Summer 7-2017

EPA REGION 8 QA DOCUMENT REVIEW CROSSWALK

Pioneer Technical Services, Inc.

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QAPP/FSP/SAP for: *(check appropriate box)*		**Entity** *(grantee, contract, EPA AO, EPA Program, Other)*	**Regulatory Authority**	**___ 2 CFR 1500 for Grantee/ Cooperative Agreements**
	GRANTEE	Atlantic Richfield Company	**and/or**	**___ 48 CFR 46 for Contracts**
	CONTRACTOR			**___ Interagency Agreement (FFA, USGS,)**
	EPA		**Funding Mechanism**	**___ EPA/Court Order**
	Other			**___ EPA Program Funding**
				___ EPA Program Regulation
				___ EPA CIO 2105
Document Title ***[Note: Title will be repeated in Header]***		Revised Draft Final Butte Priority Soils Operable Unit Butte Treatment Lagoons and BPSOU Subdrain Sampling and Monitoring Quality Assurance Project Plan		
QAPP/FSP/SAP Preparer		Pioneer Technical Services, Inc.		
Period of Performance *(of QAPP/FSP/SAP)*		**2021**	**Date Submitted for Review**	
EPA Project Officer **EPA Project Manager**		Nikia Greene	**PO Phone #** **PM Phone #**	
QA Program Reviewer or Approving Official			**Date of Review**	

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. Comment #1
2. Comment #2
3. Comment #3
4. **The** Atlantic Richfield Company **must address the comments in the Summary of Comments, as well as those identified in the Comment section(s) that includes a "Response (date)" and Resolved (date)".**

Element	**Acceptable** *Yes/No/NA*	**2018 Page/ Section**	**2021 Page/ Section**	**Comments**
A. Project Management				
A1. Title and Approval Sheet				
a. Contains project title	Yes	1st page	Cover page	EPA: No comments.
b. Date and revision number line (for when needed)	Yes	viii	page i	EPA: No comments.
c. Indicates organization's name	Yes	2nd page	Cover page	EPA: No comments.
d. Date and signature line for organization's project manager	Yes	i	page i	EPA: No comments.

e. Date and signature line for organizations QA manager	Yes	i	page i	EPA: No comments.
f. Other date and signatures lines, as needed	Yes	i	page i	EPA: No comments.
A2. Table of Contents				
a. Lists QA Project Plan information sections	Yes	v	Section 1.0	EPA: No comments.
b. Document control information indicated	Yes	viii	page viii	EPA: No comments.
A3. Distribution List				
Includes all individuals who are to receive a copy of the QA Project Plan and identifies their organization	Yes	Page ii - iv	pages ii - iv	EPA: No comments.
A4. Project/Task Organization				
a. Identifies key individuals involved in all major aspects of the project, including contractors	Yes	Section 1.2	Section 2.1	EPA: Remove the stray "o" from the last paragraph on page 2. **Atlantic Richfield Response:** The edit is complete.
b. Discusses their responsibilities	Yes	Section 1.2	Section 2.1	EPA: No comments.
c. Project QA Manager position indicates independence from unit generating data	Yes	Section 1.2	Section 2.1	EPA: No comments.
d. Identifies individual responsible for maintaining the official, approved QA Project Plan	Yes	Section 1.2	Section 2.6.7	EPA: No comments.
e. Organizational chart shows lines of authority and reporting responsibilities	Yes	Figure 1	Figure 1	EPA: No comments.
A5. Problem Definition/Background				
a. States decision(s) to be made, actions to be taken, or outcomes expected from the information to be obtained	Yes	Section 2.3	Section 2.2	EPA: No comments.
b. Clearly explains the reason (site background or historical context) for initiating this project	Yes	Section 2.1-2.2	Section 2.2	EPA: No comments.
c. Identifies regulatory information, applicable criteria, action limits, etc. necessary to the project	Yes	Table 1	Table 1	EPA: No comments.

