DRAFT FINAL
REMEDIAL DESIGN WORK PLAN

BLACKTAIL CREEK RIPARIAN ACTIONS
BUTTE PRIORITY SOILS OPERABLE UNIT OF THE
SILVER BOW CREEK/BUTTE AREA SUPERFUND SITE
SILVER BOW COUNTY, MONTANA

Prepared for:

DEQ MONTANA

Montana Department of Environmental Quality
1520 E. 6th Avenue
Helena, Montana 59601

DEQ Contract No. 421042
Task Order: 04

Prepared by:

Hydrogeologic, Inc.
315 North 24th Street
Billings, Montana 59101

May 1, 2025

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SILVER BOW COUNTY, MONTANA

CONTRACT 421042

Project: Blacktail Creek Riparian Action
Remedial Design and Pre-Investigation

Task Order Number: 04

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Notes:
CTEC = Citizen's Technical Environmental Committee
EPA = U.S. Environmental Protection Agency
HGL = HydroGeoLogic, Inc.
DEQ = Montana Department of Environmental Quality
NRDP = Natural Resource Damage Protection

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LIST OF ACRONYMS AND ABBREVIATIONS

%	percent
AR	Atlantic Richfield Company
AT	Additional Testing
bgs	below ground surface
BPSOU	Butte Priority Soils Operable Unit
BRW	Butte Reduction Works
BTC	Blacktail Creek
BTL	Butte Treatment Lagoons
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminant of concern
CTEC	Citizen's Technical Environmental Committee
CQAP	Construction Quality Assurance Plan
DEQ	Montana Department of Environmental Quality
DSR	Data Summary Report
eMACS	electronic Montana Acquisition and Contracting System
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-know Act
EJCDC	Engineers Joint Contract Documents Committee
FIRM	Flood Insurance Rate Map
FRESOW	Further Remedial Elements Scope of Work
FTL	Field Team Leader
gpm	gallons per minute
HASP	Health and Safety Plan
HGL	HydroGeoLogic, Inc.
IDQTF	Intergovernmental Data Quality Task Force
MDT	Montana Department of Transportation
MBMG	Montana Bureau of Mines and Geology
NOAA	National Oceanic and Atmospheric Administration
NRDP	Montana Natural Resource Damage Program
NWE	Northwestern Energy
OSRTI	Office of Superfund Remediation and Technology Innovation
PDI	Pre-Design Investigation
PDIER	Pre-Design Investigation Evaluation Report
PDIWP	Pre-Design Investigation Work Plan

QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RA	Remedial Action
RARAWP	Riparian Action Remedial Action Work Plan
RD	Remedial Design
RDWP	Remedial Design Work Plan
RPM	Remedial Project Manager
SAP	Sampling and Analysis Plan
SBC	Silver Bow Creek
SD	Settling Defendant
SWMP	Surface Water Management Plan
U.S.C.	United States Code
UFP	Uniform Federal Policy
XRF	x-ray fluorescence

REVISION TRACKING TABLE

Revision Number	Date	Section Revised	Changes/Comments
0	November 20, 2023	NA	Draft for DEQ and NRDP Review
1	April 4, 2024	Refer to BTC_RDWP_V3_red_lines.docx	Draft for EPA Review
2	May 1, 2025	Refer to Response to Comments, Sections 2.7.5 & 2.7.6, and Sections 5.5 through 5.8	Draft for EPA Review

NA = not applicable

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BLACKTAIL CREEK RIPARIAN ACTIONS
REMEDIAL DESIGN WORK PLAN

1.0 INTRODUCTION

This site-specific Blacktail Creek (BTC) Riparian Actions Remedial Design (RD) Work Plan (RDWP) was prepared in accordance with Appendix H of the Consent Decree (CD) for the Butte Priority Soils Operable Unit (BPSOU) CD. As defined in Section 5 of Attachment C to Appendix D of the BPSOU CD, the objectives of remedial activities at the BTC Riparian Actions area are to remove tailings, wastes, contaminated soils and sediments that exceed the Waste Identification Criteria in Table 1 of Appendix 1 of Attachment C to Appendix D of the BPSOU CD (Montana Department of Environmental Quality [DEQ] Responsibility); control discharge of contaminated groundwater to surface water in the area (Settling Defendants Responsibility); and reconstruct BTC and Silver Bow Creek (SBC) below the confluence with BTC (DEQ Responsibility) as conceptually delineated in Figure BTC-1 of the BPSOU CD. The BTC Riparian Actions area is located north of Interstate 90 and east of Montana Street in Butte, Montana, as presented on Figure 1 and 2. This RDWP describes the plans and processes for developing design documents for remedial activities at the BTC Riparian Actions area.

The following items, to meet DEQ requirements outlined in Appendix H of the BPSOU CD, are addressed in this RDWP:

(1) Plans for implementing all RD activities identified in this Outline, or required by EPA to be conducted to develop the RD;

(2) A description of the overall management strategy for performing the RD, including a proposal for phasing of design and construction, if applicable;

(3) A description of the proposed general approach to contracting, construction, operation, maintenance, and monitoring of the Remedial Action (RA) necessary to implement the BTC Riparian Actions;

(4) A description of the responsibility and authority of all organizations and key personnel involved with the development of the RD;

(5) Descriptions of any areas requiring clarification and/or anticipated problems (e.g., data gaps and groundwater dewatering disposal);

(6) Description of any proposed pre-design investigation;

(7) Description of any proposed treatability study (if required); and

(8) Appropriate reference to the following supporting deliverables described in Appendix H Section 6.7 (Supporting Deliverables): Health and Safety Plan; Emergency Response Plan; Quality Assurance Project Plans; and Interim Operation, Monitoring and Maintenance

Plans.

1.1 SUPPORTING/PLANNING DOCUMENTS

This RDWP provides a framework for planning and designing remedial activities at the BTC Riparian Actions area and is supported by the following documents.

1.1.1 Uniform Federal Policy (UFP) - Quality Assurance Project Plan (QAPP)

The UFP-QAPP (HGL, 2023) was created to support RD efforts at the BTC Riparian Actions area for quality assurance (QA) and quality control (QC) during the pre-design investigation (PDI) activities conducted by HydroGeoLogic, Inc. (HGL). The UFP-QAPP meets the requirements and elements set forth in the U.S. Environmental Protection Agency (EPA) guidance document titled, *Uniform Federal Policy for Quality Assurance Project Plans* (IDQTF, 2005), with the optimized worksheets developed in 2012 (IDQTF, 2012). It also includes supplemental information and requirements, as necessary, to support site-specific objectives. The scope of the work to be performed was provided by DEQ in the DEQ Statement of Work – *Blacktail Creek Riparian Actions Remedial Design Work Plan and Pre-Investigation Task Order*. The UFP-QAPP may be updated to support additional investigations if determined necessary based on the results of the investigations or if additional needs are identified during the design process.

