BPSOU SURFACE WATER MANAGEMENT PLAN

BUTTE PRIORITY SOILS OPERABLE UNIT of the SILVER BOW CREEK / BUTTE AREA SUPERFUND SITE Butte-Silver Bow County, Montana

EXHIBIT 1 TO ATTACHMENT A TO APPENDIX D TO THE CONSENT DECREE

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¹ The text of this SWMP controls if there is any inconsistency between the text and the Figures of this SWMP.

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LIST OF ACRONYMS

µg/L	micrograms per liter
ARAR	applicable or relevant and appropriate requirement
BMI	benthic macroinvertebrate
BMP	best management practice
BPSOU	Butte Priority Soils Operable Unit
BRW	Butte Reduction Works
BTC	Blacktail Creek
BTL	Butte Treatment Lagoons
CB-9	Catch Basin 9
CCR	construction completion report
CD	Consent Decree
COC	contaminant of concern
DEQ	Montana Department of Environmental Quality
DSR	Data Summary Report
EPA	U.S. Environmental Protection Agency
KRECCR	Key Remedial Elements Construction Completion Report
LAO	Lower Area One
LTSWM Plan	long-term surface water management plan
NA	not applicable
NPL	National Priorities List
O&M	operations and maintenance
PEC	Probable Effect Concentration
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RA	remedial action
RAO	remedial action objective
RD	remedial design
RG	remedial goal
ROD	2006 Record of Decision, 2011 Explanation of Significant Differences and
	2020 Record of Decision Amendment
RPD	relative percent difference
SBC	Silver Bow Creek
SDs	Settling Defendants
BPSOU SOW	BPSOU Statement of Work
SSTOU	Streamside Tailings Operable Unit
SWCDP	surface water compliance determination plan
SWMP	surface water management plan
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

The surface water remedy for Butte Priority Soils Operable Unit (BPSOU) is described in the Record of Decision (ROD), which is comprised of the 2006 Record of Decision, the 2011 Explanation of Significant Differences and the 2020 ROD Amendment. The requirements for implementation of the surface water remedy are described in the BPSOU Statement of Work (SOW), Appendix D to the BPSOU Consent Decree (CD), including its attachments. This BPSOU Surface Water Management Plan (BPSOU SWMP or SWMP) describes how the surface water remedy will be managed following construction of all surface water-related remedy elements. The SWMP is the overarching plan for how to address all surface water monitoring activities identified in the ROD that are required under the BPSOU SOW to evaluate the effectiveness of both the surface water and groundwater remedies.

The primary topics addressed by this SWMP include monitoring and management of surface water and sediments² and monitoring of benthic macroinvertebrates. The SWMP does not address the implementation and construction of work elements. In the event of any conflict between this document and the BPSOU SOW and its Attachments A, B.1, C and D, the terms of the BPSOU SOW and its attachments control.

The procedures and specific monitoring requirements are included in a separate Surface Water Monitoring Quality Assurance Project Plan (QAPP) (Atlantic Richfield 2018a) and compliance data assessment methodologies are specified in the BPSOU Surface Water Compliance Determination Plan (SWCDP) to which this document is attached as Exhibit 1. Future revisions to the Surface Water Monitoring QAPP will include procedures specific for sediment and benthic macroinvertebrates (BMI) monitoring and data collection. The SWCDP provides detail regarding comparison to in-stream surface water Performance Standards, compliance standard determinations, use of replacement standards, and compliance determination for BPSOU.

This SWMP provides preliminary guidance for design and operation of the various remedial elements related to surface water, particularly the stormwater detention/retention basins and appurtenances and evaluating the performance of the contaminated groundwater collection and treatment systems. While the O&M plans specific to each constructed element guide the day-to-day O&M, the primary purpose of the O&M sections of the SWMP is to describe when operational adjustments to these systems are needed.

 $^{^{2}}$ Sediments as used in this document is defined to mean instream sediments in BTC and SBC below the confluence.

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The objectives of this SWMP are as follows:

- Summarize the surface water monitoring that is more specifically described in the Surface Water Monitoring QAPP that will provide data necessary for comparison with Performance Standards.
- Summarize the assessment requirements of the SWCDP, which specify the methodology to determine when the ROD in-stream surface water Performance Standards are exceeded.
- Determine, using relevant lines of evidence, if contaminated groundwater is being adequately controlled to prevent adverse impacts to surface water and/or sediment.
- Summarize the contingency requirements of the SWCDP, which specify when further investigations and/or activities (including additional removal of contaminated sediment and additional contaminated groundwater control) within the scope of the remedy may be conducted.
- Describe differences in assessment and contingency requirements for the compliance determination period and compliance monitoring period.
- Provide preliminary guidance for design and operation of the surface water-related remedial elements.
- This SWMP may be reviewed from time to time to evaluate its effectiveness. Any modifications to the SWMP must be made in accordance with Paragraph 119 of the CD.

1.1 BPSOU SWMP Scope and Organization

Surface water, groundwater, sediment, and/or benthic macroinvertebrate (BMI) and other potential monitoring data will be used to assess the protectiveness of the Remedy and determine when certain in-stream surface water Performance Standards and sediment criteria are exceeded. In-stream surface water Performance Standards are listed in the SWCDP. EPA, in consultation with DEQ, will use the processes outlined in this SWMP to determine when additional contaminated sediment removal and/or additional control of contaminated groundwater is required. Sediment criteria (Probable Effects Concentrations [PEC]) and other processes are defined in Section 8.1 of this SWMP.

SWMP components include:

- Section 2 Surface Water Site Features
- Section 3 Surface Water Remedy Description
- Section 4 Surface Water Monitoring
- Section 5 Sediment Performance Monitoring

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- Section 6 Benthic Macroinvertebrate Monitoring
- Section 7 Surface Water Monitoring Data Evaluation
- Section 8 Sediment and Benthic Macroinvertebrate Data Evaluation
- Section 9 Surface Water Diagnostic Response Evaluation
- Section 10 Sediment Diagnostic Response
- Section 11 Butte Treatment Lagoons
- Section 12 Operational Guidelines for Remedy O&M Affecting Surface Water and/or Sediments
- Section 13 Project Management and Reporting
- Section 14 References

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2.0 SURFACE WATER SITE FEATURES

Blacktail Creek (BTC) is the primary upstream water body that flows into BPSOU. A minor perennial tributary, Grove Gulch, joins BTC at the BPSOU boundary. Silver Bow Creek (SBC) within BPSOU is comprised of two distinct portions. One is upstream of the confluence with BTC, which is a constructed channel with no perennial base flow. The remaining portion of SBC is downstream of the confluence with BTC and includes all of the input flow from BTC.

BPSOU is an urbanized area with constructed stormwater features to control and direct urban runoff. Several stormwater outlets discharge into SBC upstream of the confluence with BTC. Additional outlets discharge directly to SBC downstream of the confluence with BTC.

BTC, SBC, and drainages flowing to the two creeks within the BPSOU have been sampled extensively since the late 1990s during both normal flow and wet weather conditions for contaminants of concern (COCs) and other water quality parameters. Data collected in the 1980s and early 1990s demonstrated elevated COC concentrations in SBC during normal flow and storm flow conditions. Seasonal high flows fed by spring snowmelt and periodic wet weather events result in higher suspended sediment and increased total recoverable COC concentrations. As a result, State of Montana total recoverable COC standards are routinely exceeded in BTC and SBC during seasonal high flows and storm events. However, federal dissolved surface water Performance Standards are only occasionally exceeded. During normal flow conditions, COC and suspended sediment concentrations are low, water hardness concentrations are higher, and exceedances of aquatic life water quality standards are less frequent. Contaminated groundwater discharging to BTC and SBC surface water was and continues to be a source of contamination to surface water and sediments that will be further controlled by the implementation of the remedy as described in the BPSOU SOW.

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3.0 SURFACE WATER REMEDY DESCRIPTION

The surface water remedial action objectives (RAOs) specified in the 2006 Record of Decision as modified by the 2020 Record of Decision Amendment are as follows, with 2020 Record of Decision Amendment changes italicized:

- Prevent ingestion or direct contact with contaminated surface water that would result in an unacceptable risk to human health
- Return surface water to a quality that supports its beneficial uses
- Prevent source areas from releasing contaminants to surface water that would cause the receiving water to violate [surface water applicable or relevant and appropriate requirements] (ARARs) and [remedial goals] (RGs) (or replacement standards for ARARs that are waived) for the [operable unit] OU and prevent degradation of downstream surface water sources, including during storm events
- Ensure that point source discharges from any water treatment facility (e.g., water treatment plant, wetland, etc.) meet ARARs
- Prevent further degradation of surface water
- Meet *or appropriately waive and replace* the more restrictive of chronic aquatic life or human health standards for surface water identified in Circular DEQ-7 (Table 8-2 [in the ROD]) through the application of B-1 class standards

Additional RAOs for groundwater and solid media, which affect surface water and sediment, include:

- Prevent groundwater discharge that would lead to violations of surface water ARARs and RGs for the BPSOU
- Prevent releases of contaminated solid media to the extent that they will not result in an unacceptable risk to aquatic environmental receptors
- Prevent releases of contaminated water from solid media that would result in exceedances of the Montana State Water Quality Standards *or their replacement standards* for surface water
- Remediate contaminated solid media to the extent that it will not result in an unacceptable risk to human health and/or aquatic environmental receptors
- Prevent release of contaminated water from solid media that would result in degradation of surface water in accordance with the surface water RGs

Described below are the required remedy components, the already completed remedy work, and the proposed additional remedy work to be completed. Through the completion of all current and required remedy work, RAOs (as described in the ROD and BPSOU SOW) may be achieved.

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3.1 2006 Record of Decision Remedy Components

The surface water remedy, described in the 2006 Record of Decision (EPA 2006) is as follows:

- 1. "The Surface Water Management Program, which utilizes BMPs to address contaminated stormwater runoff and improve stormwater quality.
- 2. Excavation and removal to a repository of contaminated sediments from the stream bed, banks, and adjacent floodplain along Blacktail Creek and Silver Bow Creek, from just above the confluence of Blacktail Creek and Metro Storm Drain³ to the beginning of the reconstructed Silver Bow Creek floodplain at Lower Area One. Following removal of the in-stream sediments, further evaluation of surface water quality in this area will be conducted. If groundwater inflow is found to adversely affect surface water quality, additional hydraulic controls and groundwater capture shall be implemented within the BPSOU.
- 3. Capturing and treating water runoff up to a specified maximum storm event, if BMPs implemented under the Surface Water Management Program do not achieve the goal of meeting surface water standards in Silver Bow Creek, Grove Gulch, and Blacktail Creek during stormwater events^{4,5}. [modified by the 2020 Record of Decision Amendment]
- 4. Hydraulic control, capture, and treatment of contaminated groundwater to prevent its discharge to Silver Bow Creek surface water..."
- "In-stream flow augmentation as appropriate. Flow augmentation will not be considered until the major remedial components described in this ROD are designed and implemented⁶." [modified by the 2020 Record of Decision Amendment]

³ Note that in the 2006 ROD, 2011 Explanation of Significant Differences, and many site technical documents, the terminology used for this BPSOU conveyance feature was "Metro Storm Drain"; however, it is now referred to as "Silver Bow Creek."

⁴ The 2020 ROD Amendment removed the requirement for consideration and potential construction and use of a separate conventional lime treatment facility for stormwater treatment as a component of the BPSOU surface water remedy. The detention/retention basins which will be constructed are considered to be treatment.

⁵ The 2020 ROD Amendment changed the points of compliance to two stations in SBC, thereby removing points of compliance in BTC and Grove Gulch.

⁶ The 2020 ROD Amendment removed in-stream flow augmentation as a component of the BPSOU surface water remedy.

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Items 3 and 5 were modified by the 2020 Record of Decision Amendment as described in the footnotes.

The initial surface water management program, as described in the 2006 Record of Decision, employed an adaptive management approach to meeting surface water RAOs where surface water monitoring, compliance analysis, and loading analysis were used to determine the need for and locations of additional best management practices (BMPs) while BMP selection and BMP implementation were responses to the identified needs. Construction was to be followed by monitoring to complete the cycle. The cycle of monitor, analyze, design, and implement was to continue until RAOs are met or up to 15 years.

The 2006 Record of Decision groundwater remedy as related to surface water includes:

- Capture and treatment of contaminated groundwater between the confluence of BTC and SBC and the Civic Center area
- Capture and treatment of contaminated groundwater in Lower Area One (LAO)
- A contingency for expanding contaminated groundwater capture as needed to prevent adverse effects on surface water quality
- The 2006 Record of Decision non-residential solid media remedy related to surface water includes:
- Reclamation of source areas, including mine waste and contaminated soil, to prevent erosion and mobilization of metals to surface water

The ROD Remedy for each of the media also includes monitoring and maintenance.

