Summer 8-31-2023

Draft BPSOU Uncontrolled Surface Flow Area Soil Characterization Quality Assurance Project Plan (QAPP)

Nikia Greene

EPA REGION 8 QA DOCUMENT REVIEW CROSSWALK

QAPP/FSP/SAP for: *(check appropriate box)* [ ] **GRANTEE** [ ] **CONTRACTOR** [ ] **EPA** [ ] **Other**	**Entity** *(grantee, contract, EPA AO, EPA Program, Other)* Atlantic Richfield	**Regulatory Authority and/or Funding Mechanism**	___ **2 CFR 1500 for Grantee/Cooperative Agreements** ___ **48 CFR 46 for Contracts** ___ **Interagency Agreement (FFA, USGS)** ___ **EPA/Court Order** ___ **EPA Program Funding** ___ **EPA Program Regulation** ___ **EPA CIO 2105**
Document Title ***[Note: Title will be repeated in Header]***	Draft BPSOU Uncontrolled Surface Flow Area Soil Characterization Quality Assurance Project Plan (QAPP)		
QAPP/FSP/SAP Preparer	Woodard & Curran, Inc.		
Period of Performance *(of QAPP/FSP/SAP)*	**2023**	**Date Submitted for Review**	8/31/2023
EPA Project Officer **EPA Project Manager**	Nikia Greene	**PO Phone #** **PM Phone #**	(406) 457-5019
QA Program Reviewer or Approving Official	Nikia Greene	**Date of Review**	11/1/23

Documents Submitted for QAPP Review (QA Reviewer must complete)*:*

1. QA Document(s) submitted for review:

QA Document	Document Date	Document Stand-alone	Document with QAPP
QAPP		**Yes** / No	
FSP		Yes / No	Yes / **No**
SAP		Yes / No	Yes / **No**
SOP(s)			**Yes** / No

2. WP/SOW/TO/PP/RP Date _____
WP/SOW/TO/RP Performance Period _____

3. QA document consistent with the:
WP/SOW/PP for grants? Yes / **No**
SOW/TO for contracts? Yes / **No**

4. QARF signed by R8 QAM Yes / No / **NA**
Funding Mechanism IA / contract / grant / **NA**
Amount _____

Notes for Document Submittals:

1. A QAPP written by a Grantee, EPA, or Federal Partner must include for review: Work Plan(WP) / Statement of Work (SOW) / Program Plan (PP) / Research Proposal (RP) and funding mechanism

2. A QAPP written by Contractor must include for review:
- **a)** Copy of Task Order Work Assignment/SOW
- **b)** Reference to a hard or electronic copy of the contractor's approved QMP
- **c)** Copy of Contract SOW if no QMP has been approved
- **d)** Copy of EPA/Court Order, if applicable
- **e)** The QA Review must determine (with the EPA CO or PO) if a QARF was completed for the environmental data activity described in the QAPP.

3. a. Field Sampling Plan (FSP) and/or Sampling & Analyses Plan (SAP) must include the Project QAPP ***or*** must be a stand-alone QA document that contain all QAPP required elements (Project Management, Data Generation/Acquisition, Assessment and Oversight, and Data Validation and Usability).

b. SOPs must be submitted with a QA document that contains all QAPP required elements.

Summary of Comments *(highlight significant concerns/issues)***:**

1. **The** Atlantic Richfield **must address the comments in the accompanied comment letter, as well as those identified in the Comment section(s) that includes a "Response (date)" and Resolved (date)".**