1.1.2 Pre-Design Investigation Work Plan (PDIWP)

In accordance with the applicable provisions of the BPSOU CD, the Pre-Design Investigation Work Plan (PDIWP) (HGL, 2023) for the BTC Riparian Actions area provides an evaluation and summary of existing data, a description of currently known data gaps, and a plan to collect the data and information necessary to address the data gaps known at this time. The PDIWP does not include a plan to collect geotechnical data at BTC because geotechnical data could be collected during a Phase II PDI and will be outlined in a Phase II PDI Sampling and Analysis Plan (SAP), if needed. It was determined during the Phase I PDI that a Phase II PDI is not required at this time. Results for the Phase I PDI are provided in the PDI Evaluation Report (PDIER) which is currently under review with agencies.

1.1.3 PDI and Health and Safety Plan (HASP)

The PDI HASP (HGL, 2022a) for the BTC Riparian Actions area outlines health and safety topics associated with BTC PDI activities, specifically emergency response plans, personal protective equipment, waste characteristics, general site rules, activity hazards analysis, emergency contacts, equipment, decontamination, hospital information, weather, general health information, and general safety information. The primary objective of the HASP is to ensure all BTC design investigations and remedial design activities are conducted safely to ensure the health and well-being of on-site personnel. A review and complete understanding of the HASP will be required for all personnel involved with BTC remedial activities.

1.2 SITE DESCRIPTION

The BTC Riparian Actions area is located in Butte, Montana as conceptually delineated in Figure BTC-1. The BTC Riparian Actions area is primarily a wetland area and includes a former tailings

pond that has been identified as a potential source of contaminants of concern (COCs) (i.e., arsenic, cadmium, copper, lead, mercury, and zinc) and may contain additional constituents of concern (e.g., hydrocarbons, municipal waste, etc.).

Silver Bow Creek above its confluence with BTC is cut off from groundwater inputs via the SBC subdrain (an element of the EPA-approved RA), and receives most of its flow from stormwater. A discharge point from a water treatment plant located on Montana Resources mine site and operated by the Settling Defendants (SDs) is located at the confluence area of SBC and BTC that contributes a significant source of flow to SBC. BTC is a northwest-flowing, intermontane stream that drains the southern Summit Valley and currently serves as the headwater stream for the SBC Drainage Basin (MBMG, 2014b). BTC receives most of its baseflow contributions from Summit Valley groundwater in Butte, Montana. A portion of the historical SBC Watershed groundwater is now captured by the BPSOU sub drain north of the project area.

1.2.1 Climate

Butte, Montana, has a semi-arid climate with temperatures generally ranging from 5 degrees Fahrenheit to 81 degrees Fahrenheit, with colder months experienced during winter. Butte is located at approximately 5,500 feet in elevation in the Rocky Mountains and frequently experiences large swings in daily temperatures and weather. On average, Butte receives the most precipitation in May and June (NOAA, 2022).

1.2.2 Topography

The BTC Riparian Actions area is mostly flat with a general slope of 1 percent or less down to the northwest.

1.2.3 Geology

The subsurface soils, sediments, and lithology of the BTC Riparian Actions area primarily consist of fill, tailings, alluvium, and granite bedrock. As a general trend that has been observed at BTC in previous studies, fill can primarily be found at the surface in the northern portion of the site north of George Street and south of SBC. In 2012, Atlantic Richfield (AR) conducted RAs in the confluence area and adjacent floodplain along BTC and SBC, per the 2006 EPA Record of Decision Butte Priority Soils Operable Unit Silver Bow Creek / Butte Area NPL Site. These actions consisted of the excavation and removal of contaminated sediments from the stream bed, banks, and adjacent floodplain. The removal was limited to surface-level contamination and did not address contamination at depth. For this reason, additional waste removal at the SBC/BTC confluence area and its corresponding 100-year floodplain are included with this project per the BPSOU CD.

Tailings are found throughout the entirety of the site and are encountered at the surface and up to 14 feet below ground surface (bgs) or more (Tetra Tech, 2016). The tailings originate from historical mining operations, specifically milling/concentration operations, in the Butte area and are predominately sand and silt size. For purposes of clarification, tailings are considered Waste if they exceed the Waste Identification Criteria in Table 1 of Appendix 1 of Attachment C to Appendix D of the BPSOU CD. These tailings contain concentrations of metals (arsenic, cadmium,

copper, lead, mercury, and zinc) and have the potential to impact groundwater, surface water, and instream sediments.

Alluvium ranges from clay size to gravel, is heterogenous in nature, and was deposited across the site as fluvial channels changed direction through time; alluvium is found beneath the tailings. Bedrock consists of Butte granite and is encountered 25 feet bgs beneath Montana Street and approximately 200 feet bgs beneath Lexington Avenue (AR, 2022) and (Sill, 2009).

1.2.4 Groundwater

Groundwater is present at the BTC site and is encountered near or close to ground surface, ranging from 1 to 15 feet bgs. The BTC site consists of a wetland area that is fed by groundwater. The discharging of groundwater at BTC is caused by constriction of groundwater movement from bedrock shallowing east to west. Refer to Worksheet #10 (Conceptual Site Model) in the UFP-QAPP for a more detailed synopsis of BTC hydrogeology.

1.2.5 Surface Water

Surface water features at the site consist of SBC, BTC, and the wetland areas, as shown on Figure 3. SBC above the confluence of SBC/BTC is an engineered channel that primarily conveys stormwater runoff from areas to the northeast of the confluence. BTC is a headwater stream for the SBC Drainage Basin. The primary wetland area, found in the center of the site, is mostly fed by discharging groundwater. Notably, there are wetland areas surrounding the BTC site that are hydraulically connected to the main wetland area in the center of the site, as shown on Figure 3. Grove Gulch connects to BTC on the east side of Lexington Avenue via a culvert that travels beneath I-90. Additionally, surface water from the pond south of the I-90 and west of Lexington Avenue is drained through the BTC site via a culvert under I-90 and open channel ditch through the BTC site.

1.3 BACKGROUND

In 1879, the first large-scale mineral processing smelter (Colorado Smelter) was built on SBC, at the west end of the valley. Between 1879 and 1893, at least three more large-scale smelters of consequence (Butte Reduction Works, Parrot Smelter, and Montana Ore Purchasing Company) were constructed upstream of the Colorado Smelter, which significantly altered the geomorphology and hydrology of both SBC and the lower portion of BTC. A fifth smelter of consequence, the Bell Smelter, located west of present-day Harrison Avenue on the north bank of BTC, was constructed in 1881, and reached a peak production of approximately 30 tons per day in 1883 (primarily silver ore). Production quickly tapered, and the smelter was dismantled sometime in the early 1890s. Butte Reduction Works (BRW) burnt down in 1911, resulting in the Timber Butte Zinc Mill being built along Grovel Gulch and operating until 1948. BRW was rebuilt and operated into the late 1940's as Domestic Manganese. Other various mills and smelters operated on SBC above its confluence with BTC, including Clark's Colusa, the Butte and Boston, the Boston and Montana, the Pittsmont, and the Black Rock Mill (Quivik, 1998). The Bell Smelter was located upstream of the project area and discharged wastes into BTC.