The 2011 Unilateral Administrative Order for Partial Remedial Design/Remedial Action Implementation and Certain Operation and Maintenance at the Butte Priority Soils Operable Unit (EPA 2011a) did not make changes to the 2006 Record of Decision remedy components related to surface water. However, the BPSOU Partial Remedy Implementation Work Plan (EPA 2011b) clarified that the surface water remedy components were not fully implemented by the Unilateral Administrative Order and the surface water management program would continue through the third cycle.

The 2020 Record of Decision Amendment makes changes to the surface water remedy and expands the groundwater remedy. Changes to the surface water remedy include:

• Waiver and replacement of two in-stream surface water Performance Standards

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- Additional automatic waivers if certain other Performance Standards are not met during the Performance Standards determination period
- Eliminating certain surface water points of compliance
- Simplifying the method for determining upstream COC concentrations
- Revising the definition of the wet weather flow regime
- Providing specificity for the fourth and final cycle of the surface water management program
- Expanding the previously required sediment removal, including relocating a reach of SBC, and floodplain removal requirements
- Remove the contingency to install a conventional treatment plant for chemical treatment of stormwater
- Remove the option for augmentation of flow to obtain remedial goals

Changes to the groundwater remedy include:

- Implementing the contingency for expansion of groundwater collection to reduce adverse effects on surface water quality within BPSOU
- Additional removals of historical mine waste in certain areas

3.2 Completed Remedy Work

A summary of the status of ongoing remedy implementation is included in Attachments B and B.1 to the BPSOU SOW for the BPSOU CD.

3.3 Further Remedial Elements

Attachment C to the BPSOU SOW identifies nine remedial elements to be implemented pursuant to the CD. Detailed descriptions of these aspects of the remedy are provided in the Further Remedial Elements Scope of Work, Attachment C to the BPSOU SOW. The surface water monitoring portion of the remedy is described in Section 4, below.

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4.0 SURFACE WATER MONITORING

During prior activities to implement the remedy, surface water monitoring has been conducted as part of the surface water management program with the purposes of assessing compliance with Performance Standards set forth in the ROD and to determine where additional remedial work may be needed to fully comply with standards. Following construction of remedial components, surface water monitoring will include compliance monitoring intended to measure compliance with Performance Standards and performance monitoring intended to provide information for O&M and the overall performance of the remedy. Compliance monitoring will be conducted in accordance with the SWCDP.

Monitoring required under the surface water management program evaluates wet weather conditions where stormwater BMPs are the primary remedial elements and normal flow conditions where discharge of groundwater or controlled releases from detention/retention basins or other sources may improve or adversely affect surface water. Monitoring during these conditions measures progress toward achieving the primary objectives for surface water by determining compliance with in-stream surface water Performance Standards.

Prior to completing remedy implementation, the focus of surface water monitoring has been for diagnostic purposes, focused on identifying loading sources that further remedy implementation can address. With the completion of the Further Remedial Elements Scope of Work, assessment of compliance with standards will become formalized and include responses that will be taken upon exceedance of Performance Standards at specific points of compliance.

Surface water compliance monitoring is described in Section 2 of the SWCDP. Routine surface water monitoring is conducted following the Surface Water Monitoring QAPP, which implements the requirements of the SWMP and SWCDP and includes requirements for performance monitoring. The Surface Water Monitoring QAPP is updated each year, if necessary, to reflect potential changes such as minor revisions to locations and schedule subject to review and approval by EPA in consultation with the Montana Department of Environmental Quality (DEQ). The Surface Water Monitoring QAPP includes detailed information for implementing surface water monitoring such as sample locations, schedules, analytical requirements, and quality assurance (QA) procedures. Monitoring is generally conducted during normal flow conditions, with in-stream results compared to chronic Performance Standards, and during wet weather conditions, with the results compared to acute Performance Standards. During non-winter periods, additional monitoring is conducted at locations where stormwater may discharge to surface water, including at outlets of the stormwater system and within the remedial elements. These data are informative for evaluating remedy performance but are not used for compliance assessment.

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The Surface Water Monitoring QAPP provides details for collecting data necessary to:

- Evaluate compliance with Performance Standards at the points of compliance (i.e., compliance monitoring);
- Evaluate performance of the remedy in accomplishing the primary objectives of returning SBC to its beneficial uses and protecting downstream receptors from releases of contamination from BPSOU (i.e., performance monitoring); and
- Evaluate any necessary diagnostic data collected for the purpose of identifying any remedial system component optimization or maintenance, including additional removal of contaminated sediments or additional contaminated groundwater control.

To address these needs, the Surface Water Monitoring QAPP governs data collection at specific locations under two different stream conditions. These are described in the following sections.

4.1 Wet Weather Conditions

4.1.1 Wet Weather Definition and Sampling Trigger

The surface water management program assesses whether in-stream Performance Standards are being met during wet weather conditions. In accordance with the SWCDP (Attachment A to the BPSOU SOW), the definition of wet weather and the trigger for collecting surface water compliance samples is when there is measurable outflow from the primary outlet of the following main stormwater detention/retention basins within BPSOU: CB-9 in Missoula Gulch, the Diggings East basin, and the Buffalo Gulch basin. This trigger will continue to be used for collection of performance samples for informational and assessment purposes.

In a general sense, wet weather conditions are short-term rain or snowmelt events when changes in flow and water quality occur over a short period. Surface water performance monitoring to measure water quality during wet weather conditions involves collecting a series of samples during wet weather events, with sampling initiated by a change in stream stage or at a stormwater discharge outlet. Periodic surface water performance samples will be collected when measurable outflow occurs from any stormwater detention/retention basins to inform remedy operations. Wet weather performance samples will be collected based on significant increases in stream stage due to basin discharge, with decreasing frequency over time.

"Measurable outflow" means sufficient flow that the rate can be measured using a flume, weir, meter, or other mechanical device. In a practical sense,

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this is intended to include the flow of water that reaches surface water and is not de minimis.

"Primary outlet" means the top (maximum elevation) of the outlet control structure established to detain/retain the entire specified design storm of each respective main basin (see Figure 5-1). The primary outlet is not the emergency spillway.

4.1.2 Wet Weather Performance Monitoring

Performance monitoring during wet weather events including stage, flow, and water quality, will be conducted at in-stream and stormwater facility locations historically monitored under the previous interim surface water monitoring plan and current Surface Water Monitoring QAPP. The purpose in maintaining these stations is to evaluate the effectiveness of the remedy at reducing COC loading to surface water. Previous in-stream stations to be retained, revised or relocated may include SS-01, GG-BTC, SS-04, SS-05, SS-05A, SS-06G, and SS-07. Stations may need to be moved or sampling temporarily discontinued to allow for construction activities. In the case of stream channel relocation, affected stations will be discontinued and new stations will be established as a part of the RAs. In-stream sampling will be conducted using automated samplers to collect multiple samples over the hydrologic event cycle. Samplers will be triggered based on increases in stage that are specific to each location and season as defined in the Surface Water Monitoring QAPP.

Stormwater monitoring of locations not in perennial streams primarily includes outlets of the municipal stormwater system. These are currently referred to in the Surface Water Monitoring QAPP as diagnostic monitoring locations and provide information for characterizing stormwater that will report to the detention/retention basins already existing or to be constructed. Fifteen locations are included in the current Surface Water Monitoring OAPP. and some will continue to be sampled as needed to inform the shakedown process, operations, and/or diagnostic investigations. Most of the stormwater system locations employ automated samplers triggered by changes in stage. The remaining locations employ crest samplers triggered by a stage set by field personnel. This system will continue but may be modified as needed. After the detention/retention basins are constructed and deemed operational and functional, the performance monitoring of the stormwater system will be revised to include monitoring inlets and outlets of the detention/retention basins and other locations within BPSOU as necessary to evaluate the effectiveness of the remedy. The frequency and intensity of performance

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sampling will reduce over time and be periodically reviewed and modified as appropriate.

When the surface water remedy is fully implemented, performance monitoring of the components outside of the perennial streams will occur as needed. Further description of this performance monitoring shall be completed during RD. Calculation of the initial discharge rates from the main basins will be made during RD. The purpose of this monitoring is to measure the effectiveness of the basins at reducing COC concentrations, to determine appropriate seasonal discharge rates from the basins to surface water and to provide data to evaluate the need for operational adjustments. However, occasional in-season adjustments are not precluded. Monitoring will include flow and water quality. Monitoring needs upstream in the stormwater system of the detention/retention basins will be determined as a part of development of the O&M plan for the basins; however, the shakedown stage of basin operation will require significant performance monitoring to be able to adjust discharge rates from the pond outlets.

4.2 Normal Flow Conditions

4.2.1 Normal Flow Definition and Compliance Sampling Trigger

Normal flow conditions, as defined in the SWCDP (Attachment A to the BPSOU SOW), include base flow and seasonal high flow when flow rates are not significantly changing and conditions are mostly stable, including normal diel flow variation. Normal flow compliance sampling is triggered by schedule and occurs only when the basins are not discharging as further described in the Surface Water Monitoring QAPP. Compliance sampling during normal flow conditions occurs eight times per year, with four sampling events during base flow conditions and four sampling events during normal high flow conditions, which will be defined in the Surface Water Monitoring QAPP consistent with methodologies employed by the U.S. Geological Survey.

4.2.2 Normal Flow Performance Monitoring

Performance monitoring of normal flow will be conducted periodically to measure effects of discharging treated stormwater or uncontrolled contaminated groundwater discharge to surface water.

Normal flow performance samples will be collected to evaluate appropriate seasonal discharge rates from the basins. Normal flow performance sampling is not restricted by hydrologic changes or whether basins are discharging.

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Normal flow sampling occurs at in-stream locations and at selected point source discharges. Monitoring will include manually collecting stage flow and water quality data. In-stream performance samples will be periodically collected at stations SS-01, SS-01.6, SS-04, SS-05, SS-05.7, SS-05A, SS-06A, SS-06G and SS-07 with modifications to this list detailed in the QAPP, subject to approval by EPA, in consultation with DEQ. Performance samples may be collected at other locations as needed to inform diagnostic investigations. Compliance samples will be collected at SS0-06G and SS-07. Compliance samples will be collected at upstream station SS-01. Stations may need to be moved or sampling temporarily discontinued to allow for construction activities. In the case of stream channel relocation, affected stations will be discontinued and new stations may be established as a part of the RAs. Basin performance monitoring is conducted to measure the effectiveness of the stormwater basins and to inform operations, as further defined in the Surface Water Monitoring QAPP.

4.3 Schedule for Implementation

Surface water monitoring is ongoing under an approved Surface Water Monitoring QAPP. The different monitoring periods include:

- <u>Interim Monitoring Period</u> Includes ongoing monitoring prior to the Effective Date of the CD through the Remedial Design phase;
- <u>Construction and Shakedown Monitoring Period</u> Includes performance monitoring commencing with the construction of remedial elements and continuing through construction and shakedown of the basins; this monitoring will be completed upon KRECCR approval by EPA, in consultation with DEQ;
- <u>Compliance Standard Determination Period</u> Upon KRECCR approval (and in addition to compliance monitoring conducted in accordance with the SWCDP) performance monitoring will continue to refine operation of the basins and inform diagnostic investigations; and
- <u>Compliance Monitoring Period</u> Upon the Compliance Standard Determination (and in addition to compliance monitoring conducted in accordance with the SWCDP), limited performance monitoring will continue to inform long-term operations and maintenance of the stormwater BMPs.

Further descriptions of the compliance monitoring periods are included in Figure 1-1 of the SWCDP.

4.4 Monitoring Methodologies

In-stream surface water compliance samples shall be analyzed for all COCs, both total recoverable and dissolved, plus hardness and applicable parameters that are

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needed to apply the Biotic Ligand Model to normal flow and stormwater samples. Additional sampling parameters include field measurements (e.g., pH, temperature, specific conductance, oxidation-reduction potential) and hydrologic measurements (e.g., stage, discharge). Performance monitoring requirements are flexible and will be determined based upon the purpose of the monitoring. Sampling protocols are set forth in the final BPSOU Surface Water Monitoring QAPP and in the Clark Fork River Superfund Site Investigations Quality Assurance Project Plan and any amendments thereto. Certain methodologies are specified for compliance samples in the SWCDP.

4.5 Data Reporting

Consistent with the BPSOU SOW, a data summary report (DSR) for the sitewide surface water monitoring program shall be prepared annually for submittal in May to EPA and DEQ. DSR reports shall follow the general format of the pilot data report addendum (ARCO 2000) or an approved replacement format and shall be submitted in draft and are subject to comment by EPA in consultation with DEQ. Quarterly data reports, without full QA/quality control (QC) information, shall also be provided by the SDs to EPA and DEQ. However, the SDs shall complete validation of laboratory data throughout the year to ensure that the laboratory data meet the QA/QC requirements. Further details regarding data validation and reporting are contained in the Surface Water Monitoring QAPP.