Element	Acceptable *Yes/No/NA*	Page/ Section	Comments
A. Project Management			
A1. Title and Approval Sheet			
a. Contains project title	Y	1st page	EPA Comments: None
b. Date and revision number line (for when needed)	Y	Cover page and page ix	EPA Comments: None
c. Indicates organization's name	Y	Cover page	EPA Comments: None
d. Date and signature line for organization's project manager	N	ix	EPA Comments: Include Signature authority lines for EPA, DEQ, organization PM. AR Response: Signature authority lines have been added
e. Date and signature line for organization's QA manager	N	ix	EPA Comments: Include Signature authority lines for organization QA manager AR Response: Signature authority lines have been added
f. Other date and signatures lines, as needed	N	ix	EPA Comments: Include Signature authority lines for EPA, DEQ, organization PM. AR Response: Signature authority lines have been added
A2. Table of Contents			
a. Lists QA Project Plan information sections	Y	vi-vii	EPA Comments: None
b. Document control information indicated	Y	vi-vii	EPA Comments: None
A3. Distribution List			
Includes all individuals who are to receive a copy of the QA Project Plan and identifies their organization	Y	iii-v	EPA Comments: None
A4. Project/Task Organization			
a. Identifies key individuals involved in all major aspects of the project, including contractors	Y	2.1	EPA Comments: Include the validation firm or at a minimum provide a placeholder for the firm who will conduct validation. AR Response: As stated in section 2.1 QAO Description, Data validation will be performed in-house.
b. Discusses their responsibilities	Y	2.1	EPA Comments: None
c. Project QA Manager position indicates independence from unit generating data	N	2.1	EPA Comments: Revise text to specifically state that the QAM is independent from the entities generating data. AR Response: Text has been revised as requested.
d. Identifies individual responsible for maintaining the official, approved QA Project Plan	Y	2.1	EPA Comments: None
e. Organizational chart shows lines of authority and reporting responsibilities	N	Figure 2	EPA Comments: Revise org chart to add legend describing lines of authority and lines of communication. AR Response: Organizational chart has been updated as requested

A5. Problem Definition/Background			
a. States decision(s) to be made, actions to be taken, or outcomes expected from the information to be obtained	Y	2.2	EPA Comments: None
b. Clearly explains the reason (site background or historical context) for initiating this project	Y	2.2, 2.4.1	EPA Comments: None
c. Identifies regulatory information, applicable criteria, action limits, etc. necessary to the project	Y	2.4.1 Steps 3 and 5; Table 1	EPA Comments: None
A6. Project/Task Description			
a. Summarizes work to be performed, for example, measurements to be made, data files to be obtained, etc., that support the project's goals	Y	2.3, 2.4.1	EPA Comments: None
b. Provides work schedule indicating critical project points, e.g., start and completion dates for activities such as sampling, analysis, data or file reviews, and assessments	N	3.1.1,	EPA Comments: Sampling start date is estimated as Fall 2023, but no other dates/timeline is listed or other components in this section (data analysis, data/file review, etc.). Add additional work schedule details. AR Response: Additional dates and timelines have been added as requested
c. Details geographical locations to be studied, including maps where possible	Y	Table 2, Figure 1	EPA Comments: None
d. Discusses resource and time constraints, if applicable	Y	2.4	EPA Comments: None
A7. Quality Objectives and Criteria			
a. Identifies - performance/measurement criteria for all information to be collected and acceptance criteria for information obtained from previous studies, - including project action limits and laboratory detection limits and - range of anticipated concentrations of each parameter of interest	Y	2.4.2; Table 1, 3	EPA Comments: None
b. Discusses precision	Y	2.4.2, 3.2.2, 3.5.1, Table 3	EPA Comments: None
c. Addresses bias	Y	2.4.2, 3.5.1	EPA Comments: None
d. Discusses representativeness	Y	2.4.2 Table 3	EPA Comments: None
e. Identifies the need for completeness	Y	2.4.2 Table 3	EPA Comments: None
f. Describes the need for comparability	Y	2.4.2	EPA Comments: None