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	Yes	Sections 3.1 – 3.5	Section 2.3	EPA: No comments.
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	Yes	Section 3.5 Table 3	Table 3	EPA: No comments.
c. Details geographical locations to be studied, including maps where possible	Yes	Figure 1	Figure 2	EPA: No comments.
d. Discusses resource and time constraints, if applicable	Yes	Section 3.0	Section 3.0	EPA: No comments.
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	Yes	Table 1 and Table 4	Section 2.4, Table 1, Table 4, Table 5	EPA: In Section 4.2 the word “Methods” is missing from the reference for the National Functional Guidelines. **Atlantic Richfield Response:** The edit is complete.
b. Discusses precision	Yes	Section 4.1.1.	Section 2.4.2.1	EPA: No comments.
c. Addresses bias	Yes	Section 4.1.2	Section 2.4.2.2	EPA: No comments.
d. Discusses representativeness	Yes	Section 4.1.3	Section 2.4.2.3	EPA: No comments.
e. Identifies the need for completeness	Yes	Section 4.1.4	Section 2.4.2.5	EPA: No comments.
f. Describes the need for comparability	Yes	Section 4.1.5	Section 2.4.2.4	EPA: No comments.

g. Discusses desired method sensitivity	Yes	NA	Section 2.4.2.6	EPA: A section on sensitivity should be added to this section and other applicable QAPP sections where PARCCS parameters are discussed. **Atlantic Richfield Response:** Section 4.16 has been added to discuss sensitivity.
A8. Special Training/Certifications				
a. Identifies any project personnel specialized training or certifications	Yes	Section 5.0	Section 2.5	EPA: No comments
b. Discusses how this training will be provided	Yes	Section 5.0	Section 2.5	EPA: No comments
c. Indicates personnel responsible for assuring training/certifications are satisfied	Yes	Section 5.0	Section 2.5	EPA: No comments
d. identifies where this information is documented	Yes	Section 5.0	Section 2.5	EPA: No comments
A9. Documentation and Records				
a. Identifies report format and summarizes all data report package information	No	Section 6.1	Section 2.6.1, Section 2.6.2, Section 2.6.4	EPA: In Section 6.1.2 it is stated that quarterly reports will include Level II data validation packages then, in Section 6.1.3, it is stated that Level IV validation would be conducted for the annual report. Wouldn't these be different data packages? Please clarify. **Atlantic Richfield Response:** Reference to Level 2 validation has been removed. Data in quarterly and annual reports report will that have undergone Level 4 validation as described in Section 6.1.

b. Lists all other project documents, records, and electronic files that will be produced	No	Section 6.4	Section 2.6.3, Section 2.6.3.1, Section 2.6.3.2	EPA: In Section 15.3 there is discussion of using an automated data validation program. In Section 6.3 there is discussion of the EDD. It should be noted the EDD from the laboratory will have to have all the applicable information in order to be used in an automated data validation program. It is assumed that a PDF of the complete data package will also be received which contains all sample and quality control information as most automated data validation programs do not review all required information for a Level IV validation. Please clarify. **Atlantic Richfield Response:** The EDD provided by the laboratory for upload into the Equis database is used to load the results into the Enviro Data® validation module. Enviro Data® is an electronic data management system with a validation module. The validation module used for the BTL/LAO/MSD validations was specifically written to evaluate the data based on the requirements in the CFRSSI QAPP (ARCO, 1992a) and CFRSSI Data Management/Data Validation Plan (ARCO, 1992b) and the CFRSSI Pilot Data Report Addendum (ARCO, 2000). With the information provided, the module performs a Level 2 validation. All output from the Enviro Data program is checked to confirm that appropriate qualifications were made. An excel spreadsheet has been developed to complete the check calculations and evaluations required to complete the Level 4 validation using the information provided in the PDF report from the laboratory. Enviro Data creates a table with analytical results and laboratory and identified Level 2 validation qualifiers. Any additional qualifiers required by the Level 4 validation are added to the table. This table is then used to load the final data validation qualifiers into EQuIs.
c. Identifies where project information should be kept and for how long	Yes	Section 6.5	Section 2.6.6	EPA: No comments.
d. Discusses back up plans for records stored electronically	Yes	Section 6.5	Section 2.6.6	EPA: No comments.