Water demand during the late 1800s in the SBC/BTC area increased dramatically, and the stream channels were significantly altered to keep up with the demand. Several wells were sunk in the late 1800s by the Butte Water Co. on its property south of BTC, in the SE. ¼ sec. 24, T. 3 N., R. 8 W., and were for some time pumped for the public supply (Meinzer, 1914). At least three dams were constructed on SBC above its confluence with BTC and the confluence area for tailings impoundment and water clarification. The dam at Montana Street was constructed for settlement of tailings from upstream smelters and resulted in significant ponding on both sides of the stream. Over time, mining and smelting waste materials aggraded in the SBC, the BTC channels, and the floodplain, causing frequent and substantial flooding (Meinzer, 1914). Historical stream channels, tailing ponds, and wetlands are shown on Figure 2 of the PDIWP. In an attempt to mitigate flooding issues, berms made mostly of readily available waste were constructed throughout the confluence area. The BTC Berm is a historical remnant of flood control berms. Figure 3 shows the known waste area referred to as BTC Berm.

2.0 DESIGN SUPPORT ACTIVITIES

Design support activities will consist of a Phase I PDI, and additional limited-scope design investigations during RD if additional data gaps are identified during the initial PDIs or during the RD process. Previous investigations and known data gaps are summarized in the BTC PDIWP (HGL, 2023) in Sections 2.3 and 2.4, respectively.

2.1 PHASE I PDI

The primary purpose of the Phase I PDI was to fill known data gaps, as outlined in the PDIWP (HGL, 2023). The main goals of the Phase I PDI were as follows:

Goal #1: Define the lateral and vertical extents of waste materials (as defined by the Waste Identification Screening Criteria [EPA, 2020]) within the BTC Riparian Actions area.

- The site has been characterized by previous investigations; however, many of the investigations have not adequately characterized (design level) the lateral and vertical extent of solid wastes with COCs over the specified threshold. Other investigations have terminated boreholes in waste with COCs over the threshold; therefore, they have not adequately characterized the vertical extent of waste. Further investigation is necessary to define the extents of contaminated wastes in the BTC Riparian Actions area.

Goal #2: Calibrate groundwater model from existing models to calculate the anticipated dewatering volumes associated with remedial construction activities and determine the effects of construction dewatering on the site.

- The site has been characterized by a previous groundwater investigation as summarized in Section 2.3.3 of the PDIWP (HGL, 2023); however, data collected during this past investigation did not adequately stress the aquifer during the pump test. Therefore, improved construction dewatering volumes and groundwater drawdown estimates are needed to inform construction de-watering designs from the Confluence Area and BTC projects. Existing groundwater hydraulic models will be refined and calibrated to estimate the volume and quality of water associated with de-watering activities with respect to the refined waste removal surface. If existing hydraulic models do not provide enough confidence to adequately characterize the de-watering volume, then additional pump testing may be necessary to quantify groundwater drawdown within the construction footprint and construction dewatering volumes from the BTC Riparian Actions area.

Results and recommendations of the Phase I PDI will be reported in the PDIER.

2.2 PHASE II PDI

Page 30 of Section 5 of Attachment C to Appendix D of the BPSOU states the following:

> **9.** "**Construction Planning and Evaluation:** More detailed evaluation of the quantity, requirements, dewaterability, and geotechnical properties of the material to be removed shall be necessary prior to detailed design and implementation."

10. "**Geotechnical Conditions:** EPA, in consultation with DEQ, may require geotechnical investigation to adequately characterize subsurface conditions in areas near bridges and culverts, and/or other structural features. SDs may also propose such investigations in design documents."

A Phase II PDI may be necessary if site dewatering needs and potential impacts to critical infrastructure cannot be adequately defined from the investigations and analyses performed under the Phase I PDI. If needed, the goals of the Phase II PDI would be outlined in a streamlined Phase II PDI SAP that may include additional geotechnical investigation to further characterize geotechnical subsurface conditions at the site. The results of that investigation would help ensure safety during removal activities as well as protect existing buildings, roads, and other infrastructure.

If the geotechnical conditions can be adequately defined based on the Phase I PDI, the Phase II geotechnical investigation would not be conducted, and the geotechnical recommendations will be incorporated in the PDIER. If the Phase II PDI is needed, the results recommendation from both the Phase I and II investigations will be summarized in and incorporated into the PDIER. It was determined during the Phase I PDI that the Phase II PDI is not required at this time.

2.3 KNOWN DATA GAPS

Based on review of the previous studies, the following data gaps need to be addressed to support RD:

- Lateral and vertical extents of tailings, wastes, contaminated soils, and sediments located within the BTC Riparian Actions Project boundaries;
- The extent of dewatering and drying that is needed prior to loading and hauling materials to ensure safe and efficient transport of the materials to the repository;
- Dewatering volume and pumping rates;
- Potential for dewatering to allow inaccessible tailings (if applicable) to oxidize, which could contribute additional COCs to the ground and surface water;
- More precise depth and alignment of existing buried utilities and other critical infrastructure;
- Potential presence of hydrocarbon contaminated soils, garbage, construction debris, or asbestos-containing materials in the excavation areas;
- Geotechnical properties of the subsurface at BTC to determine excavation recommendations and structure/infrastructure protection during removal activities (Phase II PDI SAP, if needed); and

- Potential for groundwater dewatering to cause subsidence or geotechnical concerns beneath Interstate 15/90 (Phase II PDI SAP, if needed).

As investigation activities are completed at the site, additional data gaps may be discovered that require supplemental or additional investigations. The need for and scope of any such supplemental or additional investigations would be proposed as needed for EPA review and approval and results would be presented in the design report.

2.4 TREATABILITY STUDY

A treatability study is not planned for this project as there is sufficient water quality data available from previous studies to develop a dewatering disposal plan. Most notably, the Data Gap Investigation (TetraTech, 2016) provides existing groundwater chemistry data. The CD contains provisions related to disposal of groundwater from the construction activities that are expected to be sufficient to support waste removal activities at the BTC Riparian Actions area.

2.5 PERMITTING/REGULATORY REQUIREMENTS

The BTC Riparian Actions are being completed under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authority and are, therefore, exempt from permitting requirements under CERCLA section 121(e). All investigation and design activities will be conducted in a manner that complies with the substantive requirements of applicable permits and the CD.

Additional local permitting requirements can be identified and addressed during the design process. Potential changes to the floodplain can be coordinated with the Butte-Silver Bow County floodplain administrator through supporting and assisting with revisions or replacement of the Flood Insurance Rate Map (FIRM) after completion of the RA. The nature and extent of these efforts will be better defined and addressed in the later phases of the design process when the final floodplain and stream configurations can be adequately defined.