g. Discusses desired method sensitivity	Y	2.4.2, Table 1	EPA Comments: None
A8. Special Training/Certifications			
a. Identifies any project personnel specialized training or certifications	Y	2.5	EPA Comments: None
b. Discusses how this training will be provided	Y	2.5	EPA Comments: None
c. Indicates personnel responsible for assuring training/certifications are satisfied	Y	2.5	EPA Comments: None
d. identifies where this information is documented	Y	2.5	EPA Comments: None
A9. Documentation and Records			
a. Identifies report format and summarizes all data report package information	N	2.6	EPA Comments: Section 2.6.5 should discuss that the results of the validation will be reported and discussed in the data summary report. AR Response: Additional data validation discussion has been added to Section 2.6.6
b. Lists all other project documents, records, and electronic files that will be produced	Y	2.6	EPA Comments: None
c. Identifies where project information should be kept and for how long	Y	3.8	EPA Comments: None
d. Discusses back up plans for records stored electronically	Y	3.8	EPA Comments: None
e. States how individuals identified in A3 will receive the most current copy of the approved QA Project Plan, identifying the individual responsible for this	Y	2.6.7	EPA Comments: None
B. Data Generation/Acquisition			
B1. Sampling Process Design (Experimental Design)			
a. Describes and justifies design strategy, indicating size of the area, volume, or time period to be represented by a sample	Y	2.4.1; Table 2	EPA Comments: None
b. Details the type and total number of sample types/matrix or test runs/trials expected and needed	N	3.1, Table 2	EPA Comments: Include the total number of samples anticipated to be collected. There are 9 test pits with a variety of samples, it is expected that the number and type of samples be clearly identified within the QAPP. Recommend using a table format to clearly identify. AR Response: A column to Table 2 has been added detailing samples to be collected at each location.
c. Indicates where samples should be taken, how sites will be identified/located	Y	Figure 1	EPA Comments: None

d. Discusses what to do if sampling sites become inaccessible	Y	N	EPA Comments: Add text describing the process if in the event a sampling site becomes inaccessible (e.g., weather conditions, access, etc.). AR Response: Text has been added discussing if a site becomes inaccessible.
e. Identifies project activity schedules such as each sampling event, times samples should be sent to the laboratory, etc.	Y	Table 1	EPA Comments: None
f. Specifies what information is critical and what is for informational purposes only	N	2.4	EPA Comments: See Comment Letter
g. Identifies sources of variability and how this variability should be reconciled with project information	Y	2.4.2, 3.1.1	EPA Comments: None
B2. Sampling Methods			
a. Identifies all sampling SOPs by number, date, and regulatory citation, indicating sampling options or modifications to be taken	N	3.2.1; Table 4, Appendix A	EPA Comments: The dates in the Table 4 do not match the SOP document dates. SOP Documents: G-4 date is 2/7/06, G-5 2/7/06, G-6 date is 6/28/06, G-7 date is 2/7/06, G-8 date is 2/7/06, SS-1 date is 2/7/06 and SS-6 date is 6/27/18. Revise dates as appropriate. AR Response: Dates have been revised as requested.
b. Indicates how each sample/matrix type should be collected	Y	3.2.1; Table 4, Appendix A	EPA Comments: None.
c. If in situ monitoring, indicates how instruments should be deployed and operated to avoid contamination and ensure maintenance of proper data	Y	3.2.2; Appendix A	EPA Comments: None
d. If continuous monitoring, indicates averaging time and how instruments should store and maintain raw data, or data averages	NA	NA	NA
e. Indicates how samples are to be homogenized, composited, split, or filtered, if needed	Y	3.2.2; Appendix A	EPA Comments: None
f. Indicates what sample containers and sample volumes should be used	Y	Table 1	EPA Comments: None
g. Identifies whether samples should be preserved and indicates methods that should be followed	Y	Table 1	EPA Comments: None
h. Indicates whether sampling equipment and samplers should be cleaned and/or decontaminated, identifying how this should be done and by-products disposed of	Y	Appendix A	EPA Comments: None
i. Identifies any equipment and support facilities needed	Y	3.2.3	EPA Comments: None

