Requirements (*chemical, temperature, light protected)*** | **Maximum Holding Time (*preparation/ analysis)*** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Groundwater* | *VOCs* | *Low* | *SW-846 Method 8260* | *120 ml* | *(3) 40 ml VOA vials w/Teflon lined septum* | *1:1 HCl to pH<2; cool to 4°C* | *10 days* |
|  |  |  |  |  |  |  |  |
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Fill in all necessary information

1Concentration Level refers to Trace; Low; Medium; High of the sample.

**Brownfields QAPP Template #5c**

**Reference Limits and Evaluation Table**

Complete 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. **Below (in italics) is an example of such information.**

|  |  |
| --- | --- |
| **Matrix** *Aqueous* | |
| **Analytical Group** *VOCs* | |
| **Concentration Level** *Low* | |
| **Analyte** | **CAS Number** | | **Name of State/Territory/Tribal: Regulatory Standards/Criteria** | **Analytical Method/Method Detection Limit** | **Achievable Laboratory Method Detection Limit/ Reporting Limit** |
| *Vinyl Chloride* | *75-01-4* | | *NJDEP Ground Water Quality Standards (GWQS)/1ug/L* | *SW-846 Method 8260B/5.0 ug/L* | *1.50 ug/L/5.0ug/L* |
|  |  | |  |  |  |
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Fill in all necessary information

**Brownfields QAPP Template #5d**

**Analytical Laboratory Sensitivity and Project Criteria**

Complete this template 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) associated with sample and/or analysis. **Below (in italics) is an example of such information.**

|  |  |
| --- | --- |
| **Matrix** *Aqueous* | |
| **Analytical Group** *VOCs* | |
| **Concentration Level** *Low* | |
| **Analytical Method/SOP** | **Data Quality Indicators**1 | | **Performance Criteria (related to analytical method)** | **QC Sample such as Duplicate, Matrix Spike, Surrogates etc.) Used To Assess Performance Criteria** | **QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)** |
| *EPA Method 624* | *Precision*  *Accuracy* | | *% RPD < 20*  *Average Recovery 70-130%* | *LCS Duplicate*  *Field Duplicate* | *S&A* |
|  | *Accuracy* | | *Factor of two(-50% to + 100%) from the initial/continuing calibration* | *Internal standards* | *A* |
|  | *Accuracy* | | *Compound Specific*  *(full range: 17-259%)* | *Matrix spike* | *A* |
|  | *Accuracy* | | *Limits 70%-130%* | *Surrogate Compounds* | *A* |
|  | *Accuracy* | | *< Reporting Limit* | *Method Blank* | *A* |

Fill in all necessary information

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

|  |  |
| --- | --- |
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**Brownfields QAPP Template #5e**

**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. **Below (in italics) is an example of such information.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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 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* |

Fill in all necessary information

**Brownfields QAPP Template #6**

**Project Specific Method and Standard Operating Procedures (SOPs) Reference Table**

List all field sampling 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 which can be provided on CD-ROM.

|  |
| --- |
| ANALYTICAL METHOD REFERENCE  (*Include document title, method name/number, revision number, date)* |
| 1a. |
| 2a. |
| 3a. |
| 4a. |
|  |
| ANALYTICAL LABORATORY SOPs  (*Include document title, date, revision number, and originators name)* |
| 1b. |
| 2b. |
| 3b. |
| 4b. |
|  |
| FIELD SAMPLING SOPs 1  (*Include document title, date, revision number, and originators name)* |
| 1c. |
| 2c. |
| 3c. |
| 4c. |
| 1 Project Sampling SOPs include sample collection, sample preservation, equipment decontamination, preventive maintenance, etc. |

**Brownfields QAPP Template #7**

**Field Equipment Calibration, Maintenance, Testing, and Inspection**

Identify all equipment and instruments (other than analytical instrumentation) that require calibration, maintenance, testing 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. Below (in italics) is an example of such information.

| **Field Equipment** | **Calibration Activity** | **Maintenance Activity** | **Testing/ Inspection Activity** | **Frequency** | **Acceptance Criteria** | | **Corrective Action** | **SOP Reference** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *YSI or equivalent* | *Calibrate with standard solutions* | *NA* | *NA* | *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* |
|  |  |  |  |  |  | |  |  |
|  |  |  |  |  |  | |  |  |