2.6 ACCESS PLAN

The BTC Riparian Actions area is primarily owned by Butte-Silver Bow County, with portions of the site owned by AR, Northwestern Energy (NWE), and Montana Department of Transportation (MDT). DEQ will prepare an access agreement with AR and NWE, an access letter with Butte-Silver Bow County, and an encroachment permit with MDT. All copies of access agreements, access letters, and encroachment permits will be maintained in electronic form by DEQ.

2.7 SCHEDULE

The schedule for BTC activities is dependent on EPA, NRDP, and DEQ review processes, weather, an EPA approved repository acceptable to DEQ, contractor availability, and BPSOU Site activities. Adjustments to the schedule may be needed to ensure activities are coordinated and properly sequenced with other BPSOU work conducted by others to avoid overwhelming operations at the repository, water treatment plants, or borrow areas. The tentative schedule is as follows:

2.7.1 Phase I PDI

DEQ contracted HGL to prepare the PDIWP (HGL, 2023) and conduct the PDI. Subcontractors to HGL for the PDI included: O'Keefe Drilling Co. for sonic drilling services, Energy Laboratories, Inc. for analytical laboratory services, and Eurofins CEI for supplemental analytical laboratory services (outlined in the PDIWP). Work was completed from August of 2023 to February 2024.

2.7.2 Phase II PDI

If needed, DEQ plans to contract HGL to prepare and manage the Phase II PDI. A geotechnical engineering firm will be selected to support and direct a geotechnical investigation as to be outlined in the Phase II PDI SAP. It was determined during the Phase I PDI that a Phase II PDI is not required at this time.

2.7.3 Pre-Design Investigation Evaluation Report (PDIER)

DEQ has contracted HGL to prepare the PDIER, which will include findings from the Phase I PDI. DEQ submitted a draft PDIER to EPA for review in September of 2024 and responded to comments provided in November of 2024 and submitted an additional draft in January of 2025. DEQ will continue this response to comment process as needed to obtain approval or concurrence with the PDIER before finalizing and including with the RD documentation.

2.7.4 Remedial Design

DEQ has contracted HGL to prepare calculations and remedial designs for the project necessary to define, bid and complete the RA. The anticipated schedule for submitting each design level for agency review is as follows:

- 30 percent (%) RD – Winter 2024/2025 to Summer 2025
- 60% RD – Summer 2025 to Winter 2025/2026
- 95% RD – Winter 2025/2026 to Spring 2026
- 100% RD – Spring 2026 to Summer 2026

2.7.5 Additional Testing (AT) QAPP and Data Summary Report (DSR)

If required, DEQ has contracted HGL to prepare an Additional Testing (AT) QAPP to outline requirements for analytical laboratory testing on existing archive soil material collected during the Phase I PDI in support of repository selection. This testing will be coordinated with DEQ and AR. Results will be provided in a Data Summary Report (DSR). It is anticipated that DEQ will submit the AT QAPP to EPA for review in Summer of 2025.

2.7.6 Borrow Source SAP and DSR

DEQ has contracted HGL to prepare a Borrow Source SAP in support of characterizing potential borrow sources for RA. Results will be detailed in a DSR and integrated into the RD. It is anticipated that DEQ will submit the Borrow Source SAP to EPA for review in Spring 2025.

2.7.7 Blacktail Creek Riparian Action Remedial Action Work Plan (BTC RARAWP)

DEQ has contracted HGL to prepare the RARAWP in conjunction with the RD. Work on the RARAWP is anticipated to be performed during Spring 2026 to Summer 2026.

2.7.8 Remedial Action Construction

DEQ will complete the RA construction services contracting in accordance with existing DEQ standard procedures for soliciting bids and completing construction. DEQ anticipates that construction will take at least two construction seasons to complete to removal all necessary materials and to procure, propagate, and install all necessary riparian planting materials for the project. The anticipated bidding and construction schedule is as follows:

- Bid Advertisement and Construction Contract Award – Winter 2026/Spring 2027
- Construction Startup – Spring/Summer 2027
- Construction Completion - Fall 2028
- Final Completion Documents - 2031

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3.0 REMEDIAL DESIGN OVERVIEW

This section summarizes the required RA, the general RD process, and describes the approach taken by DEQ during the RD process, including the management strategy and contracting approach. Figure 3 illustrates the currently known key conceptual design elements and influences.

3.1 REMEDIAL ACTION SUMMARY

Section 5 of Attachment C and Appendix D of the BPSOU CD (Attachment 1) defines the following selected remedy for the "BTC Remediation and Contaminated Groundwater Hydraulic Controls Site" along with the party responsible for completing each major component of the remedy:

> *The objective of the remedial activities described below for the Blacktail Creek area is to remove tailings, wastes, contaminated soils and sediments from Blacktail Creek and Silver Bow Creek below the confluence with Blacktail Creek, including the Blacktail Creek wetlands, and control discharge of contaminated groundwater to surface water in the area, as depicted in Figure BTC-1. Remedial activities at the Blacktail Creek and confluence area shall include:*
>
> *1. Remove All Tailings, Waste, and Contaminated Soils – The State, through the Montana Department of Environmental Quality (DEQ), shall remove all tailings, wastes, contaminated soils, and sediments that exceed the Waste Identification Criteria in Table 1 of Appendix 1, in and along Blacktail Creek and Silver Bow Creek below the confluence with Blacktail Creek and their 100-year floodplains, as delineated in Figure BTC-1.*
>
> *2. Control Contaminated Groundwater – The SDs shall control discharge of contaminated groundwater to surface water and sediments in the BTC area. The initial contaminated groundwater control is generally depicted in Figure BTC-1. Removal of waste materials contributing to groundwater contamination within the BTC area is anticipated through remedial actions identified in item 1. However, some areas north of Blacktail Creek, outside of the floodplain, are known to contain tailings, waste, and/or contaminated soils. Initially, approximately 100 gallons per minute (gpm) of contaminated groundwater will be collected to control discharge to surface water. The goals for the control of contaminated groundwater in this BTC area are to reduce ongoing and potential future groundwater loading of contaminants of concern to sediments and surface water as outlined in the Surface Water Management Plan (SWMP). Following Remedy implementation, further evaluation by the SDs shall be conducted to allow EPA to determine, in consultation with DEQ, if additional groundwater collection is required in accordance with the SWMP to control contaminated groundwater discharge to surface water and sediments as specifically described below (Control Contaminated Groundwater (SDs Responsibilities)) in the BTC area. Collected contaminated groundwater will be treated at the Butte Treatment Lagoons (BTL) facility, and/or an alternative*

groundwater treatment facility or approach, as approved by EPA, in consultation with DEQ.

3. Reconstruct Blacktail Creek and Silver Bow Creek Below the Confluence with Blacktail Creek –DEQ shall replace removed tailings, wastes, contaminated soils, and in-stream sediments with suitable clean soils. DEQ shall also reconstruct Blacktail Creek and Silver Bow Creek below the confluence with Blacktail Creek and their beds, banks, and 100-year floodplains. DEQ shall also revegetate areas addressed by these restoration and remedial actions in accordance with the Material Suitability Criteria in Appendix 1.