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	Yes	Section 6.6.4	Section 2.6.7	EPA: No comments.
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	Yes	Section 7.0	Section 3.1, Section 3.2	EPA: No comments.
b. Details the type and total number of sample types/matrix or test runs/trials expected and needed	Yes	Section 7.1 and 7.2	Section 3.1, Section 3.2	EPA: No comments.
c. Indicates where samples should be taken, how sites will be identified/located	Yes	Section 7.1 and 7.2, Figure 1	Section 3.1, Section 3.2	EPA: No comments.
d. Discusses what to do if sampling sites become inaccessible	Yes	NA	Section 3.0	EPA: No comments.
e. Identifies project activity schedules such as each sampling event, times samples should be sent to the laboratory, etc.	Yes	Section 7.1.2 and 7.2.4	Section 3.1, Section 3.2	EPA: No comments.
f. Specifies what information is critical and what is for informational purposes only	Yes	Section 6.0	Section 2.6	EPA: No comments.
g. Identifies sources of variability and how this variability should be reconciled with project information	Yes	Section 7.0	Section 3.0	EPA: No comments.
B2. Sampling Methods				
a. Identifies all sampling SOPs by number, date, and regulatory citation, indicating sampling options or modifications to be taken	Yes	Section 7.0	Section 3.0	EPA: No comments.
b. Indicates how each sample/matrix type should be collected	Yes	Section 7.1.2 and 7.2.2	Section 3.1, Section 3.2	EPA: No comments.

c. If in situ monitoring, indicates how instruments should be deployed and operated to avoid contamination and ensure maintenance of proper data	Yes	Section 7.1.4.	Section 3.1, Section 3.2	EPA: No comments.
d. If continuous monitoring, indicates averaging time and how instruments should store and maintain raw data, or data averages	NA	NA	Section 3.1, Section 3.2	NA
e. Indicates how samples are to be homogenized, composited, split, or filtered, if needed	Yes	Section 7.1.2 and 7.2.2	Section 3.1, Section 3.2	EPA: No comments.
f. Indicates what sample containers and sample volumes should be used	Yes	Table 2 & Table 4	Table 2, Table 4	EPA: No comments.
g. Identifies whether samples should be preserved and indicates methods that should be followed	Yes	Table 2 & Table 4	Table 2, Table 4	EPA: No comments.
h. Indicates whether sampling equipment and samplers should be cleaned and/or decontaminated, identifying how this should be done and by-products disposed of	Yes	Section 7.4	Section 3.5	EPA: No comments.
i. Identifies any equipment and support facilities needed	Yes	Section 7.1.3 and 7.2.5	Section 3.1, Section 3.2	EPA: No comments.
j. Addresses actions to be taken when problems occur, identifying individual(s) responsible for corrective action and how this should be documented	Yes	Section 14.3	Section 4.4	EPA: No comments.
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	Yes	Table 2 & Table 4	Table 2, Table 4	EPA: No comments.
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)	Yes	Section 8.2	Section 3.3, Table 2, Table 4	EPA: No comments.

c. Indicates how sample or information handling and custody information should be documented, such as in field notebooks and forms, identifying individual responsible	Yes	Section 8.2	Section 3.3	EPA: No comments.
d. Discusses system for identifying samples, for example, numbering system, sample tags and labels, and attaches forms to the plan	Yes	Section 8.1	Section 3.3.1	EPA: No comments.
e. Identifies chain-of-custody procedures and includes form to track custody	Yes	Section 8.2, Appendix A	Appendix D of the main OM&M Plan	EPA: No comments.
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	Yes	Section 9.1 and Table 2	Section 3.0, Section 3.6, Table 2, Table 4, Appendix C of the main OM&M Plan	EPA: No comments.
b. Identifies equipment or instrumentation needed	Yes	Section 9.2	Section 3.6.1	EPA: No comments.
c. Specifies any specific method performance criteria	Yes	Section 9.3	Section 3.6.2	EPA: No comments.
d. Identifies procedures to follow when failures occur, identifying individual responsible for corrective action and appropriate documentation	Yes	Section 9.7	Section 3.6.6	EPA: No comments.
e. Identifies sample disposal procedures	Yes	Section 9.4	Section 3.6.3	EPA: No comments.
f. Specifies laboratory turnaround times needed	Yes	Section 9.5	Section 3.6.4	EPA: No comments.
g. Provides method validation information and SOPs for nonstandard methods	Yes	Section 9.6	Section 3.6.5	EPA: No comments.
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	No	Section 10.1	Section 3.7.1, Section 3.7.2	EPA: It should be noted that extra volume will be collected for the matrix spike/matrix spike duplicate samples per every 20 samples in order to achieve the appropriate five percent rate for quality control samples. **Atlantic Richfield Response:** Comment noted.
b. Details what should be done when control limits are exceeded, and how effectiveness of control actions will be determined and documented	Yes	Section 10.3	Section 3.7.3	EPA: No comments.
c. Identifies procedures and formulas for calculating applicable QC statistics, for example, for precision, bias, outliers and missing data	No	Section 10.3	Section 3.7.3, Section 2.4.2	EPA: In the Accuracy/Bias last paragraph, laboratory accuracy is not only determined by LCS results but by matrix spike results, calibration recoveries, ICP serial dilutions, ICP interference check standards, etc. Please revise. **Atlantic Richfield Response:** The percent recovery of initial calibration verification (ICV) samples, continuing calibration verification (CCV) samples, laboratory control samples (LCS), laboratory matrix spike samples (LMS), interference check samples (ICS), as well as detections in the ICS and the percent difference in the initial calibration standards, are used to evaluate accuracy, as described in the *BTL LAO 2017 Data Validation Report*.
B6. Instrument/Equipment Testing, Inspection, and Maintenance				
a. Identifies field and laboratory equipment needing periodic maintenance, and the schedule for this	Yes	Section 11.1 and 11.2	Section 3.8.1, Section 3.8.2	EPA: No comments.
b. Identifies testing criteria	Yes	Section 11.3	Section 3.8.3	EPA: No comments.
c. Notes availability and location of spare parts	Yes	Section 11.5	Section 3.8.5	EPA: No comments.
d. Indicates procedures in place for inspecting equipment before usage	Yes	Section 11.2	Section 3.8.3	EPA: No comments.
e. Identifies individual(s) responsible for testing, inspection and maintenance	Yes	Section 11.2	Section 3.8.2	EPA: No comments.