Fill in all necessary information

**Brownfields QAPP Template #8**

**Analytical Laboratory Instrument and Equipment Maintenance, Testing, and Inspection**

Identify all analytical instrumentation that requires maintenance, testing or inspection and provide the SOP reference for each. Document the frequency, acceptance criteria and corrective action requirements on the template. **Below (in italics) is an example of such information.**

| **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 ILM05.4* | *Inspect the system, correct problem, recalibrate and/or reanalyze samples.* | *EPA CLP RAS Laboratory ICP-MS Technician* | *ILM05.4* |
|  |  |  |  |  |  |  |  |

Fill in all necessary information

**Analytical Laboratory Instrument Calibration**

Identify all 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. **Below (in italics) is an example of such information.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Instrument/Equipment** | **Calibration Procedure** | **Frequency of Calibration** | **Acceptance Criteria** | **Corrective Action** | **Responsible Person** | **Analytical SOP Reference** |
| *ICP-MS* | *See ILM05.4; as per instrument manufacturer’s recommended procedures* | *ICP-MS 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.* | *ICP-MS: As per instrument manufacturer’s recommended procedures, with at least 2 standards. A minimum of three replicate integrations are required for data acquisition.* | *ICP-MS: inspect the system, correct problem, re-calibrate, re-analyze samples.* | *EPA CLP RAS Laboratory ICP-MS Technician* | *ILM05.4* |

Fill in all necessary information

**Brownfields QAPP Template #9a**

**Sample Handling System**

Use this Template to 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, 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):** [ ] Name of Environmental Consultant Project Manager |
| **Sample Packaging (Personnel/Organization):** [ ] Name of Environmental Consultant Project Manager |
| **Coordination of Shipment (Personnel/Organization):** [ ] Name of Environmental Consultant Project Manager |
| **Type of Shipment/Carrier:** Applicable for project. |
| **SAMPLE RECEIPT AND ANALYSIS** |
| **Sample Receipt (Personnel/Organization):** [ ]Name of Environmental Laboratory Sample Custodian |
| **Sample Custody and Storage (Personnel/Organization):** [ ] Name of Environmental Laboratory Sample Custodian |
| **Sample Preparation (Personnel/Organization):** [ ] Name of Environmental Laboratory Sample Technicians |
| **Sample Determinative Analysis (Personnel/Organization):** [ ] Name(s) of Environmental Laboratory Sample Technician(s) |
| **SAMPLE ARCHIVING** |
| **Field Sample Storage (No. of days from sample collection):** Samples to be shipped within [enter time –hours/days], and arrive at laboratory within 24 hours (1 day) of sample shipment. |
| **Sample Extract/Digestate Storage (No. of days from extraction/digestion):** As per analytical methodology; See Template #6. |
| **SAMPLE DISPOSAL** |
| **Personnel/Organization:** [ ] Name (s) of Environmental Laboratory Sample Technician(s) |
| **Number of Days from Analysis:** Until analysis and QA/QC checks are completed; as per analytical methodology; See Template #6. |

**Brownfields QAPP Template #9b**

**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 #10**

**Field and Analytical Laboratory 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; and the QC samples performed by the laboratory. **Below (in italics) is an example of such information.**

|  |  |
| --- | --- |
| **Matrix** | *Soils* |
| **Analytical Group** | *Metals* |
| **Concentration Level** | *Low/Medium - mg/kg (ppm)* |
| **Sampling SOP(s)** | *ABC Consultants SOP #123* |
| **Analytical Method/SOP Reference** | *EPA CLP SOW ILMO5.4* |
| **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** | **Method/SOP QC Acceptance Limits** | **Corrective Action** | **Person(s) Responsible for Corrective Action** | **Data Quality Indicator (DQI)** | **Measurement Performance Criteria** |
| --- | --- | --- | --- | --- | --- | --- |
| *Laboratory Preparation Blank* | *1 per < 20 samples* | *No constituent > CRQL* | *Suspend analysis until source rectified; redigest and reanalyze affected samples* | *EPA CLP RAS Laboratory ICP-MS Technician* | *Accuracy* | *No constituent > CRQL* |
| *Field Duplicate* | *1 per < 20 samples* | *± 20% RPD* | *Flag outliers* | *EPA CLP RAS Laboratory ICP-MS Technician* | *Precision* | *± 20% RPD* |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Fill in all necessary information