3.2 REMEDIAL DESIGN OBJECTIVES

The objective of the RD for the Blacktail Creek Riparian Actions remediation project is to develop plans and specifications for implementing the remedy required in the Further Remedial Elements Scope of Work (FRESOW) (EPA, 2020), and while doing so, to ensure that the remedy is implemented in a safe and efficient manner. Specific activities to accomplish the RD objectives are to:

- Evaluate existing data and data gaps and then collect additional data necessary to support the RD.
- Develop engineering and design specifications.
- Perform and document necessary calculations needed to develop design criteria and support design of the remedial action.
- Gather and incorporate input from EPA and appropriate stakeholders through review of the various design submittals to strengthen the design.
- Develop project deliverables to allow timely execution of the RA.

The RD will include:

(1) Plans for the removal of tailings, wastes, and contaminated soils and sediments from BTC and SBC from the limits shown on Figure 2 including SBC below its confluence with BTC, including the BTC wetlands,

(2) Stream diversion and dewatering plans,

(3) Plans to control discharge water from construction dewatering activities to surface water in the area,

(4) Borrow source plans or requirements,

(5) Plans for reconstruction of the stream channel and floodplain to stable and functional conditions,

(6) Preparation of a Construction Quality Assurance Plan (CQAP) covering typical construction testing requirements as well as waste removal verification methods.

(7) Other design elements and components identified as necessary during the investigation and design process.

The RD will be detailed in the Preliminary (30%), Intermediate (60%), Pre-Final (95%), and Final (100%) documents. These design documents will be supported by the results of the PDI to fill data gaps. The design documents will include the design drawings and technical specifications. Because the RD construction design documents will be developed with input from the EPA through an iterative process, only a high-level overview is provided in this RDWP. The final RD will include the removal of tailings, wastes, and contaminated soils from the BTC Riparian Actions area and the construction of storm water controls at both sites. The minimum elements included in the RD are listed in Section 5.4.

3.3 MANAGEMENT STRATEGY

Planning and design documents for the RD elements implemented by DEQ will be submitted to EPA for review and approval in accordance with the CD. The RD will include plans for the removal of tailings, wastes, and contaminated soils and sediments from BTC and SBC below the confluence with BTC, including the BTC wetlands as conceptually defined in Figure BTC-1 of the BPSOU CD.

DEQ has contracted HGL to complete the PDI and to develop RD documents and any associated studies to develop the RD and construction documents. This will generally be completed by a single design engineer for RD, construction documents, and construction oversight. DEQ will utilize a pre-qualified design and engineering contractor for construction oversight. Analytical data will be analyzed by DEQ-approved labs. The construction documents will be prepared using the Design-Bid-Build construction contracting model and will meet applicable state and federal requirements needed to support procurement of the RA construction contractor through DEQ's established electronic Montana Acquisition and Contracting System (eMACS) website. DEQ has prepared standard technical specifications for remedial construction projects and typically utilizes the Engineers Joint Contract Documents and Committee (EJCDC) standard Contract Document package (Bidding Documents, General Conditions, Supplementary Conditions, Special Provisions, DEQ Standard Technical Specifications, and Drawings) with the modifications needed to accommodate the eMACS process.

DEQ will follow current state rules and regulations to procure a RA construction contractor. This will generally consist of soliciting bids from RA construction contractors on DEQ's eMACS website. DEQ will utilize a pre-qualified design and engineering contractor to oversee remedial construction, to perform construction quality assurance activities, and to prepare the required project closeout documentation.

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4.0 PROJECT ORGANIZATION

This section details key organizations and personnel.

4.1 KEY ORGANIZATIONS

The key organizations involved with BTC RD/RA efforts are listed below.

4.1.1 U.S. Environmental Protection Agency (EPA)

In the BPSOU, EPA is the lead agency overseeing RD/RA efforts by the SDs (Atlantic Richfield). EPA will review and authorize this RDWP and the associated preliminary (30%), intermediate (60%), pre-final (95%), and final (100%) RDs and RARAWPs. During construction, EPA may participate in pre-construction site walks and in pre-final and final inspections. EPA will also provide QA oversight to ensure the RD is being implemented as designed and approved. EPA will also review and approve final completion documents.

4.1.2 Montana Department of Environmental Quality (DEQ)

DEQ is the state agency leading project management of BTC remedial activities, is responsible for the activities outlined in the BPSOU CD, and has authority over BTC remedial efforts. DEQ will review all design documents and manage the BTC RD and RA as well as obtain all access agreements and letters necessary for remedial efforts at BTC. Additionally, DEQ will conduct bi-weekly meetings with DEQ's contractors to discuss remedial efforts and will lead other BTC-related meetings per the request of EPA or Montana Natural Resource Damage Program (NRDP).

4.1.3 PDI Design and Engineering Contractor - HydroGeoLogic, Inc. (HGL)

HGL is DEQ's design and engineering contractor responsible for engineering and geological services for the BTC PDI and RD. Accordingly, HGL provided oversight of field activities and was the primary producer of all PDI documents, as outlined in Section 5.0. HGL will also be responsible for producing the RD and construction documents.

4.1.4 O'Keefe Drilling Company

O'Keefe Drilling Company was subcontracted to provide sonic drilling services during Phase I PDI, as described in the PDIWP (HGL, 2023) with drilling completed in August and September of 2023.

4.1.5 Lorenzen Soil Mechanics, Inc.

Lorenzen Soil Mechanics, Inc. was subcontracted by HGL to assess the need for additional geotechnical investigation after the Phase I PDI was completed. Lorenzen Soil Mechanics, Inc. will be subcontracted to assist with conducting a geotechnical investigation during the Phase II PDI (if needed), as described in Section 2.2.

4.1.6 Pre-Qualified Engineering Design Services Contractor

DEQ has contracted HGL to complete the RD. A pre-qualified engineering design services contractor will be contracted by DEQ to complete the RA oversight.

4.1.7 Construction Contractor

DEQ will solicit bids from Montana-licensed construction contractors through the eMACS website to select a construction contractor to perform all construction activities associated with the RA.

4.1.8 Contract Laboratories

Energy Laboratories, Inc., and Eurofins CEI will be subcontracted through the design and engineering contractor to analyze samples from BTC for metals, hydrocarbons, asbestos, polychlorinated biphenyls, acid rock drainage, pH, and other geochemical characteristics needed to define tailings, wastes, and contaminated soil and sediment during the PDI as outlined in the PDIWP (HGL, 2023).

4.2 KEY PERSONNEL

Key personnel and their roles and responsibilities for the BTC Riparian Actions are listed below. During pre-design investigation and construction activities, EPA, DEQ, HGL, and the contractor(s) will be coordinating or attending (as necessary) technical meetings, pre-construction site walks, weekly progress meetings, and pre-final and final inspections.