f. Indicates how deficiencies found should be resolved, re-inspections performed, and effectiveness of corrective action determined and documented	Yes	Section 11.4	Section 3.8.2	EPA: No comments.
B7. Instrument/Equipment Calibration and Frequency				
a. Identifies equipment, tools, and instruments that should be calibrated and the frequency for this calibration	Yes	Section 11.2 and 11.3	Section 3.8.2, Section 3.8.3	EPA: No comments.
b. Describes how calibrations should be performed and documented, indicating test criteria and standards or certified equipment	Yes	Section 11.2 and 11.3	Section 3.8.2, Section 3.8.3	EPA: No comments.
c. Identifies how deficiencies should be resolved and documented	Yes	Section 11.4	Section 3.8.4	EPA: No comments.
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	Yes	Section 11.5	Section 3.8.5	EPA: No comments.
b. Identifies the individual(s) responsible for this	Yes	Section 11.5	Section 3.8.5	EPA: No comments.
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	Yes	Section 12.0	Section 3.9	EPA: No comments.
b. Describes the intended use of this information and the rationale for their selection, i.e., its relevance to project	Yes	Section 12.1	Section 3.9.1	EPA: The word “will” is missing after the phrase “some data”. **Atlantic Richfield Response:** Section 3.9.1 has been revised for clarity
c. Indicates the acceptance criteria for these data sources and/or models	NA	NA	NA	NA
d. Identifies key resources/support facilities needed	NA	NA	NA	NA

e. Describes how limits to validity and operating conditions should be determined, for example, internal checks of the program and Beta testing	NA	NA	NA	NA
B10. Data Management				
a. Describes data management scheme from field to final use and storage		Section 13.1 and 13.2	Section 3.10.1, Section 3.10.2	
b. Discusses standard record-keeping and tracking practices, and the document control system or cites other written documentation such as SOPs	Yes	Section 13.1 and 13.2	Section 3.10.1, Section 3.10.2,	EPA: In Section 13.2, a parenthesis should be placed in front of the word “refer.” **Atlantic Richfield Response:** Section 3.10 was revised for clarity
c. Identifies data handling equipment/procedures that should be used to process, compile, analyze, and transmit data reliably and accurately	Yes	NA	Section 2.6.3, Section 2.6.6, Section 3.10.2,	EPA: No comments.
d. Identifies individual(s) responsible for this	No	Section 13.4	Section 3.10.3	EPA: Specify the individual in charge of overall data management. **Atlantic Richfield Response:** Section 3.10.4 has been updated to state "The Lead Operator is responsible for data management."
e. Describes the process for data archival and retrieval	No	Section 13.4	Section 3.10.3, Section 2.6	EPA: In Section 16.0, it is stated that laboratory data will be reviewed and then loaded into the BPSOU database. What is the order of how the data is entered into the database? For example, is unvalidated data entered first and then after validation the data is updated? Explain the check systems in place to ensure data users are not using unvalidated data (if they need to be using validated data) and that data is uploaded correctly. **Atlantic Richfield Response:** Validated data are included in quarterly data summary reports and presented with the annual report. Maintenance of the project database is not within the scope of this quality plan, but reference to the BPSOU Quality Management Plan is included.