The SWCDP identifies the methodology for determining exceedances of the surface water Performance Standards for the BPSOU. The SWCDP controls if there is any inconsistency between the SWCDP and the SWMP.

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5.0 SEDIMENT PERFORMANCE MONITORING

Sediment performance monitoring is to begin upon construction completion of certain Further Remedial Elements. A more detailed description of the sediment performance monitoring will be described in the Surface Water Monitoring QAPP. Data obtained from sediment performance monitoring is intended to inform stakeholders if the remedy is protective of SBC and BTC or if recontamination of sediments is occurring as a result of upstream loading by surface water transport and deposition of COCs or by loading to sediments from a groundwater source(s) contaminated by historical mine waste. The decision process as to whether further sediment removal and/or additional contaminated groundwater control will be required under the remedy is described in Section 10 of this SWMP.

Annual sediment sampling is to occur at sampling locations within BPSOU and upstream of BPSOU. Sampling and analysis will be generally consistent with monitoring conducted at the Streamside Tailings Operable Unit (SSTOU), including coordination of sampling dates, if possible. Collected samples shall be segregated by depth interval (e.g., 0-2 inches, 2-6 inches, and 6-12 inches as described in the and sieved to a diameter less than 2mm (Surface Water Monitoring QAPP)). Each sample shall be analyzed for pH, arsenic, cadmium, copper, lead, mercury, and zinc and any additional analytes listed in the Surface Water Monitoring QAPP. The Surface Water Monitoring QAPP provides a detailed description of the sampling locations and collection techniques and is generally consistent with the sediment sections of the *Comprehensive long-term monitoring plan for Silver Bow Creek Streamside Tailings Operable Unit*, (DEQ and NRDP, 2004) and *Sampling and analysis plan for performance monitoring of the Streamside Tailings Operable Unit – 2016* (DEQ and NRDP, 2016).

Section 8 of this SWMP provides a description of how the sediment data will be considered in determining whether any additional response actions are recommended.

5.1 Data Reporting

A Surface Water DSR for the sediment performance monitoring program shall be prepared annually for submittal in May to EPA and DEQ. DSR reports shall follow the general format of the pilot data report addendum, shall be submitted in draft, and are subject to comment by EPA in consultation with DEQ. Further details regarding data validation and reporting are contained in the QAPP.

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6.0 BENTHIC MACROINVERTEBRATE MONITORING

This section generally describes the BMI monitoring, which is to occur during the BPSOU compliance determination period and compliance monitoring period. The results of BMI monitoring will be considered as a line of evidence along with all other data sources to inform further remedial actions and during the 5-year review as part of assessing the protectiveness of the remedy. A more detailed description of BMI monitoring will be described in the Surface Water Monitoring QAPP.

6.1 Data Reporting

The BMI monitoring data shall be prepared and reported in the annual Surface Water DSR for submittal to EPA and DEQ annually in May. BMI monitoring is dissimilar enough from other media that the standard requirements for validation and reports do not apply. This portion of the Surface Water DSR shall present any QA data and an assessment of the data quality objectives. Reports shall be submitted in draft and are subject to comment by EPA in consultation with DEQ.

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7.0 SURFACE WATER MONITORING DATA EVALUATION

Compliance and performance surface water data shall be evaluated to determine recommendations, if any, for additional response actions or operational adjustments, respectively. Figure 1-1 of the SWCDP depicts the compliance determination and compliance monitoring periods following agency approval of the KRECCR. Methods for evaluation of surface water compliance data and potential response actions related to surface water are established in the SWCDP. Methods for evaluation of surface water performance data and potential operational changes related to surface water and for other media are described herein.

Both compliance and performance data require review and potential calculations and adjustment prior to comparison to Performance Standards as described in the SWCDP.

Sections 7.1 and 7.2 identify the various compliance and performance data evaluations to be completed to answer the questions found in the additional work decision flow chart found in Figure 7-1 of the SWCDP and as described in the SWCDP.

7.1 Compliance Data Evaluations

Compliance samples will be evaluated in accordance with the SWCDP. Compliance samples that exceed instream surface water Performance Standards are referred to as "exceedances" in this SWMP.

7.2 Performance Data Evaluations

Performance data will be used to inform operational adjustments to the remedy. Performance data may also be used to inform diagnostic investigation and subsequent diagnostic response. Samples obtained during performance monitoring that exceed Performance Standards will be considered a surface water deviation. Surface water deviations can drive operational adjustments to then existing groundwater controls or surface water BMPs, but are not counted as exceedances for compliance purposes and do not lead to violations, waivers or additional work.

7.3 Surface Water Compliance Comparison and Interpretation Report

As described in the BPSOU SOW and its attachments, comparison of surface water quality to instream surface water quality Performance Standards shall be prepared and submitted annually by the SDs in the Surface Water Compliance Comparison and Interpretation Report. This is separate from the Surface Water DSR. The report will include validated COC results from all perennial surface water stations for the calendar year categorized by compliance samples and performance samples. Results will be presented with comparisons to instream surface water quality Performance Standards and as detailed in the SWCDP, and a total number of exceedances and surface water deviations, if any, will be derived (per COC) and presented. A running

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total of previous exceedances and surface water deviations will also be presented. The report may include interpretation of data collected under the Surface Water Monitoring QAPP. The report shall be submitted by June 30th each year in draft for EPA comment in consultation with DEQ. Upon satisfactorily addressing agency comments, the report will be finalized.

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8.0 SEDIMENT AND BENTHIC MACROINVERTEBRATE MONITORING DATA EVALUATION

8.1 Sediment Data Evaluation

The data presented in the Surface Water DSR will be evaluated to assess the performance of the surface and groundwater remedies as described in this document.

Performance Standards for sediment have not been established for BPSOU. Comparison of sediment concentrations to the Probable Effects Concentrations (PECs) will be used by EPA, in consultation with DEQ, to determine if further investigation is required per Figure 10-1. PECs were established as concentrations of individual chemicals above which adverse effects in sediments are expected to frequently occur (Ingersoll *et al.* 2000, MacDonald *et al.* 2000). The PECs are listed in Table 8-1.

If the sediment sample concentration is greater than the PECs in Table 8-1, the laboratory duplicate of digestate liquor will be analyzed. The relative percent difference (RPD) between the natural sample and laboratory duplicate sample will be calculated. If the RPD is greater than 20 percent, the natural sample is flagged J, and the result is screening quality and no sediment deviation has occurred, and resampling will occur. If the RPD is 20 percent or less, data validation will be performed. If the sample result is enforcement quality and exceeds PEC, a sediment deviation has occurred. The comparison to sediment criteria process is shown on Figure 8-1. Sediment deviations and how they will be used in a diagnostic way for assessing recontamination are addressed in Section 10.

Additionally, sediment data will be evaluated for trends by depth interval. Trends will be evaluated using the procedures developed by EPA for groundwater monitoring and are described later in terms of frequency of monitoring and direction of the trend. An EPA spreadsheet for conducting this evaluation is found at https://www.epa.gov/superfund/superfund-groundwater-groundwater-response-completion i.e., Groundwater Statistics Tool (Version 2).

The spreadsheet offers two options for the type of tests to be completed. The "Remediation" tests are to be selected. Where the data are normally distributed, trends will be evaluated using the ordinary least squares method. Where the data are lognormally distributed, trend analysis will include a Mann-Kendal trend analysis and a Theil-Sen slope analysis. The tests will be run using a 95 percent confidence level. A minimum of four consecutive concentrations are needed, but the tests will be run using no more than eight consecutive concentrations when available.

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8.2 Benthic Macroinvertebrate Data Evaluation

The BMI data will be used in the 5-year review to evaluate overall protectiveness of the remedy, which, if supported by other lines of evidence, may require additional sediment removal. Results of BMI monitoring do not have triggers or benchmarks that lead directly to further action, but will be used, along with all other appropriate data sources, as a line of evidence to inform further response actions as described in Sections 9 and 10.

8.3 Sediment Performance Reporting

Comparison of sediment concentrations to PECs (Table 8-1) and evaluation of BMI data will occur annually by the SDs. This is separate from the DSRs. This report will be included within the Surface Water Compliance Comparison and Interpretation Report, as described in Section 7.3. The report will contain results from the sampling stations from which they were collected for the calendar year. The total number of sediment deviations, if any, will be derived (per COC) and presented. Sediment concentration (by size fraction, if necessary) and BMI data will also be presented. Trends of the data will be included if appropriate data are available. Reports shall be submitted by the SDs annually by June 30th in draft form and are subject to comment by EPA in consultation with DEQ. Final reports are subject to comment, review, and approval by EPA in consultation with DEQ.

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9.0 SURFACE WATER DIAGNOSTIC RESPONSE EVALUATION

9.1 Preliminary Diagnostic Evaluation for a Surface Water Deviation

If a surface water deviation has occurred during performance monitoring, as described in Section 7.2 of this SWMP, a preliminary diagnostic evaluation will be performed to inform potential operational adjustments to meet the remedial goals listed in Section 3 to the extent practicable. Any operational adjustments proposed for implementation will be documented in a Request for Change (RFC) document. The RFC may be integrated into future revisions of the O&M plan if determined appropriate upon annual review.

A preliminary diagnostic evaluation will be conducted to report on whether the surface water deviation was a result of failure to operate or maintain a surface waterrelated element or an unavoidable occurrence. An unavoidable occurrence is defined as a condition when a single storm event exceeds the design volume of a main stormwater retention/detention basin or a condition not controlled by the remedy. O&M records and existing data will be reviewed to determine the cause of the deviation. At the conclusion of the evaluation and records and data review, a preliminary diagnostic evaluation report of findings and causation shall be submitted to EPA and DEQ within 60 days of the request or notification. EPA and DEQ will review and, if appropriate, comment on the report.

9.2 Diagnostic Response Investigation for an Exceedance

If a Performance Standard exceedance has occurred during compliance monitoring as described in the SWCDP, the process for determining the response and Additional Work, if any, will be evaluated in accordance with Section 7.1 or Section 7.2 of the SWCDP.

The primary objective of the diagnostic response investigation is to determine the cause of the exceedance, such as failure of a constructed remedial element or variance from the approved O&M plan, and/or determine and characterize the source of the COC leading to the exceedance. Depending on the data and findings presented in the preliminary diagnostic evaluation report, EPA, in consultation with DEQ, may require development of a diagnostic response investigation work plan. The diagnostic response investigation work plan may include a variety of elements such as additional diagnostic monitoring of surface water, groundwater, soil, or sediment; review of O&M procedures; inspection and testing of constructed remedial elements; and/or auditing of data and data collection methods. The scope of the investigation will depend on the nature and severity of the exceedance. For exceedances occurring during normal flow conditions, the investigation will primarily focus on groundwater controls, groundwater conditions, BTL operations, sediments and pore water, and other potential chronic sources. Table 9-1 provides the lines of evidence to be

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considered by EPA, in consultation with DEQ, to determine if additional groundwater hydraulic control in BPSOU is necessary.

For exceedances occurring during wet weather flow conditions, the investigation will primarily focus on (but not be limited to) wet weather remedial features such as retention/detention basins, BMPs, and other remedial elements within the Corridor, as defined in the SWCDP.

EPA, in consultation with DEQ, will review and comment, as necessary, on the draft plan. Upon satisfactory revision, as needed, EPA, in consultation with DEQ, will approve the final diagnostic response investigation plan. Following completion of data collection and analysis, a draft diagnostic investigation report will be prepared and submitted to EPA and DEQ. The report will provide the findings of the investigation and, as appropriate, include recommendations to correct failures, improve O&M, and/or perform optimization to mitigate the potential for further exceedances. If optimization is recommended, an optimization report shall be prepared (see Section 9.3). EPA, in consultation with DEQ, will review and provide comments on the draft document. Upon satisfactory revision, as needed, EPA, in consultation with DEQ, will approve the final diagnostic investigation report.

The diagnostic investigation report may provide findings or causation in general categories, including O&M, remedy performance (including hydraulic control of contaminated groundwater), external causes such as upstream sources, nonhistorical mine waste sources, or a combination of causes.

9.3 Responses and Actions

Responses or actions following a compliance exceedance or surface water deviation depends on the result of the preliminary diagnostic evaluation report or diagnostic investigation report. Responses or actions following a compliance exceedance are described in Sections 7.1 and 7.2 of the SWCDP. Responses or actions following a surface water deviation are shown on Figure 9-1 and described in this section.