j. Addresses actions to be taken when problems occur, identifying individual(s) responsible for corrective action and how this should be documented	Y	4.1	EPA Comments: None
B3. Sample Handling and Custody			
a. States maximum holding times allowed from sample collection to extraction and/or analysis for each sample type and, for in-situ or continuous monitoring, the maximum time before retrieval of information	Y	Table 1	EPA Comments: None
b. Identifies how samples or information should be physically handled, transported, and then received and held in the laboratory or office (including temperature upon receipt)	Y	3.3.1	EPA Comments: None
c. Indicates how sample or information handling and custody information should be documented, such as in field notebooks and forms, identifying individual responsible	Y	3.3.2	EPA Comments: None
d. Discusses system for identifying samples, for example, numbering system, sample tags and labels, and attaches forms to the plan	Y	3.3.3	EPA Comments: None
e. Identifies chain-of-custody procedures and includes form to track custody	Y	2.6.4	EPA Comments: None
B4. Analytical Methods			
a. Identifies all analytical SOPs (field, laboratory and/or office) that should be followed by number, date, and regulatory citation, indicating options or modifications to be taken, such as sub-sampling and extraction procedures	Y	3.4; 3.4.1; Table 1	EPA Comments: None
b. Identifies equipment or instrumentation needed	Y	3.2.3	EPA Comments: None
c. Specifies any specific method performance criteria	Y	Table 1	EPA Comments: None
d. Identifies procedures to follow when failures occur, identifying individual responsible for corrective action and appropriate documentation	Y	3.6.2	EPA Comments: None
e. Identifies sample disposal methods	Y	3.4.4	EPA Comments: Include a statement that the laboratory needs to notify the sample team/manager when they are going to dispose of the samples in case any reanalysis is required from unexpected sample results. AR Response: A statement has been added as requested.
f. Specifies laboratory turnaround times needed	Y	5.1.3; Table 1	EPA Comments: None

g. Provides method validation information and SOPs for nonstandard methods	Y	5	EPA Comments: None
B5. Quality Control			
a. For each type of sampling, analysis, or measurement technique, identifies QC activities which should be used, for example, blanks, spikes, duplicates, etc., and at what frequency	Y	3.5	EPA Comments: None
b. Details what should be done when control limits are exceeded, and how effectiveness of control actions will be determined and documented	N	3.5, Table 5, 6; Appendix D, E	EPA Comments: See Comment letter
c. Identifies procedures and formulas for calculating applicable QC statistics, for example, for precision, bias, outliers and missing data	Y	2.4.2; Table 3	EPA Comments: None
B6. Instrument/Equipment Testing, Inspection, and Maintenance			
a. Identifies field and laboratory equipment needing periodic maintenance, and the schedule for this	Y	3.6.1, 3.6.2	EPA Comments: None
b. Identifies testing criteria	Y	3.6.1, 3.6.2	EPA Comments: None
c. Notes availability and location of spare parts	Y	3.6.1, 3.6.2	EPA Comments: None
d. Indicates procedures in place for inspecting equipment before usage	Y	3.6.1, 3.6.2	EPA Comments: None
e. Identifies individual(s) responsible for testing, inspection and maintenance	Y	3.6.1, 3.6.2	EPA Comments: None
f. Indicates how deficiencies found should be resolved, re-inspections performed, and effectiveness of corrective action determined and documented	Y	3.6.1, 3.6.2	EPA Comments: None
B7. Instrument/Equipment Calibration and Frequency			
a. Identifies equipment, tools, and instruments that should be calibrated and the frequency for this calibration	Y	3.6.1, 3.6.2	EPA Comments: None
b. Describes how calibrations should be performed and documented, indicating test criteria and standards or certified equipment	Y	3.6.1, 3.6.2	EPA Comments: None
c. Identifies how deficiencies should be resolved and documented	Y	3.6.1, 3.6.2	EPA Comments: None
B8. Inspection/Acceptance for Supplies and Consumables			
a. Identifies critical supplies and consumables for field and laboratory, noting supply source, acceptance criteria, and procedures for tracking, storing and retrieving these materials	Y	3.2.3	EPA Comments: None