4.2.1 EPA Remedial Project Managers

Emma Rott is the EPA Remedial Project Manager (RPM) for the BTC project. Ms. Rott is based in the EPA Region 8 office in Helena, Montana. She will be the primary contact for EPA and ensure that RDs and RAs comply with the BPSOU CD. Ms. Rott will be responsible for review and approval of this RDWP and the preliminary (30%), intermediate (60%), pre-final (95%), and final (100%) RDs, RARAWP, and final completion documents on behalf of EPA. During construction, Ms. Rott will be responsible for providing construction oversight on behalf of EPA.

4.2.2 DEQ Project Manager

Mr. Logan Dudding is the DEQ Federal Superfund Project Manager for the BTC project. Mr. Dudding works in the DEQ Waste Management and Remediation Division office located in Helena, Montana. He will be the primary contact for DEQ and ensure that RDs and RAs comply with the BPSOU CD. Mr. Dudding will be responsible for review and approval of this RDWP, PDIER, and the preliminary (30%), intermediate (60%), pre-final (95%), and final (100%) RDs, RARAWP, and final completion documents on behalf of DEQ. During construction, Mr. Dudding will be responsible for providing construction oversight on behalf of DEQ.

4.2.3 HGL Project Manager

Mr. Andrew Herrera is the HGL Project Manager for the BTC project. Mr. Herrera is based in the HGL Regional Office located in Billings, Montana. He will be the primary contact for HGL and

will be responsible for project management and overall planning for technical and administrative tasks associated with the BTC project. Mr. Herrera will also be responsible for providing construction oversight on behalf of HGL.

4.2.4 HGL Quality Assurance Manager

Mr. Daniel Dwyer is the HGL QA/QC Manager for this project. Mr. Dwyer is based in the Seattle, Washington area and works remotely for HGL. Mr. Dwyer will be responsible for reviewing field and laboratory data and evaluating data quality during investigation and pre-design activities. Additionally, Mr. Dwyer will assist HGL field personnel in field QA/QC reviews and reports.

4.2.5 HGL Field Team Leader (FTL) and HGL Deputy Project Manager (DPM)

The HGL FTL for the Phase I PDI and future limited-scope design investigations (AT QAPP and Borrow Source SAP) was Mr. Kyle Poisson. Going forward, Mr. Larry Dears will take over FTL and DPM duties. Mr. Dears is based in his home office in Gardener, Montana and will ensure that all members of the field team reviews and follows the project planning documents (UFP-QAPP, PDIWP, AT QAPP, and Borrow Source SAP), when implementing field activities. The HGL FTL will also be responsible for maintaining the UFP-QAPP, PDIWP, AT QAPP, and Borrow Source SAP. The HGL FTL will conduct daily safety meetings, assist in field activities, and document activities in the logbook. The HGL FTL also will be responsible for equipment coordination, problem solving, and decision making in the field for technical aspects of the project and will provide "on-the-ground" overviews of project implementation by observing site activities to ensure compliance with technical project requirements and the HASP (HGL, 2022a). Finally, the HGL FTL will identify potential integrity management issues, and prepare required project documentation. As HGL Deputy Project Manager, Mr. Dears will be responsible for assisting the HGL Project Manager with Project Manager tasks, monitoring project progress, identifying any issues or delays, and adjusting strategies and schedules as necessary.

4.2.6 HGL Project Safety and Health Manager

The Safety and Health Manager, Mr. Rob Elfrink from HGL, will work in conjunction with the HGL Field Engineer, Grace Lickteig. Mr. Elfrink is based in the HGL Corporate Headquarters located in Reston, Virgina. Ms. Lickteig is based in the HGL Regional Office located in Billings, Montana. Ms. Lickteig will conduct the initial safety meeting prior to starting investigation fieldwork with HGL FTL, Mr. Dears. Ms. Lickteig will ensure that work crews comply with all health and safety requirements and revise the project HASP (HGL, 2022a), as necessary.

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5.0 RD DELIVERABLES

Planning documents for RD include this RDWP, the UFP-QAPP (HGL, 2023), HASP (HGL, 2022a), PDIWP (HGL, 2023), Phase II PDI SAP (if applicable), PDIER (in review with agencies), AT QAPP, AT DSR, Borrow Source SAP, Borrow Source DSR, and RARAWP which are detailed in the following sections.

5.1 PHASE I PDI WORK PLAN

The Phase I PDI WP outlines the investigation activities necessary to address the primary data gaps already identified in the CD, as described in Section 2.1. The Phase I PDI WP was prepared by HGL and reviewed by DEQ and EPA, with EPA approval on August 14, 2023. The Phase I PDI was conducted between August 2023 and February 2024. As outlined in Appendix H of the BPSOU CD, the Phase I PDI WP includes the following:

(1) An evaluation and summary of existing data and description of data gaps to be filled by the investigation;

(2) A sampling plan including media to be sampled, contaminants or parameters for which sampling will be conducted, location (areal extent and depths), and number of samples; and

(3) Cross references to QA/QC requirements set forth in the approved Quality Assurance Project Plan QAPP.

5.2 PHASE II PDI SAP

If needed, The Phase II PDI SAP would outline the investigation activities for filling geotechnical data gaps during the Phase II PDI, as described in Section 2.2. During the Phase I PDI it was determined that a Phase II PDI is not required at this time. The Phase II PDI SAP would primarily be produced by HGL based on information provided by the geotechnical engineering firm subcontractor and reviewed by DEQ. As outlined in Appendix H of the BPSOU CD, the Phase II PDI SAP will involve the following:

(1) An evaluation and summary of additional data and description of additional data gaps to be filled by the Phase II investigation.

(2) A sampling plan including media to be sampled parameters for which sampling will be conducted, sample locations, and number of samples; and

(3) Cross references to QA/QC requirements set forth in the approved Quality Assurance Project Plan QAPP if necessary.

If it is determined that a Phase II PDI is needed, DEQ will submit a draft SAP to EPA for review and will respond to comments and submit additional drafts as needed to obtain approval or concurrence with the plans before finalizing the SAP or completing the investigation.

5.3 PRE-DESIGN INVESTIGATION EVALUATION REPORT (PDIER)

The PDIER will present all information and data gathered during PDI. The report is currently under review with agencies. The report as outlined in Appendix H of the BPSOU CD will include the following:

(1) Summary of the investigations performed;

(2) Summary of investigation results;

(3) Summary of validated data (i.e., tables and graphics);

(4) Data validation reports and laboratory data reports;

(5) Narrative interpretation of data and results;

(6) Results of statistical and modeling analyses;

(7) Photographs documenting the investigations conducted; and

(8) Conclusions and recommendations for RD, including design parameters and criteria, and including an acceptable repository provided by the SDs as a disposal location.

Additional limited-scope design investigations to support RD may be needed to supplement the PDIER and/or to perform additional pre-design studies.