If the exceedance or surface water deviation occurred as a result of an unavoidable occurrence, an inspection of remedy features will be conducted. Any damage or failure of remedy features resulting from the event will be repaired as needed. No further investigation or corrective action is required, and monitoring will continue.

If the preliminary diagnostic evaluation report or diagnostic investigation report identifies failure to conduct or complete O&M activities as required by the O&M plan, as a contributor to the exceedance, O&M deficiencies shall be corrected, and no further action is required.

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If the preliminary diagnostic evaluation report or diagnostic investigation report identifies sources other than a historical mine waste source originating within the BPSOU as a contributor to the exceedance, no corrective action is required for those sources under this Remedy. EPA and/or DEQ may investigate or take actions outside of the CD to address non-historical mine waste sources contributing to surface water quality or sediment degradation.

The preliminary diagnostic evaluation report or diagnostic response investigation report may indicate that the constructed elements of the remedy may be operated in a more effective manner to meet Performance Standards. The response to this finding is to evaluate the operation of the remedial elements and make recommendation for improvements within the preliminary diagnostic evaluation report, diagnostic investigation report, or as an RFC to the O&M plan. Improvements may include adjustment to operations, replacement or improvement of inadequate components of remedial elements (excluding major detention/retention basins), or other adjustments specific to performance of the remedial element. Operational improvements may be needed when components of remedial elements (e.g., conveyances, control structures, etc.) fail in demanding conditions such as storm events near the design event, back to back storm events, high water table conditions, or other uncommon but reasonably anticipated conditions.

If the diagnostic response investigation concludes that optimization or other additional response as described in Section 7 of the SWCDP is necessary and EPA, in consultation with DEQ, concurs with this conclusion, the SDs shall prepare an Optimization Report, which shall describe proposed changes to surface water or groundwater remedial elements and any modified surface water monitoring requirements. The Optimization Report is subject to review and approval by EPA in consultation with DEQ. Following approval of the of the recommendations in the Optimization report, SDs shall prepare draft remedial design plans for implementation of approved optimization or additional response. Upon EPA approval, in consultation with DEQ, of a final remedial design plan and accompanying remedial action plan, SDs shall implement the Work required by these plans.

Following implementation of optimization or other recommendations of the diagnostic response investigation, monitoring will continue.

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10.0 SEDIMENT DIAGNOSTIC RESPONSE

10.1 Preliminary Diagnostic Evaluation for Sediment Deviation

If a sediment deviation has occurred as determined in Section 8.1, the preliminary diagnostic response will begin the process to identify the source of the deviation. The preliminary diagnostic evaluation will include a site inspection and review of available information to support the preparation of a preliminary diagnostic evaluation report. The response also includes the initiation of quarterly sampling of sediments.

If possible, the preliminary diagnostic evaluation report will determine if the sediment deviation was the result of an unavoidable occurrence, an upstream source, or a failure to conduct remedy O&M activities. Responses to any of these findings are described in Section 10.3 and illustrated on Figure 10-1.

10.2 Diagnostic Response Investigation for a Sediment Deviation

If the preliminary diagnostic evaluation report cannot determine the source of the sediment deviation (i.e., not unavoidable occurrence, upstream source, or O&M failure), a diagnostic response investigation work plan will be developed to collect lines of evidence to allow EPA, in consultation with DEQ, to determine the cause of the sediment deviation. If the preliminary diagnostic evaluation report or diagnostic investigation report, as approved by EPA, in consultation with DEQ, identifies source(s) other than historical mine waste originating within the BPSOU as the primary cause of the deviation, neither corrective action for those sources nor instream sediment removal is required under this Remedy, quarterly sediment monitoring ceases, and annual sediment monitoring resumes. EPA and/or DEQ may investigate or take actions outside of the CD to address non-historical mine waste sources contributing to surface water quality or sediment degradation.

The diagnostic response investigation needs to consider sources and pathways and tailor the investigation to allow EPA, in consultation with DEQ, to determine the source(s) and pathway(s) of recontamination.

Four primary sources and/or pathways could be acting as loading sources of COCs to sediment:

- 1. Suspended sediment mobilized by stormwater discharge from the stormwater infrastructure and remedial elements within the BPSOU,
- 2. Contaminated groundwater discharge and subsequent COC adsorption onto sediment,
- 3. Sediment mobilized from outside BPSOU boundary, or

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4. From sediment sources not related to historical mine waste.

Preliminary lines of evidence are identified in Table 9-1 for a groundwater source. The investigation will be similar to that described in Section 9.2 for surface water.

In addition to determining the source or cause of the sediment deviation, the diagnostic response investigation for sediment deviations will include collection of data to evaluate the risk to benthic and lotic aquatic receptors posed by the sediment deviation, to recommend if and when the contaminated sediment removal will be performed. BMI data will be used, in conjunction with all other appropriate data, to allow EPA, in consultation with DEQ, to determine if additional sediment removal is necessary. The scope of the investigation will be dependent on the nature of the sediment deviation and the results of the preliminary diagnostic investigation. It is anticipated that the diagnostic response investigation may include sediment pore water quality collection, adjacent groundwater quality and flow regime data collection and assessment, benthic macroinvertebrate community assessment, macroinvertebrate bioassays, sediment bioavailability testing, and/or body burden analysis of benthic and lotic resident organisms. The investigation will consider various lines of evidence necessary to recommend if additional sediment removal response action is necessary. EPA, in consultation with DEQ, will review and comment, as necessary, on the draft plan. Upon satisfactory revision, as needed, EPA, in consultation with DEQ, will approve the final diagnostic response investigation plan.

Following completion of data collection and analysis, a draft diagnostic investigation report will be prepared and submitted to EPA and DEQ. All pertinent and available data will be incorporated into a draft sediment deviation diagnostic response investigation report.

10.3 Responses and Actions

Responses or actions following a sediment deviation depends on the result of the preliminary sediment diagnostic evaluation report or sediment diagnostic response investigation report. If EPA, in consultation with DEQ, determines that the cause is upstream sources or sources not related to historical mine waste originating within the BPSOU, no further action is required and annual sediment monitoring resumes. All responses or actions must be approved by EPA, in consultation with DEQ. The sediment diagnostic investigation and responses are summarized on Figures 10-1 and 10-2.

Preliminary Diagnostic Investigation Findings:

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If the sediment deviation has occurred as a result of an unavoidable occurrence, no additional work is required; however, an inspection of the remedy features will be conducted. Any damage or failure of remedy features resulting from the unavoidable occurrence will be repaired as needed. Quarterly monitoring will continue until the PEC is not exceeded or as otherwise determined by EPA in consultation with DEQ that quarterly monitoring is not necessary. The need for contaminated sediment removal due to unavoidable occurrences is evaluated in accordance with Section 10.4.

If the sediment deviation has occurred as a result of a remedy and/or O&M failure, the response will be dependent on the cause. If the deviation is caused by:

- O&M plan not followed, the response would be to follow the O&M procedures;
- O&M procedures not adequate, the response would be to revise the O&M plan; and/or
- Failure of physical Remedy feature, the response would be to repair, replace, and or rebuild features as necessary.

Quarterly monitoring will continue until the PEC is not exceeded or as otherwise determined by EPA in consultation with DEQ that quarterly monitoring is not necessary, and as illustrated on Figure 10-1 and 10-2.

Sediment Diagnostic Response Investigation Findings:

If the sediment deviation has occurred as a result of recontamination from historic mine waste impacted stormwater, contaminated groundwater, or failure of a Remedy feature, the response will be dependent on the cause. If the cause of the sediment deviation is determined by EPA, in consultation with DEQ, to be:

- Recontamination from stormwater runoff, the response would be to perform operational adjustments; and
- Inadequate groundwater control based on lines of evidence and concentration trends indicate that PECs will continue to be exceeded, the response would be to complete additional work per CD Paragraph 27, and in accordance with Section 1.3 of the BPSOU SOW (regardless of whether an instream surface water exceedance has occurred). Additional work could include optimization, extension, and/or additional contaminated groundwater control systems; and
- Failure of physical remedy feature, the response would be to repair, replace, and/or rebuild features as necessary; and/or

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• None of the causes above have been observed and the Remedy is performing as designed, no further action is required and annual monitoring resumes.

The biological and toxicological data collected during the diagnostic investigation will be considered, along with any other applicable data, including that related to BMI, to evaluate the impacts to biota. If the evaluation indicates that sediment concentrations are not protective of aquatic health, and PECs are exceeded for multiple quarters in close proximity, additional sediment removal may be required by EPA, in consultation with DEQ, see Figure 10-2.

The SDs shall prepare draft remedial design plans for implementation of approved recommendations or optimizations. Designs for further work are subject to review and comment and potential approval of revised design documents by EPA in consultation with DEQ. Upon EPA approval, in consultation with DEQ, of a final remedial design plan and accompanying remedial action plan, SDs shall implement the Work required by these plans. Implementation of recommendations shall be documented through CCRs as required.

Upon submittal of a diagnostic report containing recommendations for a response action as part of the initial remedial action or consistent with Section 1.3 of the BPSOU SOW, EPA, in consultation with DEQ, will review and may provide comments on the report. Upon satisfactory incorporation of comments and finalization of the report and EPA concurrence, in consultation with DEQ, with the recommendations, design of response actions may proceed. In the event, EPA in consultation with DEQ, does not agree with the findings or recommendations in the report, EPA, in consultation with DEQ, will provide response action requirements consistent with the remedy for design and implementation, though the SDs can dispute in accordance with Sections 7.1 and 7.2 of the SWCDP.

10.4 Determining if Additional Sediment Removals are Required

Quarterly sediment sampling will continue if the source is due to a single storm event that exceeds the design volume of a main stormwater retention/detention basin. EPA, in consultation with DEQ, will evaluate all available data to determine if additional sediment removal is needed. If the evaluation indicates that sediment concentrations are not protective of aquatic health, and PECs are exceeded for multiple quarters, additional sediment removal may be required by EPA, in consultation with DEQ. Investigations conducted in accordance with Section 10.3 and evaluations conducted under this Section 10.4 only apply to sediment deviations caused by historical mine waste originating within the BPSOU, an unavoidable occurrence that results from a condition when a single storm event exceeds the design volume of a main stormwater retention/detention basin, or an O&M failure. If the cause of the sediment deviation

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was from a historical mine waste originating within the BPSOU and the source has been addressed but the lines of evidence indicate that sediment concentrations are, or soon will be less than the PECs, no removal action is needed.

If the cause of the PEC deviation has been addressed, but the sediment has not attained COC concentrations less than the PECs within eight quarters, trends shall be evaluated following the methodology specified in Section 8.1. If the trend analysis indicates that PECs might be attained within 2 years, quarterly monitoring shall be continued, and data evaluation will be conducted after each quarter until PECs are attained. If the trend analysis indicates that the PECs will not be attained within 2 years, EPA, in consultation with DEQ, will review all available data, including any benthic macroinvertebrate data to consider short-term and long-term risks of removal or retention of sediment and may revert to annual monitoring or require removal of sediment after which monitoring can revert to annually. Figure 10-2 illustrates the decision process for sediment response.

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11.0 BUTTE TREATMENT LAGOONS

Compliance standards for the BTL effluent discharge to SBC are detailed in Section 8.0 of the SWCDP. The SWCDP addresses potential extension of the BTL shakedown period, BTL upset conditions, and compliance standards for the BTL (see SWCDP Sections 1 and 8).

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12.0 OPERATIONAL GUIDELINES FOR REMEDY O&M AFFECTING SURFACE WATER AND/OR SEDIMENTS

Certain constructed remedy elements require O&M and have or will have specific O&M plans. This section provides guidelines for operations that affect or have the potential to affect surface water quality. The purpose of these guidelines is to describe operational priorities to operate the systems with the intent of attaining the overall goal of the remedy.

12.1 Detention/Retention Basins

The primary goal of the detention/retention basins is to meet surface water quality standards and remedial goals. Operation of the basins will consider two distinct methods to achieve the primary goal: 1) treat collected stormwater through passive settling of sediments and 2) manage discharge of water to minimize adverse impacts to surface water to the extent practicable. Both operational methods will be considered to reduce concentrations of COCs in surface water at the site. Treatment and discharge management will be balanced with the need to prevent unintended impacts to both the stream and to the basins themselves to meet surface water quality standards and remedial goals. General operational guidance will be obtained from *Stormwater Best Management Practice Design Guide*, (Volumes 1 and 3), (EPA 2004) and others as determined applicable during remedial design activities.

The outlet configuration may be adjusted on a seasonal basis such that exceedances of Performance Standards in surface water are minimized to the extent practicable. However, occasional in-season adjustments are not precluded. Typical or expected instream water quality and flow rates in the receiving water will be considered in determining operational adjustments to seasonal discharge rates from the basins. The rate of discharge will be balanced against other demands such as potential impacts from thermal increases, creating capacity for impending storms, etc. (i.e., balancing criteria).