f. Describes procedures to demonstrate acceptability of hardware and software configurations	NA	NA	NA	NA
g. Attaches checklists and forms that should be used	NA	NA	NA	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	Yes	Section 14.1 and 14.2	Section 4.1, Section 4.2	EPA: No comments.
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	Yes	Section 14.1	Section 4.1, Section 4.2	EPA: No comments.
c. Describes how and to whom assessment information should be reported	Yes	Section 14.1	Section 4.1, Section 4.2	EPA: No comments.
d. Identifies how corrective actions should be addressed and by whom, and how they should be verified and documented	Yes	Section 14.3	Section 4.4, Section 4.5	EPA: No comments.
C2. Reports to Management				
a. Identifies what project QA status reports are needed and how frequently	Yes	Section 14.4	Section 4.6	EPA: No comments.
b. Identifies who should write these reports and who should receive this information	Yes	Section 14.4	Section 4.6	EPA: No comments.
D. Data Validation and Usability				
D1. Data Review, Verification, and Validation				

Describes criteria that should be used for accepting, rejecting, or qualifying project data	No	Section 15.1	Section 5.0, Section 2.4, Table 5	EPA: In Section 15.1.2, instrument information should also be documented by the laboratory personal. Please modify. **Atlantic Richfield Response:** Sections 2.4 and 5.0 ha been updated to include documentation of instrument information.
D2. Verification and Validation Methods				

a. Describes process for data verification and validation, providing SOPs and indicating what data validation software should be used, if any	No	Section 15.3	Section 5.2, SOP-DV-01	EPA: In Section 15.3, please address the following questions: 1. Who is validating the data? **Atlantic Richfield Response:** Validation is being completed by qualified Pioneer personnel with no connection to the BTL/LAO project as included in Section 5.2. 2. The Clark Fork guidance documents should be cited in this section. **Atlantic Richfield Response:** Data validation will be completed according to the National Functional Guidelines for Inorganic Superfunds Method Data Review (EPA, 2017), except when superseded by the Clark Fork River Superfund Site Investigations (CFRSSI) Quality Assurance Project Plan (ARCO, 1992a), the CFRSSI Data Management/Data Validation Plan (ARCO, 1992b) and the CFRSSI Pilot Data Report Addendum (ARCO, 2000). 3. Is there a data validation SOP that will be followed (e.g., TRECs validation SOP)? **Atlantic Richfield Response:** The data validation standard procedure has been included. 4. Please provide a description and information on the Envirodata validation program. What are the quality control checks that will be performed to verify that the laboratory EDD is sufficient to be used in the program? Please explain the process of providing finalized tables with qualifiers for upload into the Envirodata program (i.e., Step10). Does the program itself provide the finalized tables after data validator review? **Atlantic Richfield Response:** Enviro Data is a data management system developed by Geotech Computer Systems. Data is loaded into an Access database and is organized and evaluated within that software. For BPSOU, the data is imported electronically from the EDD provided by the laboratory. Enviro Data checks that there are not problems with the data upload. Using the software the validator generates a table with the

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.	Yes	Section 15.3	Section 5.1	EPA: No comments.
c. Identifies issue resolution process, and method and individual responsible for conveying these results to data users	Yes	Section 15.4	Section 5.2, Section 5.3	EPA: No comments.
d. Attaches checklists, forms, and calculations	Yes	Section 15.3 Appendix A	Appendix D of the main OM&M Plan	EPA: No comments.
D3. Reconciliation with User Requirements				
a. Describes procedures to evaluate the uncertainty of the validated data	Yes	Section 15.4	Section 5.3	EPA: No comments.
b. Describes how limitations on data use should be reported to the data users	Yes	Section 15.4	Section 5.3	EPA: No comments.