DEQ submitted a draft PDIER to EPA for review in September of 2024 and responded to comments provided in November of 2024 and submitted a draft final in January of 2025. DEQ will continue this response to comment process as needed to obtain approval or concurrence with the PDIER before finalizing and including with the RD documentation. The PDIER may be used as a component of or to supplement the Remedial Design Reports as appropriate.

5.4 REMEDIAL DESIGN DOCUMENTATION

RD documents will be prepared by a DEQ contractor, reviewed by DEQ, and submitted to EPA for comments and approval.

The design will be detailed in the Preliminary (30%), Intermediate (60%) and Pre-Final (95%) documents. These design documents will be supported by the results of the PDI to fill data gaps. The design documents will include the design drawings and technical specifications. Because the RD construction design documents will be developed with input from the EPA, through an iterative process, only an overview is provided in this RDWP. The final RD will include the removal of tailings, wastes, and contaminated soils and sediments from the BTC Riparian Actions area and the reconstruction of the stream channel, floodplain, and wetlands as a stable and functioning system.

The RD will include at a minimum, the following elements:

(1) Existing Conditions and Site Controls (existing planimetric information and utilities, existing topography and survey control, existing wells and protected infrastructure, construction fencing, temporary traffic control, construction staging and field office areas, construction stormwater, etc.);

(2) Excavation Plans (horizontal and vertical extents, salvage and stockpile, laybacks, dewatering, phasing, sequencing, etc.);

(3) Site Backfill and Grading (site backfill and regrading, floodplain and wetland grading, general fill and subbase placement, and rough grading);

(4) Stream Channel Design (plan, profile, pool/riffle/run sections and sequencing, bank lift construction details, and planting details, etc.);

(5) Best Management Practices (dewatering trenches, basins, disposal systems, piping, and discharge details as required);

(6) Engineered Covers (placement, grading, and amendment specific to zone);

(7) Stream Diversion and Dewatering Plans (including diversion and bypass structures, connections to existing water treatment lines (if applicable), outlet structures, conduits, channels, piping, pumps, revetment, etc.);

(8) Civil Infrastructure (water, sanitary sewer, storm sewer, etc.);

(9) Borrow Area Plans (locations, haul routes, excavation plans, reclamation plans, if applicable);

(10) Planting and Vegetation (seeding and fertilizer, tree and shrub placement, wetland species placement, erosion controls, and depredation control);

(11) Institutional Controls (signage, fencing, and agreements);

(12) Other elements as determined necessary during RD.

5.4.1 Preliminary (30%) Remedial Design Report

DEQ shall submit a Preliminary (30%) RD Report for EPA's review and comment. The Preliminary RD will include the following information:

(a) A design criteria report, as described in the Remedial Design/Remedial Action Handbook, (EPA, 1995).

(b) A description of how the RA will be implemented in a manner that minimizes environmental impacts in accordance with EPA's Principles for Greener Cleanups (EPA, 2009);

(c) Any proposed revisions to the RA Schedule that is set forth in 7.3 (RA Schedule);

(d) A description of monitoring and control measures to protect human health and the environment, such as air monitoring and dust suppression, and a dewatering plan, during the RA;

(e) A preliminary monitoring and maintenance manual that describes procedures for monitoring and repair, as necessary, of vegetation to attain construction performance standards and certify remedy work is operational and functional as to construction-related performance standards, including quantitative measures of vegetation performance; and

(f) Initial drafts or updates of all supporting deliverables required to accompany the RDWP;

(g) Preliminary drawings and specifications.

(h) Preliminary x-ray fluorescence (XRF) screening correlations and removal verification criteria.

In addition to information specified above, the preliminary drawings will detail the following:

(a) Waste removal design in plan and cross-section view;

(b) Backfill/regrading design in plan and cross-section view;

(c) BTC and SBC confluence reconstruction in plan and profile view;

(d) Plan view of other construction elements: existing conditions map, site utilities, ownership, site plan/conceptual end land use plan, etc.; and

(e) Construction details as needed to show various design details.

5.4.2 Intermediate (60%) Remedial Design Report

DEQ shall submit the Intermediate (60%) RD Report for EPA's comment. The Intermediate RD will:

(a) Be a continuation and expansion of the Preliminary RD,

(b) Address EPA's comments regarding the Preliminary RD, and

(c) Include the same elements as are required for the Preliminary (30%) RD updated as necessary to refine the design and address EPA comments.

(d) Include additional design elements and details as necessary to further develop the design and address comments on the 30% design.

5.4.3 Pre-final (95%) Remedial Design Report

DEQ shall submit the Pre-final (95%) RD Report for EPA's comment. The Pre-final RD must be a continuation and expansion of the previous design submittal and must address EPA's comments regarding the Intermediate RD. The Pre-final RD will serve as the approved Final (100%) RD if EPA approves the Pre-final RD without comments. The Pre-final RD will include the following elements:

(e) Be a continuation and expansion of the Intermediate RD,

(f) Address EPA's comments regarding the Intermediate RD, and

(g) A complete set of contract documents, construction drawings, and specifications that are–

(1) Ready for certification by a registered professional engineer;

(2) Suitable for procurement; and

(3) Follow the most current edition of the DEQ standard contract documents format;

(h) A survey and engineering drawings showing existing BTC Riparian Actions area features, such as remedial elements, property borders, easements, and site conditions;

(i) Pre-Final versions of the same elements and deliverables as are required for the Preliminary/Intermediate RD updated as necessary to refine the design and address EPA comments;

(j) Include additional design elements and details as necessary to further develop the design and address comments on the intermediate design.

(k) A specification for photographic documentation of the RA; and

(l) Updates of all supporting deliverables required to accompany the Preliminary (30%) RD.

5.4.4 Final (100%) Remedial Design Report

DEQ shall submit the Final (100%) RD for EPA approval prior to Bid Advertisement. The Final RD must address EPA and SD's comments on the Pre-final RD and include final versions of all RD deliverables ready for Bid Solicitation and other supporting design and technical documentation otherwise required in the RD Report.

5.5 AT QAPP

DEQ has contracted HGL to produce an AT QAPP to outline requirements for additional laboratory analysis on archive soil samples collected during the PDI in support of repository selection. DEQ will coordinate work with AR for specific details of the AT QAPP. DEQ will

submit a draft QAPP to EPA for review and will respond to comments and submit additional drafts as needed to obtain approval or concurrence with the plans before finalizing the QAPP or completing the investigation. DEQ anticipates submitting the AT QAPP to EPA for review in Summer 2025.

5.6 AT DSR

The AT DSR will provide results from the AT QAPP sampling activities. DEQ will submit a draft DSR to EPA for review and will respond to comments and submit additional drafts as needed to obtain approval or concurrence with the report before finalizing the DSR.