Discharge from the detention/retention basins can occur in two ways: via the emergency overflow spillway in an uncontrolled manner or via the discharge structure in a measured and controlled manner. Uncontrolled overflow will be minimized by managing the basins in a way that provides storage for subsequent storm events.

USGS station 12323240 (collocated with SS-04) provides the stream flow rate in BTC on a 15-minute interval. This provides near real-time data. If determined to be appropriate during design, similar systems will be constructed at each basin, and all data will be compiled and used in a supervisory control and data acquisition (SCADA) system or similar method to allow for recording and management of the data. A telemetry system may also be considered and used to trip the upstream

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sampler upon basin discharge if the upstream sampler was not already tripped by a change in stage. Any automated monitoring system should be consistent with the BPSOU SOW Section 1.3(d)(2(iii)).

12.2 Contaminated Groundwater Hydraulic Control and Treatment Systems

The primary goal of contaminated groundwater hydraulic control and treatment is to prevent exceedances of Performance Standards in surface water and to limit loading of COCs to sediments within the BPSOU. Lines of evidence, including groundwater hydraulic gradient, groundwater concentrations, surface water concentrations and sediment concentrations will be used to evaluate performance of the groundwater remedy and potential diagnostic responses throughout BPSOU.

Monitoring of groundwater elevations and quality; monitoring of surface water quality and stage; and, monitoring of COCs in sediment will provide data used to evaluate the effectiveness of the groundwater hydraulic control systems. Routine monitoring of the BTL effluent will be used to evaluate effectiveness of the treatment system. If evaluation of data indicates that discharge of contaminated groundwater to surface water is adversely affecting surface water or sediment quality, as described in this SWMP, EPA, in consultation with DEQ, will determine whether operational adjustments or optimization of the remedy is required.
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13.0 PROJECT MANAGEMENT AND REPORTING

The BPSOU SOW and the CD provide the primary project management plan for implementing this SWMP, including identifying roles and responsibilities, reporting, and recordkeeping, conducting meetings and maintaining communication; coordinating with other activities, and project completion. This section provides a summary of requirements specific to the activities in this SWMP.

The SDs are responsible for implementation and execution of this SWMP. The SDs will retain a contractor to collect surface water, groundwater, and sediment data and to complete BMI monitoring. The surface water, groundwater, sediment, and BMI data will be maintained by Atlantic Richfield Company in accordance with the BPSOU data management plan (Atlantic Richfield 2018b). SDs will submit data summary reports to the agencies on an annual basis by April of the following year as detailed in the BPSOU Surface Water Monitoring QAPP.

This SWMP may be reviewed from time to time to evaluate its remaining appropriateness and efficacy during and after the compliance determination period. Revisions may also be needed to more accurately monitor in-stream surface water quality based on the results during this period or recommendations contained in 5-year reviews. Any revisions to the SWMP must be adopted in accordance with Paragraph 119 of the CD. Certain protocols, such as number and timing of samples or analysis of non-COC parameters are covered under the Surface Water Monitoring QAPP, which is updated annually.

Following completion of the compliance standard determination monitoring and compliance standard determination, SDs shall revise this SWMP and rename it to the long-term surface water management plan (LTSWM Plan) and be consistent with the SWCDP. The LTSWM Plan describes the collection and reporting of monitoring data that will be utilized to, among other things, assess long-term performance of the Key Remedial Elements and other remedy elements, and support five-year reviews.

Long term operation and maintenance plans for the various response actions constructed within the BPSOU shall also be approved by EPA in consultation with DEQ and implemented.

Several reporting requirements accompany this SWMP. For surface water monitoring, the following reports are required and are subject to EPA review and approval, in consultation with DEQ:

1. *Surface Water Monitoring QAPP* – In June 2018, the interim BPSOU surface water monitoring plan was converted by the SDs to a QAPP format (dated April 24, 2018) and approved by EPA in consultation with DEQ. The Surface Water Monitoring QAPP specifies the sampling of compliance and performance stations and diagnostic sampling

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occurring to address exceedances, deviations or other peculiarities in the surface water data. This QAPP shall be implemented by the SDs and reviewed and updated annually. The update shall include instream sediment and BMI monitoring details to be defined after implementation of BRW and BTC remedy actions.

- 2. *Schedule for Implementation* The schedule for implementing the work is provided in the sitewide Surface Water Monitoring QAPP.
- 3. *Data Summary Reports* In addition to the reporting requirements contained in Attachment A to the BPSOU SOW, a DSR for the sitewide surface water monitoring program shall be prepared annually by the SDs for submittal to EPA and DEQ. DSRs shall be submitted by the SDs in draft and are subject to comment by EPA in consultation with DEQ. The final DSR is due from the SDs within 60 days of the receipt of EPA comments made in consultation with DEQ. Final DSRs are subject to comment, review and approval by EPA in consultation with DEQ. Quarterly data reports, without full QA/QC information, shall also be provided by the SDs to EPA and DEQ. However, the SDs shall complete validation of laboratory data throughout the year in an effort to ensure that the laboratory data meet the QA/QC requirements.
- 4. *Surface Water Compliance Comparison and Interpretation Report* –The description and content of the report is included in Section 7.3 of this SWMP and shall be prepared annually by the SDs. Such a report shall be submitted in draft by June 30th of each year for EPA comment in consultation with DEQ, and is subject to EPA approval.
- 5. *Preliminary Diagnostic Evaluation Report* Presents the results of the evaluation of the cause(s) of an exceedances.
- 6. *Diagnostic Response Investigation Plan and Report* If the preliminary report indicates that an investigation is needed the Diagnostic Response Investigation Plan is developed and the investigation is conducted. A Diagnostic Response Investigation Report presenting the finding of the investigation shall be submitted in draft for EPA comment in consultation with DEQ.
- 7. Optimization Report As required by EPA, in consultation with DEQ, and consistent with the requirements of the CD and Attachment A, a technical optimization and recommendations report shall be prepared by the SDs upon EPA request to implement the recommendations of the Diagnostic Response Investigation Report. The report shall describe proposed changes to surface water conveyances and other remedial elements, SDs' recommendations regarding surface water monitoring, and any modified surface water monitoring requirements. The report is subject to review and approval by EPA in consultation with DEQ.
- 8. Design and Implementation of Recommendations Following approval of the recommendations in the optimization report and as required by EPA in consultation

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with DEQ, SDs shall prepare draft RD plans for implementation of approved optimization or additional response. Upon EPA approval, in consultation with DEQ, of a final RD plan and accompanying RA plan, SDs shall implement the work required by these plans.

- 9. *Construction Completion Reports (CCR)* Implementation of recommendations shall be documented through CCRs as required.
- 10. *Long-term Database* Development of a long-term database for surface water will be described by the SDs in the sitewide data management plan, and implemented by the SDs upon approval.

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FIGURES



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Figure 8-1 Summary of Sediment Criteria Comparison Process

BPSOU Surface Water Management Plan

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Note: An unavoidable occurrence is defined as a condition when a single storm event exceeds the design volume of a main stormwater retention/detention basin or a condition not controlled by the remedy.

HMWS = Historic Mine Waste Source shall mean a source, or a combination of sources, such as former mine yards; pre-1980 waste rock piles; pre-1980 mining, milling or smelting wastes (excluding historic smelter emissions); pre-1980 tailings impoundments; or open pit mines within the BPSOU. Historic Mine Waste Source does not include:

A. A source which is substantially from a primary source located outside of the BPSOU surface boundary;

B. A source which is associated with such things as metal-bearing construction materials (such as copper piping or wire, lead solder or fittings, copper or galvanized roofing material) of homes or businesses or other commercial structures; or

C. A source which is controlled by an existing, enforceable and separate regulatory program such as activities governed by the Butte Silver Bow County ordinance governing stormwater control at construction activities.

O&M = Operation and Maintenance

This figure does not alter the actions that EPA or the State may take under the reservation of rights described in the consent decree, Section XVII

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Response to Annual Sediment Monitoring

NOTE: An unavoidable occurrence is defined as a condition when a single storm event exceeds the design volume of a main stormwater retention/detention basin or a condition not controlled by the remedy.

BPSOU Surface Water Management Plan



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TABLES

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Table 8-1	Probable Effect	Concentrations f	or Sediment	(Ingersoll et al.	2000, M	acDonald et
al. 2000)						

Contaminant of Concern	Probable Effect Concentration
	(mg/kg, dry weight, bulk sample)
Arsenic	33
Cadmium	4.98
Copper	149
Lead	128
Mercury	1.06
Zinc	459

mg/kg – milligram per kilogram

Table 9-1. SWMP Lines of Evidence for Additional Groundwater Hydraulic Control

Medium	Metric	Criteria
Monitoring		
Sediment	Bulk sample	Probable Effects Concentrations (PECs, Table 8-1).
	(<2mm)	Exceedance of PECs will be considered a "sediment
	contaminant	deviation" and will trigger a preliminary diagnostic
	concentrations	investigation and quarterly sediment monitoring unless
		the contaminated sediment is removed.
Surface Water	Contaminant	Surface water compliance exceedances during normal
(Normal Flow)	concentrations	flow will trigger a diagnostic evaluation.
Diagnostic Resp	onse Investigation	
Sediment	Bulk sample	Statistically significant trends of quarterly COC
	(<2mm)	concentrations per depth interval, that indicate
	contaminant	sediments will continue to exceed PECs as a result of
	concentrations	contaminated GW discharge.
Surface Water	Contaminant	Statistical trends or significant differences of
(Normal Flow)	concentrations	contaminant concentrations between adjacent
		performance monitoring stations
Groundwater	Hydraulic	Interpret groundwater gradient between surface water
	gradient	and adjacent groundwater to determine the potential
		for contaminated groundwater to impact surface water
		and sediment quality
Groundwater	Contaminant	Document groundwater COC concentrations adjacent
	concentrations	to surface water areas of evaluation and the potential
		for contaminated groundwater to impact surface water
		and sediments quality.
Pore Water	Contaminant	Interpret contaminant concentrations from within the
	concentrations	hyporheic zone to inform potential source of
		contamination.

2019 STATUS FOR THE 2011 UNILATERAL ADMINISTRATIVE ORDER WORK PLAN FOR BPSOU PARTIAL REMEDIAL DESIGN/REMEDIAL ACTION IMPLEMENTATION

BUTTE PRIORITY SOILS OPERABLE UNIT of the SILVER BOW CREEK / BUTTE AREA SUPERFUND SITE Butte-Silver Bow County, Montana

ATTACHMENT B TO APPENDIX D TO THE CONSENT DECREE

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1.0 INTRODUCTION

This document contains updated information regarding Remedy activities required under the 2011 Unilateral Administrative Order for BPSOU Partial Remedy Design/Remedial Action Implementation and Certain Operation and Maintenance at the Butte Priority Soils Operable Unit, EPA Docket No. CERCLA-08-2011-0011. It is based on the Partial Remedy Implementation Work Plan attached to that order, and, beginning in Section 2.0 below, repeats verbatim (with some modifications to match current consent decree definitions) the Partial Remedy Implementation Work Plan requirements, followed by a 2019 update which describes the current status of the Remedy Work required under that order. Finally, the document contains references to the BPSOU Statement of Work (SOW) and its attachments, where the ongoing work requirements based on the 2011 Partial Remedy Implementation Work Plan are described.

This Attachment B describes the status, as of June 2011 and as of July 2019, of certain remedial design and remedial implementation efforts for the 2006 Butte Priority Soils Operable Unit (BPSOU) Record of Decision (EPA 2006) as modified by the 2011 BPSOU Explanation of Significant Differences (ESD) (EPA 2011).

The 2011 Partial Remedy Implementation Work Plan (PRI Work Plan) was not a comprehensive or final work plan for implementation of the 2006 BPSOU Record of Decision.

2.0 MAJOR BPSOU ROD COMPONENTS

This section describes briefly the major components of the 2006 BPSOU Record of Decision as modified by the 2011 BPSOU ESD. A more complete description of the components is found in the 2006 Record of Decision and the 2011 BPSOU ESD themselves.

The 2006 BPSOU Record of Decision states that the cleanup will address potential and actual threats to human health or welfare or the environment from heavy metals and arsenic in mine waste and contaminated soils related to historic mine waste sources in the BPSOU.

Certain Performance Standards are set forth in the 2006 BPSOU Record of Decision¹. Performance Standards are directly linked to the long-term protection of human health and the environment from contaminants of concern present at the BPSOU, and include the ARARs for the site (Appendix A to the 2006 BPSOU Record of Decision) and the soil, ground water, and surface water action levels described in Tables 1, 2, and 3 (Appendix A to the PRI Work Plan). Other key Performance Standards are the vegetation, weed and erosion standards described in the Butte Reclamation Evaluation System (BRES), which is an attachment to the 2006 BPSOU Record of Decision. Performance of the full Remedy must ultimately comply with performance standards, and Performance Standards will be monitored through comprehensive and interrelated monitoring programs for each media, respectively. These monitoring programs will be reviewed and approved by EPA in

¹ The 2020 BPSOU Record of Decision Amendment modifies certain in-stream surface water Performance Standards, as described in the BPSOU SOW and its Attachment A.

consultation with DEQ.