**Brownfields QAPP Template #11a**

**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 * 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 | * Specify how long the project file will be maintained and stored, and its final disposition after that period |

**Brownfields QAPP Template #11b**

**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**  **(Daily, weekly, monthly, quarterly, annually, etc.)** | **Projected Delivery Date(s)** | **Person(s) Responsible for Report Preparation (Title and Organizational Affiliation)** | **Report Recipient(s) (Title and Organizational Affiliation)** |
| --- | --- | --- | --- | --- |
|  | [ ] | [ ] | [ ] Name of Third Party Data Validation Subcontractor; or Environmental Consultant Independent Data Reviewer | [ ] Name of Environmental Consultant |
|  | [ ] | [ ] | [ ] Name of Environmental Consultant Project Manager | [ ] Name of Brownfields Recipient |
|  | [ ] | [ ] | [ ] Name of Environmental Consultant Project Manager | [ ] Name of Brownfields Recipient |
|  | [ ] | [ ] | [ ] Name of Environmental Consultant Project Manager | [ ] Name of Brownfields Recipient; [ ] Name of EPA Region 2 Brownfields Project Officer |

Fill in all necessary information

**Brownfields QAPP Template #12a**

**Planned Project Assessments Table**

Identify the type, frequency, and responsible parties of planned assessment activities that will be performed for the project, if applicable. **This may be an optional activity for the project. If not applicable to the project, state as such in the QAPP. Do not complete the Template.**

| **Assessment Type** | **Frequency** | **Internal or External** | **Organization Performing Assessment** | **Person(s) Responsible for Performing Assessment (Title and Organizational Affiliation)** | **Person(s) Responsible for Responding to Assessment Findings (Title and Organizational Affiliation)** | **Person(s) Responsible for Identifying and Implementing Corrective Actions (Title and Organizational Affiliation)** | **Person(s) Responsible for Monitoring Effectiveness of Corrective Actions (Title and Organizational Affiliation)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Laboratory Technical Systems/ Performance Audits | [ ] |  |  |  |  |  |  |
| Performance Evaluation Samples | [ ] |  |  |  |  |  |  |
| On-Site Field Inspection | [ ] |  |  |  |  |  |  |

Fill in all necessary information

**Brownfields QAPP Template #12b**

**Assessment Findings and Corrective Action Responses**

For each type of assessment, describe procedures for handling QAPP and project deviations encountered during the planned project assessments. **This may be an optional activity for the project. If not applicable to the project, state as such in the QAPP. Do not complete the Template.**

| **Assessment**  **Type** | **Nature of**  **Deficiencies**  **Documentation** | **Individual(s)**  **Notified of Findings**  **(Name, Title,**  **Organization)** | **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 | [ ] Name of Environmental Consultant Project Manager |  | Checklist or logbook entry | [ ] Name of Environmental Consultant |  |
| Field Observations/ Deviations from Work Plan | Logbook | [ ] Name of Environmental Consultant Project Manager |  | Logbook | [ ] Name of Environmental Consultant;  [ ] Name of Brownfields Recipient |  |
| Laboratory Technical Systems/ Performance Audits | Written Report | [ ] Name of Environmental Laboratory |  | Letter | [ ] Name of Environmental Consultant;  [ ] Name of Brownfields Recipient |  |
| On-Site Field Inspection | Written Report | [ ] Name of Environmental Consultant Project Manager |  | Letter/Internal Memorandum | [ ] Name of Environmental Consultant;  [ ] Name of Brownfields Recipient |  |
| Performance Evaluation Samples | Electronic Report | [ ] Name of Environmental Laboratory |  | Letter or Written Report | [ ] Name of Environmental Laboratory |  |

Fill in all necessary information

**Brownfields QAPP Template #13a**

**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) is an example of such information.**

**See Table 1 for additional examples of data elements.**

| **Verification Input** | **Description** | **Internal/**  **External**2 | **Responsible for Verification**  **(Name, Organization)** |
| --- | --- | --- | --- |
| *Site/Field Logbooks* | *Field notes will be prepared daily by the Environmental Consultant Project Manager and will be complete, appropriate, legible and pertinent. Upon completion of field work, logbooks will be placed in the project files.* | *I* | *[ ] Name of Environmental Consultant Project Manager* |
| *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.* | *I* | *[ ] Name of Environmental Consultant Project Manager* |
| *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.* | *I* | *[ ] Name of Environmental 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.* | *I/E* | *[ ] Name of Environmental Consultant Project Manager;*  *[ ] Name of Data Validation Personnel*2 |
| *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.* | *I* | *[ ] Name of Environmental Consultant Project Manager* |
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Fill in all necessary information

1Step I – Completeness Check

2Internal or External is in relation to the data generator.