5.7 BORROW SOURCE SAP

DEQ has contracted HGL to produce a Borrow Source SAP to provide information regarding requirements for characterizing a borrow source for the RA. DEQ will submit a draft SAP to EPA for review and will respond to comments and submit additional drafts as needed to obtain approval or concurrence with the plans before finalizing the SAP or completing the investigation. DEQ anticipates submitting the Borrow Source SAP to EPA for review in Spring 2025.

5.8 BORROW SOURCE DSR

The Borrow Source DSR will provide results of the Borrow Source SAP sampling activities and will be integrated into the RD. DEQ will submit a draft DSR to EPA for review and will respond to comments and submit additional drafts as needed to obtain approval or concurrence with the report before finalizing the DSR.

5.9 RIPARIAN ACTION REMEDIAL ACTION WORK PLAN (RARAWP)

As outlined in Appendix H of the BPSOU CD, the RARAWP will consist of the following:

DEQ shall submit a BTC RARAWP for EPA approval. DEQ may provide the BTC RARAWP to EPA concurrently with DEQ's Final (100%) RD. A copy of all RA deliverables will be provided to the SD's Project Coordinator at the same time as such plans are delivered to EPA for the SD's review and comment. DEQ will consider the SD's input, if submitted in a timely manner, and DEQ shall incorporate or attempt to resolve all comments submitted by the SD. The RARAWP will include the following deliverables, as necessary:

(1) A proposed RA Construction Schedule in a Gantt chart;

(2) Proposed dewatering plans, and proposed use of Butte Treatment Lagoons for management of construction water, haul routes, and timing for repository access for coordination with SDs project work;

(3) CQAP detailing removal verification, water quality testing and monitoring, air quality monitoring, and other normal construction testing and verification requirements.

(4) Operations, maintenance and Monitoring plan and schedule for post-remedial action monitoring and maintenance activities.

(5) If necessary, an updated HASP that covers activities during the RA; and

(6) Plans for satisfying the substantive requirements of permits for on-site activity.

5.10 CONSTRUCTION DOCUMENTATION

5.10.1 Emergency Response and Reporting

As outlined in Appendix H of the BPSOU CD, Emergency Response and Reporting will consist of the following:

5.10.1.1 Emergency Response and Reporting

If any event occurs during performance of the BTC Riparian Actions that causes or threatens to cause a release of Waste Material on, at, or from the BTC Riparian Actions area and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, DEQ will do the following:

(1) Immediately take all appropriate action to prevent, abate, or minimize such release or threat of release;

(2) Immediately notify the authorized EPA officer orally; and

(3) Take such actions in consultation with the authorized EPA officer and in accordance with all applicable provisions of the applicable HASP, the applicable Emergency Response Plan, and any other deliverable approved by EPA under the RARAWP.

5.10.1.2 Release Reporting

Upon the occurrence of any event during performance of the BTC Riparian Actions area that DEQ is required to report pursuant to Section 103 of CERCLA, 42 United States Code (U.S.C.) § 9603, or Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. § 11004, DEQ shall immediately notify the authorized EPA officer orally.

The "authorized EPA RPM" for purposes of immediate oral notifications and consultations under 4.4 is the EPA RPM, the EPA Alternate RPM (if the EPA RPM is unavailable), or the EPA Emergency Response Unit, Region 8 (if neither the EPA RPM or Alternate RPM are available).

For any event covered by 4.4, DEQ will do the following:

(1) Submit a report to EPA describing the actions or events that occurred and the measures taken, and to be taken, in response thereto within 14 days after the onset of such event; and

(2) Submit a report to EPA describing all actions taken in response to such event within 30 days after the conclusion of such event.

The reporting requirements under 4.4 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

5.10.2 Daily Contractor Quality Control Records

The construction contractor will prepare daily contractor QC reports on a standardized daily report form. The reports will list a description of the trades working on the project, the number of personnel working, weather conditions encountered, and any delays encountered. The reports will cover both conforming and deficient features and will include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The daily reports will include copies of test reports. The contractor must also take photographs documenting the day's major work activities and incorporate them into the reports. The Construction QC Manager must sign and date the reports. The contractor will provide the reports to the pre-qualified engineering design services firm and EPA oversight within 24 hours after the date covered by the report, with one exception: reports need not be submitted for days on which no work is performed.

5.10.3 Daily Construction Activity Report

The pre-qualified engineering design services contractor will provide construction oversight personnel and will complete a daily construction activity report and submit it daily to DEQ. The report will summarize the activities at the site based on daily field notes. The report will address weather, contractor/subcontractor personnel that are at the site, equipment used, construction activities performed, samples collected, field test results, and any issues encountered.

5.10.4 Material Receipt Inspections

All materials, equipment, and/or supplies that arrive at the site will be inspected by the designated QA personnel to ensure that the products are as ordered or as specified; any deviations will be relayed to the subcontractor and DEQ. Receiving checklists for critical materials will be completed and recorded in a suitable location on the site. These checklists will be included with other inspection documentation as part of the final Certification of Completion Report.

5.10.5 Inspections and Testing Records

All observations, field test results, and laboratory test results performed on the site or off the site will be recorded in a suitable manner. Recorded observations may take the form of notes, charts, sketches, photographs, or any combination of these. At a minimum, the inspection documentation will include the following information:

(1) Description or title of the testing or inspection activity with the date activity was inspected;

(2) Location of the testing or inspection activity or the location from which the sample was obtained;

(3) Type of inspection or testing activity and procedure used;

(4) Recorded observations or test result;

(5) Results of the inspection activity (e.g., results and/or pass/fail).

(6) A comparison with specification requirements;

(7) Personnel involved in the inspection besides the individual preparing the data sheets; and

(8) The signature of the QA Manager accompanied by the date.

5.10.6 Photo Documentation

Construction oversight personnel will take and obtain digital photographs that document existing site conditions, progress activities, and completion conditions.

5.10.7 Record Field Data

The construction contractor will keep at the site two complete sets of as-built field data, one for the construction contractor's use and one for construction oversight personnel. The as-built field data will consist of full-size prints of the construction drawings marked by the construction contractor to show all deviations in actual construction from the original construction drawings. These working-as-built drawings will be updated at least weekly.

5.10.8 Record Drawings

The pre-qualified engineering design services contractor will document the final construction completed at the site through as-built record drawings. The record drawings will be incorporated into the final BTC Riparian Actions Certification of Completion (Section 5.7)

5.10.9 Record Maintenance

DEQ's pre-qualified engineering design services contractor will store and manage all project records and back up documents during construction activities. The contractor will maintain all current records and always make those documents available for inspection by the contractor. The contractor will submit all the deliverables to DEQ. The contractor will include these materials in the final BTC RA Completion Report (Section 5.7)

5.11 FINAL REPORTING

Final reporting will include the Draft BTC Riparian Actions Certification of Completion, the BTC Riparian Actions Completion Inspection, and the BTC Riparian Actions Completion Report, as outlined in Sections 4.6 and 4.7 of Appendix H of the BPSOU CD.

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FIGURES

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