2.1 Residential Contamination General Remedy Description:

EPA's action levels for residential, commercial/ industrial, and recreational soils and dust are described in Table 1, Appendix A to the PRI Work Plan.

The Remedy requires yards, recreational, and industrial/business areas be remediated if yard soils, interior dust in living spaces and/or attics, if an attic pathway exists, are above applicable action levels. The yard/recreational/business location and indoor dust cleanup apply throughout the BPSOU, and the attic dust portion applies throughout the BPSOU and to an area adjacent to the BPSOU. The Butte Site map, Appendix C to the UAO, describes the areas in which each of these elements will be applied.

2011 Status: Remedial Design produced a remedial action plan for this component. The plan is known as the Residential Metals Abatement Program Plan (April 2010). This plan was approved by EPA and the State of Montana Department of Environmental Quality (DEQ) after informal public review and comment. The April 2010 Residential Metals Abatement Program plan, including all schedules, is incorporated by reference into this PRI Work Plan.

Current 2019 Status: The Residential Metal Abatement Program (RMAP) plan continues to be implemented by the Settling Defendants (SDs) and the RMAP plan is currently in the process of being revised. The revision will include the components of the program described in the ROD including the 2011 ESD and the expansion of the soils program to certain areas outside of the BPSOU addressed in the 2020 Record of Decision Amendment (2020 ROD Amendment).

The Residential Contamination component of the ROD, otherwise known as the Residential Solid Media Remedial Action (implement through the Residential Metals Abatement Program plan (RMAP)), is not addressed in the BPSOU SOW or in the BPSOU Consent Decree. The EPA will use other enforcement mechanisms to implement this component of the ROD.

2.2 Non-Residential Solid Media and the Butte Reclamation Evaluation System General Remedy Description:

As noted, action levels for contaminated solid media in residential and nonresidential portions of the BPSOU are shown in Table 1, Appendix A to the PRI Work Plan. All contaminated solid media within the BPSOU containing concentrations of arsenic, lead, or mercury related to historic mine waste sources

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above the respective action levels shall be addressed. Also, source areas that do not exceed action levels shall be addressed if diagnostic monitoring performed as part of the surface water management and BMP program indicates that the source area contributes contaminant loads to receiving surface waters during wet weather runoff.

The BRES (see 2006 BPSOU Record of Decision Appendix E) establishes the vegetation, weed, and erosion performance standard for all completed solid media response actions under the Remedy except residential yards and playgrounds. The system is specifically designed for use in the upland environment of Butte. To accommodate the diverse land types and end land uses within the BPSOU, the BRES is designed to address reclaimed uplands in residential, recreational, and commercial/industrial land settings, excluding residential yards and playgrounds. The system also has components that allow it to be applied to areas reclaimed as open space within this urban setting. Reclaimed areas, including cover soil caps, must achieve the performance standards described by EPA in the BRES document. This system is a tool created for the BPSOU to evaluate the site-specific stability, integrity, and degree of human and environmental protectiveness afforded by response actions initiated on lands impacted by mining within the Butte Site, as well as a tool to create and implement operation and maintenance plans and site-specific corrective action work plans for each area on a periodic basis.

The BRES is an evaluation tool for reclaimed and revegetated land, relying on routine inspections to assess the following:

- Condition and diversity of vegetative cover
- Presence of erosion
- Condition of site edges
- Presence of exposed waste material
- Presence of bulk soil failure or mass instability
- Presence of barren areas or gullies

The system also sets corrective action "triggers", coordinated with the conditions listed above. Based on the periodic monitoring and evaluation of response action sites, the triggers noted in the BRES require corrective action in a timely and appropriate manner in accordance with the scheduling requirements of the BRES. Vegetated cover soil caps must support a diverse plant community including native species to the extent that the constituents of the vegetation cover are not incompatible with the Remedy.

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2011 Status: The 2006 BRES, including all schedules and timetables described in BRES and including the need for written, approved work plans to address triggers and corrective actions, is incorporated into the PRI Work Plan by reference. Initial implementation efforts of BRES by the responsible parties have not produced timely or documented corrective actions (see the final Silver Bow Creek/Butte Area Five Year Review Report). Responsible parties shall implement BRES as written and provide any needed reports and work plans, including operation and maintenance plans and corrective actions plans documenting such compliance as directed by EPA in consultation with DEQ.

Current 2019 Status: The BRES program, including the development of schedules and corrective action plans, continues to be implemented by the SDs. The 2006 BRES implementation plans will be revised in order to incorporate optimization techniques, new technologies and lessons learned from implementing the BRES procedures, and is pending Agency approval. The revised BRES implementation plans, as approved, will be an element of the Solid Media Management Program, and will be attached to the Solid Media Management Plan to be submitted by SDs for Agency review and approval.

SDs ongoing remedial element requirements for the BRES Program, including a revised BRES plan, are described in Attachment B.1 Section 2.1.2.

2.3 Groundwater

General Remedy Description:

The ground water component of the Remedy requires the continued use of the Hydraulic Control Channel (HCC) and the BPSOU Subdrain capture and interception system to capture and pump contaminated ground water (and some surface water) into the Butte Treatment Lagoons facility for treatment prior to discharge. Both the HCC and the MSD² area capture and interception system are to be thoroughly evaluated and improved as needed. Under the 2011 Unilateral

² The 2006 ROD and 2001 ESD identified this area as the Metro Strom Drain or MSD. Subsequently, a State of Montana court decision known as *Silver Bow Creek Headwaters Coalition v. State of Montana, DV-10-431* (August 17, 2015) declared that the surface area between Texas Avenue in Butte and the confluence of Blacktail and Silver Bow Creeks was named "Silver Bow Creek." In prior Superfund removal and remedial documents and publications, including the 2006 Butte Priority Soils Operable Unit Record of Decision (2006 BPSOU ROD) and 2011 BPSOU Explanation of Significant Differences (ESD), EPA has called this surface area the "Metro Storm Drain." Due to MDEQ's involvement in this document's issuance, and where reference to this specific section of Silver Bow Creek is necessary, further geographic descriptions, such as Silver Bow Creek "east" or "above" its confluence with Blacktail Creek" is used in order for DEQ to comply with the court's order. Reference to the area as "Silver Bow Creek" or "Silver Bow Creek east of or above its confluence with Blacktail Creek" should not be construed as an admission or determination by any Consent Decree party on any procedural or substantive issue. The United States retains and reserves all its rights and authorities.

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Administrative Order, waste left in place in the Lower Area One (LAO) and Silver Bow Creek above the confluence with Blacktail Creek area will not be excavated³. Additional ground water control measures, such as infiltration barriers, ground water diversion, or other measures, may also be needed and are to be evaluated.⁴ The ground water aquifer must be further evaluated and characterized to ensure the effectiveness of the interception and pumping systems. The area between the HCC and the MSD area capture and interception system must be further evaluated and controlled if necessary. Ground water monitoring and data reporting is required. As envisioned in the 2006 BPSOU Record of Decision. The wetlands demonstration area near Kaw Avenue and George Street will be used for the construction of an emergency over flow pond (a minor modification to the 2006 BPSOU Record of Decision (see page 12-34 of the ROD). A five year shakedown period for operation of the MSD interception and pumping facility is required. Institutional controls to prevent the domestic use of the alluvial aquifer are required.

The Remedy requires the capture and treatment of contaminated groundwater. The 2006 BPSOU ROD contained a waiver of ARAR standards for the alluvial ground water within the defined TI Waiver Area described in the 2006 BPSOU Record of Decision. The Remedy will not and is not intended to clean up groundwater to meet groundwater performance standards within the boundary of the waived standards. Therefore, there are no performance standards for groundwater in the area of the BPSOU alluvial aquifer that is covered by the TI waiver boundary. The TI boundary is shown in Figure 12-6 of the 2006 BPSOU Record of Decision. Based on the data collected since issuance of the 2006 BPSOU Record of Decision during the groundwater monitoring program, additional points of compliance may be determined necessary by EPA in consultation with DEQ in future remedial design (e.g., southern edge of the MSD).

Since the Remedy requires that contaminated plumes be prevented from migrating outside the established TI zone, the boundary for the TI zone represents the point of compliance boundary for groundwater, and groundwater performance standards must be met at these points of compliance and beyond. Groundwater quality standards (Table 3, Appendix A to the PRI Work Plan) will apply to groundwater at and beyond the edge of this boundary.

³ Additional removals within and along Silver Bow Creek above and below its confluence with Blacktail Creek, and Blacktail Creek itself are now required by the Consent Decree and are reflected in Attachment C to the BPSOU SOW. However, the Alluvial Ground Water TI Waiver remains part of the ROD and further excavation of waste to restore groundwater quality is not required beyond the removals described in Attachment C.

⁴ As described in the 2020 ROD Amendment, further capping and hydraulic controls are now required, and are defined and explained in the BPSOU SOW, Attachments A, Exhibit 1 and Attachment C.

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Groundwater contamination outside of the boundary of the TI zone in excess of groundwater performance standards identified in Table 3, Appendix A to the PRI Work Plan shall constitute a violation.

Design of a groundwater treatment system at the Butte Treatment Lagoons facility and a sludge disposal plan must be approved by EPA, in consultation with DEQ, and the construction, operation, and maintenance of the facility will be monitored by EPA and DEQ in accordance with approved plans. The facility will be designed so that any discharge from the facility must meet water quality ARARs described previously and in Appendix A to the 2006 BPSOU ROD. Design, construction, maintenance, operation, and monitoring of the facility will be conducted according to the engineering standards established during remedial design and ARARs, and must be approved by EPA in consultation with DEQ. Treated water discharged to Silver Bow Creek shall meet all discharge requirements set forth in the ARARs. This discharge to surface water is discussed in greater detail in the following section.

2011 Status: Remedial Design for this component is only partially completed with additional remedial design needed. A final remedial action plan for the ground water component of the Remedy has not been yet approved.

A well ban institutional control to prevent domestic ground water use was enacted and is in effect. A number of aquifer evaluations and related studies have been done under approved plans. Certain active measures for this component were done under the 2009 and 2010 Scopes of Work and order amendments (these two Scopes of Work are incorporated into this PRI Work Plan by reference). Additional remedial design actions and active measures that are ripe for implementation are described below in section 3.0. A Revised Interim Ground Water Monitoring Plan has been developed and shall be implemented as described below.

As noted, a final remedial action plan and a final Ground Water Monitoring Plan are not yet developed or approved and will be developed at a later date.

Current 2019 Status:

The BRW ponds have been expanded by the Respondents to the slag canyon to capture seepage entering Silver Bow Creek below its confluence with Blacktail Creek from the north side. Subsequently, an investigation by the Respondents for the area upgradient of the BRW and HCC capture systems was conducted. On-going monitoring of this area is being performed in accordance with the BRW Phase I investigation QAPP (AR, 2018). Preliminary conclusions indicate impacted groundwater enters Silver Bow Creek in and around the slag canyon; surface water monitoring, however, shows instream surface water ARARs are met most of the time.

The ongoing and further use of data and monitoring requirements for this area are being addressed as part of the Attachment B.1 Section 2.2.2.2 and Attachment C Section 6.

Additional investigation of groundwater conditions related to the BPSOU Subdrain (referred to in prior documents as the MSD subdrain) was conducted by the Respondents in 2011 to 2013. EPA prepared a groundwater data analysis report for monitoring data collected from 2011 through 2013. Further assessment of the effectiveness of the BPSOU Subdrain system, as modified by the work activities described in Attachment C, is a required element of the future work.

An O&M plan for the BPSOU Subdrain was prepared by the Respondents which includes semi-annual physical cleanout of the subdrain pipe along with quarterly sampling. Daily flow monitoring is used to evaluate the operating condition of the subdrain and if a minimum flow rate is reached, cleanout is conducted if outside the annual maintenance schedule.

BTL has undergone improvements by the Respondents to increase the reliability of the system including the addition of redundant pumps and pipes and an improved supervisory control and data acquisition (SCADA) electronic monitoring system to monitor and control operation of the treatment plant.

The interim groundwater monitoring plan has been updated annually and was converted to a QAPP format.