b. Identifies the individual(s) responsible for this	Y	3.2.3	EPA Comments: None
B9. Use of Existing Data (Non-direct Measurements)			
a. Identifies data sources, for example, computer databases or literature files, or models that should be accessed and used	N/A	N/A	NA
b. Describes the intended use of this information and the rationale for their selection, i.e., its relevance to project	N/A	N/A	NA
c. Indicates the acceptance criteria for these data sources and/or models	N/A	N/A	NA
d. Identifies key resources/support facilities needed	N/A	N/A	NA
e. Describes how limits to validity and operating conditions should be determined, for example, internal checks of the program and Beta testing	N/A	N/A	NA
B10. Data Management			
a. Describes data management scheme from field to final use and storage	Y	3.8	EPA Comments: None
b. Discusses standard record-keeping and tracking practices, and the document control system or cites other written documentation such as SOPs	Y	3.8	EPA Comments: None
c. Identifies data handling equipment/procedures that should be used to process, compile, analyze, and transmit data reliably and accurately	Y	3.8	EPA Comments: None
d. Identifies individual(s) responsible for this	Y	3.8	EPA Comments: None
e. Describes the process for data archival and retrieval	Y	3.8	EPA Comments: None
f. Describes procedures to demonstrate acceptability of hardware and software configurations	N/A	N/A	NA
g. Attaches checklists and forms that should be used	N/A	N/A	NA
C. Assessment and Oversight			
C1. Assessments and Response Actions			
a. Lists the number, frequency, and type of assessment activities that should be conducted, with the approximate dates	Y	4.1, 4.2, 4.3	EPA Comments: None
b. Identifies individual(s) responsible for conducting assessments, indicating their authority to issue stop work orders, and any other possible participants in the assessment process	Y	4.1, 4.2, 4.3	EPA Comments: None

c. Describes how and to whom assessment information should be reported	Y	4.1, 4.2, 4.3	EPA Comments: None
d. Identifies how corrective actions should be addressed and by whom, and how they should be verified and documented	Y	4.1, 4.2, 4.3	EPA Comments: None
C2. Reports to Management			
a. Identifies what project QA status reports are needed and how frequently	Y	4.3	EPA Comments: None
b. Identifies who should write these reports and who should receive this information	Y	4.3	EPA Comments: None
D. Data Validation and Usability			
D1. Data Review, Verification, and Validation			
Describes criteria that should be used for accepting, rejecting, or qualifying project data	N	5; 5.1.1; 5.1.2; 5.1.3	EPA Comments: The validation level should be updated to 90% Stage 2b and 10% Stage 4. The data package should be a minimum of a Level 4 in order to ensure all information is provided in case issues with the data need to be researched. AR Response: Stage 4 data validation will occur on 10% of COCs and Stage 2a will occur on all other samples.
a. Describes process for data verification and validation, providing SOPs and indicating what data validation software should be used, if any	N	5.1.2; 5.1.3; Appendices D, E	EPA Comments: See Comment Letter
b. Identifies who is responsible for verifying and validating different components of the project data/information, for example, chain-of-custody forms, receipt logs, calibration information, etc.	Y	5.1.1	EPA Comments: None
c. Identifies issue resolution process, and method and individual responsible for conveying these results to data users	N	5.1.3	EPA Comments: See Comment Letter
d. Attaches checklists, forms, and calculations	N	Appendices D, E	EPA Comments: See Comment Letter
D3. Reconciliation with User Requirements			
a. Describes procedures to evaluate the uncertainty of the validated data	N	5.1.5; 5.2.1	EPA Comments: See Comment Letter
b. Describes how limitations on data use should be reported to the data users	N	5.2.1	EPA Comments: See Comment Letter