**Brownfields QAPP Template #13b**

**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 verified, when the activity will occur, and what documentation is necessary, and identify the person responsible. **Below (in italics) is an example of such information. See Table 1 for additional examples of data elements.**

| **Step IIa/IIb1** | **Validation Input** | **Description** | **Responsible for Validation**  **(Name, Organization)** |
| --- | --- | --- | --- |
| *IIa* | *SOPs* | *Ensure that the sampling methods/procedures outlined in QAPP were followed, and that any deviations were noted/approved.* | *[ ] Name of Environmental Consultant Project Manager* |
| *IIb* | *SOPs* | *Determine potential impacts from noted/approved deviations, in regard to PQOs.* | *[ ] Name of Environmental Consultant Project Manager* |
| *IIa* | *Chains of custody* | *Examine COC forms against QAPP and laboratory contract requirements (e.g., analytical methods, sample identification, etc.).* | *[ ] Name of Data Validation Personnel* |
| *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.).* | *[ ] Name of Data Validation Personnel* |
| *IIb* | *Laboratory data package* | *Determine potential impacts from noted/approved deviations, in regard to PQOs. Examples include PQLs and QC sample limits (precision/accuracy).* | *[ ] Name of Environmental Consultant Project Manager;*  *[ ] Name of Data Validation Personnel [Name* |
| *IIb* | *Field duplicates* | *Compare results of field duplicate (or replicate) analyses with RPD criteria* | *[ ] Name of Environmental Consultant Project Manager;*  *[ ] Name of Data Validation Personnel* |
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Fill in all necessary information

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

1Step IIb – Comparison with Performance Criteria in QAPP

**Brownfields QAPP Template #13c**

**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 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/IIb1** | **Matrix** | **Analytical Group** | **Concentration Level** | **Validation Criteria** | **Data Validator (title and organizational affiliation)** |
| --- | --- | --- | --- | --- | --- |
| *IIa / IIb* | *Soil/Sediment/ Aqueous* | *VOCs* | *Trace* | *Data Validation SOP for Organic Analysis of Trace Concentration VOCs under SOW SOM01.2* | *[ ] Name of Data Validation Personnel* |
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Fill in all necessary information

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

1Step IIb – Comparison with Performance Criteria in QAPP

**Brownfields QAPP Template #13d**

**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. **Below (in italics) is an example of such information.**

|  |
| --- |
| **Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used:**  *Determine if any detectable amounts of contaminant(s) are present. If no detectable amounts are indicated and all data are acceptable for the verification and validation, then the data is usable.*  *If verification and validation are not acceptable then take corrective action (determine cause, data impact, evaluate the impact and document the rationale for resampling).*  **Describe the evaluative procedures used to assess overall measurement error associated with the project:**  *Determine if the quality control data is within the performance criteria (precision, accuracy, etc) through validation process 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 the data and the presentation of any data limitations. For example, if the performance criteria 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.* |

Fill in all necessary information

1Step 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 |  |
| **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 |  |
| Associated PE sample results | X | X | X |
| Communication Logs | X | X |  |
| Copies of lab notebook, 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 no. | X | X |  |
| QC sample raw data | X | X | X |
| QC summary report | X | X | X |  |
| **Data Elements for Data Review Process** | | | | |
| Raw data | X | X | X | Use outputs from previous steps |
| 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 form NIST, for example) | X | 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 | X | X | X |
| Sampling report (from field team leader to project manager describing sampling activities) | X | X | X |
| **External Reports** | | | | |
| External audit report | X | X | X | Use outputs from previous steps |
| External PT sample results | X | X |  |
| Laboratory assessment | X | X |  |
| Laboratory QA plan | X | X |  |
| MDL study information | X | X | X |
| NELAP accreditation | X | X |  |