As part of the PRI Work Plan, Respondents completed analysis of contaminant levels in alluvial wells to evaluate the TI boundary described in the 2006 BPSOU ROD. The evaluation concluded that the then-identified Point of Compliance (POC) wells were located within the area of historical impact and that the POC wells were not appropriate for assessment of whether expansion of the area of impact within the alluvial aquifer has or is occurring. The process for establishment of POC wells, which may be either (or a combination of both) new or existing monitoring wells, will be described in the 2019 Groundwater QAPP to be submitted by SDs for approval. EPA and DEQ have approved SDs' revised POC well analysis in a letter dated October 22, 2019. Data collection to support EPA's review, in consultation with DEQ, of the TI boundary described in the 2006 BPSOU ROD and to establish new POC

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wells is on-going. SDs ongoing remedial element requirements for groundwater remedial and O&M activities are described in the BPSOU SOW Section 1.5 (b) and (e), Attachment B.1 Sections 2.2 and 2.4.4 and Attachment C, Sections 5 and 6.

2.4 Surface Water

General Remedy Description:

In addition to the robust implementation of the ground water remedial component described above to prevent contamination from ground water and certain captured surface water from contributing to exceedances of surface water Performance Standards), the 2006 BPSOU Record of Decision requires the removal of in-stream sediments and near stream contamination in the reach of Silver Bow Creek below its confluence with Blacktail Creek and certain areas of Blacktail Creek which were not addressed in the prior Lower Area One non-time critical removal action⁵. It also requires that the discharge from the Butte Lagoon Treatment Lagoons facility meet Performance Standards for discharges (see Section 2.6 below) in a permanent manner.

For wet weather conditions, the 2006 Record of Decision requires the remediation of several specifically identified sites which are known to contribute to contaminated storm water runoff (this requirement is part of the solid media component of the remedy and also addresses surface water remediation). The evaluation and implementation of Best Management Practices (BMPs) on a yearly basis to control wet weather run-off under a variety of scenarios and flows such that surface water Performance Standards are met is also required. If BMPs do not meet surface water Performance Standards within a fifteen-year time period, the 2006 BPSOU Record of Decision provides for contingency measures such as the construction of a collection and treatment plant system for stormwater and/or flow augmentation in Silver Bow Creek.

The overall remedial goal for the 2006 Record of Decision is to achieve and maintain the in-stream concentrations of site-specific COCs (aluminum, arsenic, cadmium, copper, iron, lead, mercury, silver and zinc) below the numeric surface water quality standards identified in the ARARs (Appendix A to the 2006 BPSOU ROD), for all flow conditions throughout the length of Blacktail Creek, Grove

⁵ These requirements have been expanded by the 2020 Record of Decision Amendment, and the required work is now reflected in Attachment C to the BPSOU SOW.

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Gulch Creek, and Silver Bow Creek below its confluence with Blacktail Creek within and directly downstream of the BPSOU⁶.

The Remedy requires an EPA approved comprehensive, long-term surface water monitoring program that will include collection of compliance and diagnostic flow and chemistry data for normal flow and wet weather conditions in receiving surface waters and within intermittent storm water conveyances at the BPSOU.

2011 Status: Remedial Design for this component is only partially completed with additional remedial design needed. A final remedial action plan for the surface water component of the Remedy has not been developed or approved, and is not contained in this PRI Work Plan.

The specific sites identified in the 2006 BPSOU Record of Decision for reclamation due to storm water contribution have been addressed. Certain sediments and near-stream contamination have been addressed but more remedial design and remedial action for this component of the Remedy are required. EPA's 2008 Surface Water Characterization Report (EPA October 2008) provided significant data and analysis regarding COCs and stormwater and other wet weather events. This provided a basis for identifying and requiring up-front BMPs of a significant nature. The first and second cycle of BMPS and other actions were implemented in 2009 and 2010, and included the beginning of additional storm water capture in existing catch basins, the beginning of a curb and gutter program in the BPSOU, and a program for routinely cleaning out contaminated sediments from the BSB storm water conveyance system. A Third Cycle of up-front storm water control BMPs is identified below.

The BMP identification and implementation process will continue beyond the Third Cycle actions described below, along with surface water monitoring. Additional remedial design and remedial action measures will be required for a final surface water remedial action plan to be completed.

Current 2019 Status: The Third Cycle upfront storm water controls have been constructed by the Respondents (except for the Buffalo Gulch storm water basin) and are now being monitored and maintained under their respective O&M plans. Plans for implementing the surface water remedy have been ongoing since the 2011 UAO. In place of the iterative 15-year program described in the 2006 BPSOU ROD, EPA, DEQ and the SDs have developed

⁶ The wet weather remedy plan, including the contingency requirement and certain in-stream surface water Performance Standards are now modified in the 2020 Record of Decision Amendment. The revised requirements are reflected in the BPSOU SOW and its attachments.

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> nine remedial elements that will address or control storm water, as well as beds, bank and adjacent floodplain contamination. The implementation of the nine remedial elements will be the Fourth and Final Cycle upfront actions, including potential Optimization actions, if appropriate, for improving water quality in Blacktail Creek and Silver Bow Creek below its confluence with Blacktail Creek.

> For ongoing and further remedial elements requirements for surface water remedial and O&M activities, see the BPSOU SOW Section 1.5 (c) and (e), Attachment B.1 Sections 2.3 and 2.4.5, Attachment C and Attachment D.

2.5 Groundwater Treatment Facility General Remedy Description:

As previously described, the Butte Treatment Lagoons facility shall be evaluated and designed to ensure that contaminated groundwater captured from MSD and LAO (and certain captured surface water that is transported to the facility) is treated to ARAR standards, the plant can be operated efficiently and effectively in a variety of conditions, and sludge disposal can occur in accordance with the 2006 ROD and ARARs. The treatment plant will meet "end of pipe" discharge standards defined as the lesser of the chronic or human health surface water quality standards presented in Table 3, Appendix A to the PRI Work Plan.

Paired total recoverable and dissolved samples shall be collected and analyzed for COCs. Hardness-based standards will be calculated using the hardness of the sample collected from the treatment plant discharge, as directed by Circular DEQ-7. Two, 24-hour composite samples will be collected each week on random days to monitor compliance (for example, sampling will not be limited to Mondays and Thursdays).

Other analytes that shall be monitored include: dissolved calcium and magnesium (for hardness calculations), total alkalinity, total dissolved solids, total suspended solids, and sulfate. Temperature and pH will be monitored daily. Additional required field parameters will be determined based on the operational needs of the facility.

2011 Status: Phase I of the comprehensive evaluation and re-design of the Butte Treatment Lagoons facility and system is complete and implementation of those actions is addressed below. Phase II of the evaluation and re-design of the lagoon treatment system is also described below in Section 3.5. Sludge disposal plans are not yet complete.

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Current 2019 Status: The upgrades of the Butte Treatment Lagoon (BTL) facility were completed by the Respondents in 2014 and this facility continues to operate. The draft final operation & maintenance and monitoring (OMM) plan was submitted to the Agencies on August 30, 2018. It is anticipated that the BTL OMM plan will be completed in 2019.

SDs ongoing remedial and O&M requirements regarding the BTL system and facility are described in Attachment B.1 Section 2.4.4.

2.6 Surface Water Monitoring and Compliance Requirements General Remedy Description for In-Stream Monitoring and Compliance during Normal Flow Conditions:

In-stream surface water quality, as affected by historic mine waste sources, must meet surface water ARARs during normal flow conditions. Surface water flow and chemistry will be collected at least monthly from compliance monitoring stations GG-01 (Grove Gulch), SS-04 (Blacktail Creek), and stations SS-05, SS-05A, SS-06A, SS-06G, and SS-07 in Silver Bow Creek (Figure 12-7)⁷. All in-stream water quality samples shall be collected using the channel width integrated composite technique specified in the Clark Fork River Superfund Site Investigations Standard Operating Procedure (CFRSSI SOP) SW-1 – Collection of Surface Water Samples. Because of poor mixing at station SS-07, and the critical nature of this station, samples at SS-07 shall be collected using the depth and width integrating technique (used by the USGS), breaking the stream into 20 to 25 sections from bank to bank, and a churn splitter. Annual data summary reports shall be submitted to EPA showing the location, frequency and duration, and magnitude of exceedances for all COCs and shall include the data in an easily accessible electronic format such as a spreadsheet or database. The annual report will also present an interpretation for the source and significance of exceedances that occurred during the monitoring year.

Current 2011 Status: Because the ground water and surface water remedial components have not yet been fully developed or implemented, in-stream surface water quality has been improved significantly but ARARs has not yet been attained, especially for copper. A final surface water monitoring plan has not been developed. The interim surface water monitoring report - Interim Surface Water Monitoring Plan (EPA, April 2007) is in effect. Annual reports are required under this plan and will be used to develop final remedial work plans

⁷ The surface water monitoring and compliance requirements of the 2006 BPSOU ROD have been modified by the 2020 ROD Amendment. Matters related to compliance monitoring and compliance points are described in the Surface Water Compliance Determination Plan, Attachment A to the BPSOU SOW.

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implemented at this time are described below.

and monitoring plans. In addition, additional monitoring requirements to be

Current 2019 Status: The normal flow surface water monitoring program continues to be implemented by the SDs under an interim plan that is updated annually. On an annual basis, the SDs submit data summary reports to the EPA and DEQ for review and approval. Attachment A to the SOW, the Surface Water Compliance Determination Plan (SWCDP) and the BPSOU Surface Water Management Plan (SWMP), Exhibit 1 to Attachment A of the BPSOU SOW, describe the surface water monitoring requirements for the Work conducted under the Consent Decree.

EPA and DEQ prepared a Surface Water Characterization report covering data collected from 2008 to 2013.

EPA and DEQ prepared a Draft Technical Impracticability Evaluation in 2018 to evaluate the practicability of attaining the remedial goals for surface water that is discussed in the 2020 Record of Decision Amendment. Certain waivers of in-stream surface water performance standards and replacement standards are included in the 2020 Record of Decision Amendment, based on the 2019 Technical Impracticability Evaluation.

SDs ongoing remedial requirements regarding surface water are described in Attachment A including the SWMP, Section 2.3 of Attachment B.1, and Attachment C.

General Remedy Description for Monitoring and Compliance during Wet Weather Flow Conditions

Wet weather flow conditions are defined as flow greater than 50 cfs at monitoring station SS-07 in Silver Bow Creek below its confluence with Blacktail Creek or greater than 35 cfs at station SS-04 in Blacktail Creek⁸. These threshold flows are substantially above normal base flows at the respective monitoring stations and were chosen as general guidelines to help ensure that data are collected during true wet weather conditions.

As envisioned in the 2006 BPSOU ROD, compliance during wet weather conditions meant consistently measuring concentrations of COCs at in-stream compliance monitoring locations for comparison with the Montana DEQ-7 acute aquatic life standards (Table 3, Appendix A to the PRI Work Plan). Water quality

⁸ These definitions have been revised in the 2020 Record of Decision Amendment, and revised definitions are reflected in Attachment A to the BPSOU SOW.

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in Silver Bow Creek below its confluence with Blacktail Creek within the Butte Site is affected by water flowing into the Butte Site (i.e., upstream in Blacktail Creek).

As envisioned in the 2006 BPSOU ROD, compliance with standards was expected to be achieved over the 15-year period described below. Once compliance is achieved over a period of time, then compliance with acute standards during wet weather conditions continued to be required consistently going forward. A final surface water monitoring plan was required.

A minimum of one automated sampler will be installed at each compliance monitoring station and at the upstream monitoring station to obtain data during wet weather conditions. Additional samplers may be required as deemed necessary during design, at some or all locations to obtain data for different portions of the storm hydrograph.

2011 Status: Because the ground water and surface water remedial components have not yet been fully developed or implemented, in-stream surface water quality in wet weather conditions has been improved significantly but standards have not yet been attained. A final surface water monitoring plan, has not yet been developed. The interim surface water monitoring report - Interim Surface Water Monitoring Plan (EPA, April 2007) – is in effect. Annual reports are required under this plan and will be used to develop final remedial work plans and monitoring plans. In addition, additional monitoring requirements to be implemented at this time are described below.

Current 2019 Status: The wet weather surface water monitoring program continues to be implemented by the SDs under an interim plan that is updated annually. On an annual basis, the SDs submit data summary reports to the EPA and DEQ for review and approval. The SWCDP, Attachment A to the SOW, and the SWMP, Exhibit 1 to Attachment A, will also describe the monitoring requirements for RD/RA.

EPA and DEQ prepared a Surface Water Characterization report covering data collected from 2008 to 2013, along with a Technical Impracticability Evaluation in 2018 to evaluate the practicability of attaining the remedial goals for surface water. Certain waivers of in-stream surface water performance standards and replacement standards, based on these documents and the administrative record, are incorporated into the 2020 Record of Decision Amendment. Furthermore, the EPA, DEQ and the Settling Defendants have prepared the SWCDP for determining compliance at surface water stations located within the site (Attachment A to the BPSOU SOW). Compliance will

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be assessed utilizing measurements at in-stream locations after the nine remedial elements have been constructed in accordance with the SWCDP.

SDs ongoing remedial requirements for wet weather surface water remediation are described in Attachment A including its attached SWMP, Attachment C, and Attachment D.

2.7 Other Remedial Components – Syndicate Pit, Granite Mountain Memorial Interpretative Area, and Butte Mine Waste Repository General Remedy Description:

The Syndicate Pit within the BPSOU shall be reclaimed, to the extent practicable, for use as a mine training center if feasible. Shallow to moderate slopes will be reclaimed using soils caps, rock caps, and gravel parking areas. Steep slopes will not be reclaimed. The pit base will continue to be used as a sediment basin. The Granite Mountain Memorial Area shall be subject to various reclamation, use restrictions, and enhancements in keeping with its historical character. These include reclaiming source areas in publicly used areas, restricting access to certain areas of historic mining landscape, installing picnic areas and walking trails, enhancing existing vegetation, and diverting storm water runoff to the Berkeley Pit. These actions shall be consistent with the preservation requirements and other standards and the county's historical park plan. A Butte Mine Waste Repository was previously established and shall be used for the disposal of removed waste and contamination associated with BPSOU response actions. When the existing structure is full, it shall be closed in compliance with ARARs. A new repository will be sited next to the existing repository if that capacity is needed. It, too, would be closed using the same methods.

2011 Status: The Syndicate Pit was reclaimed pursuant to an approved remedial action work plan. A construction completion report for the Syndicate Pit remediation component was prepared by the responsible parties (December 10, 2010) and approved by EPA and DEQ on May 10, 2011. Operation and maintenance actions are required at the Syndicate Pit. The Granite Mountain Memorial Interpretive Area (GMMIA) was remediated pursuant to two approved remedial action work plans (Phase I and Phase II). A construction completion report for the GMMIA remedy component has not yet been prepared by the responsible parties because the work is not complete for the GMMIA. 90 days after construction completion of the GMMIA, the PRPs will submit a draft CCR for review by EPA and DEQ and approval by EPA. Operation and Maintenance activities are required at the GMMIA. The initial Butte Waste Repository is in use and is nearly full. Requirements for development of a second repository Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1097 of 1422 Consent Decree for the Butte Priority Soils Operable Unit Partial Remedial Design/Remedial Action and Operation and Maintenance

adjacent to the first repository are described below. Closure and monitoring activities are required for all waste repositories.

Current 2019 Status: The GMIAA remedial work was completed and approved by EPA in consultation with DEQ. The Butte Waste Repository was expanded by the Respondents in 2013-14 and a construction completion report on the expansion was submitted by the Respondents and approved by EPA in consultation with DEQ on November 23, 2015. The Syndicate Pit, GMMIA and the Mine Waste Repository are being operated and maintained by the SDs under their respective O&M plans.

SDs ongoing remedial and O&M requirements regarding the Syndicate Pit, the GMMIA and the Mine Waste Repository are described in the BPSOU SOW and Attachment B.1, Sections 2.4.1 through 2.4.3.

2.8 Institutional Controls General Remedy Description:

The 2006 BPSOU ROD requires the development, implementation, funding and enforcement and implementation of the following institutional controls (ICs) at a minimum: A. a controlled ground water area for the alluvial aquifer Technicality Impracticability zone to prevent domestic use of the contaminated ground water there as well as other controls for ground water use; B. Butte Silver Bow enacted zoning and ordinance/permit requirements for storm water controls, protection of capped and waste in place areas, removal and disposal of contaminated dirt, as well as other possible requirements: C. Deed notices under Montana state law for capped and waste in place areas; and D. fencing and signs where appropriate.

2011 Status: ICs have not been fully implemented. The ground water control area IC was enacted by the State of Montana Department of Natural Resources on October 13, 2009. Butte-Silver Bow County enacted a storm water control ordinance in early 2011. The Group 1 responsible parties prepared a draft IC plan to address certain other IC requirements, which was submitted for informal public review on April 23, 2010. Approval of this plan by EPA is discussed below. The Group 2 responsible parties prepared a draft IC plan which is undergoing agency review and is subject to EPA approval at a later date. Fencing and signing are implemented upon request by EPA.

Current 2019 Status: The controlled groundwater area (CGWA) for the groundwater TI zone was established in 2009 to prevent domestic and irrigation use of contaminated groundwater and for controlling use, subject to an exception for irrigation wells that were constructed prior to establishment of the CGWA. Butte Silver Bow County enacted an ordinance to regulate the

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management and disposal of contaminated soils that are excavated by residents, and another ordinance to manage, track and enforce activities that prevent the spread of sediments into the Butte stormwater system. BSBC also implemented a program to protect reclaimed areas by installing engineered controls (i.e., fences) in areas to prevent unauthorized access.

A revised Institutional Control Implementation and Assurance Plan is attached to the Consent Decree as Appendix E.

2.9 Operation and Maintenance

General Remedy Description:

Many aspects of the Remedy require long term operation and maintenance. This work must be done under approved and detailed operation and maintenance plans.

2011 Status: There are several short-term operation and maintenance plans in existence. Long term plans for the various aspects are not yet complete.

Current 2019 Status: There are several Operations and Maintenance plans that are currently being implemented for protecting and maintaining the remedy components. Other O&M Plans are in the process of being developed The more specific description of the status of all O&M plans is found in the Scope of Work, Appendix D to the Consent Decree.SDs ongoing O&M requirements are described in the BPSOU SOW Section 1.5 (e) and Attachment B.1 Section 2.4.

3.0 SPECIFIC WORK REQUIREMENTS FOR 2011 AND 2012 FOR PARTIAL REMEDY IMPLEMENTATION

This section describes briefly the major components of the remedial design, remedial action, and operation and maintenance work required for 2011 and 2012. As noted, the 2009 and 2010 Scopes of Work issued by EPA under other orders remain in effect and actions under those documents is required, in addition to the actions described below.

3.1 Residential Contamination

As noted above, the final Multi-Pathway Residential Metals Abatement Program Plan (RMAP) (Responsible Parties April 2010), which is the remedial action work plan for this component of the Remedy, was approved by EPA and DEQ. This work plan is incorporated by reference into the PRIWP and shall be implemented by the Group 1 Responsible Parties. Soils action levels are described in Table 1, Appendix A to the PRI Work Plan.

For years 2011 and 2012, the Group 1 responsible parties shall sample and remediate the number of residential areas described for such years in the RMAP. Other required actions under the RMAP, such as medical monitoring, community

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outreach and education efforts, and long term database upkeep and tracking, shall also be implemented as described in the RMAP. The Butte Site map, Attachment C to the UAO, describes the areas in which each of these elements will be applied.

In summary, as envisioned by the 2006 BPSOU ROD, the RMAP required that all residential properties within the BPSOU and the attics in the adjacent area noted on the map, Attachment B, be sampled, assessed, and abated within 20 years. A complete indoor and outdoor assessment (i.e., residential yard soil, indoor and outdoor dust, attic dust, lead-based paint, drinking water, and mercury vapor) of all residential properties that are known to be occupied or expected to be occupied was to be completed within the first 10 years of the initiation of the expanded program (initiation occurred in 2009). During this 10-year period, the clean-up of residential properties that exceed the action levels will occur in concert with the assessment program. In addition, the program uses community awareness and education, long term database upkeep and tracking, and medical monitoring to ensure its effectiveness.

The Group 1 responsible parties developed and submitted as part of the RMAP to EPA and DEQ for review and approval by EPA, in consultation with DEQ, a long-term tracking method and database to ensure that all data and residential activities are tracked. Properties that were not or are not occupied or the owner refused access during the assessment period will be tracked and abated in the future if necessary. In addition, the tracking program will follow changes in ownership and remodeling of homes that were found to have contaminated attic dust but no current pathway. The long-term BSB RMAP Data Base tracking program will be continued for at least 99 years.

The RMAP implementation shall include community awareness and education and medical monitoring conducted by the Group 1 Responsible Parties. Participation in the medical monitoring will be encouraged through community awareness and education. Medical monitoring shall use blood lead, blood mercury, and urinary arsenic data to identify individuals who have concentrations of those elements above risk-based thresholds. When individuals are found to have elevated blood lead, blood mercury, or urinary arsenic, the home where the affected person or persons live shall be scheduled for immediate sampling and evaluation. Residential remediation shall be performed if sampling determines that yard soil, interior living-space dust, or mercury vapor action levels are exceeded. The Group 1 Responsible Parties shall submit a draft Medical Monitoring Program Remedial Design Workplan deliverable as part of the RMAP. EPA and ATSDR, in consultation with DEQ will review and comment on the workplan deliverable. The final Medical Monitoring Program Remedial Design work plan deliverable shall be

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submitted for EPA review and approval, in consultation with DEQ, and completed by November 30, 2012 and, until then, medical monitoring shall continue under existing protocols and plans.

Annual reports describing all activities under the RMAP shall be prepared by the Group 1 Responsible Parties by December 31, 2011 and December 31, 2012, in conjunction with the reports required in Section 15 of the RMAP.

Current 2019 Status: As noted above, the RMAP plan continued to be implemented by the Respondents, but the deadlines required by the PRI Work Plan were unrealistic. SDs will continue to implement the updated RMAP under the revised RMAP plan approved by the Agencies. Key revisions include geographic expansion of the residential soils program, renewed logic for plan implementation, and a revised schedule that reflects the expanded scope for residential assessment, abatement and attic assessment / abatement. Furthermore, the SDs will continue to implement the medical monitoring program, as further defined and described in the revised RMAP plan, and distribute education materials to the public.

The Residential Contamination component of the ROD, otherwise known as the Residential Solid Media Remedial Action (implemented through the Residential Metals Abatement Program plan (RMAP)), is not addressed in the BPSOU SOW or in the BPSOU Consent Decree. The EPA will use other enforcement mechanisms to implement this component of the ROD.

3.2 Non-Residential Solid Media and the Butte Reclamation Evaluation System (BRES)

Contaminated solid media located in non-residential areas within the BPSOU site include waste rock piles, smelter wastes, milling wastes, and contaminated soils. Solid media in non-residential areas including but not limited to commercial areas, open areas, and non-active mining areas may exceed action levels (see Attachment B). These areas may also pose a threat to the environment as a result of storm water runoff. For example, runoff from these areas is a source of copper and zinc loading to receiving waters.

Contaminated solid media shall be addressed through a combination of source removal, capping, and land reclamation. If a contaminated non-residential area is discovered, the PRPs will develop a draft site- specific work plan for the area within 45 days of discovery of the site and submit it to EPA for review and approval in consultation with DEQ.

Butte Reclamation Evaluation System

As noted above, The Butte Reclamation Evaluation System (BRES) (see 2006 ROD Appendix E) establishes the vegetation, weed, and erosion performance standard for all completed solid media response actions under the Remedy except for residential areas and playgrounds. The BRES is incorporated by reference into this PRIWP and shall be implemented by the Group 1 and Group 2 responsible parties in the manner described in the Unilateral Administrative Order. This includes the schedules and timetables for inspection, evaluation, and corrective action contained therein, as well as the requirement for specific work plans to address deficiencies found during the inspections and evaluations. This system is a site-specific tool to evaluate the stability, integrity, and degree of human and environmental protectiveness afforded by response actions initiated on lands impacted by mining within the Butte Site. Reclaimed areas, including cover soil caps, must achieve the performance standards described by EPA in the BRES document.

By July 14, 2011, work plans shall be developed for the sites that were evaluated during the 2007 and 2008 inspections and evaluations conducted by the responsible parties under BRES. The work plans will be submitted to EPA and DEQ for review and comment and approval by EPA. O&M and corrective action construction activities for these sites will be conducted during the 2011 field season; however, some projects may be completed in 2012 if necessary. By April 30, 2012, the remaining BRES work plans (for inspections and evaluations conducted in 2009 and 2010) shall be submitted to EPA and DEQ for review and comment and approval by EPA. These sites will be approved by EPA in 2012 and construction activities will be completed by the end of field season 2012, however some projects may be completed in 2013 if necessary (see Appendix C to the PRI Work Plan, Schedule).

Current 2019 Status: The BRES program continues to be implemented by the SDs to address the presence of remnant wastes from historic mining activities (waste rock piles, smelter wastes, milling wastes, and contaminated soils) within the BPSOU. The activities in the existing program include; training of the field team on the BRES procedures, evaluation of reclaimed sites, reporting of field data, development of corrective action plans, implementation of corrective action plans, and an annual summary report. The various related BRES plans will be submitted by the SDs for agency review and approval.

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SDs ongoing BRES and other non-residential media requirements are described in Attachment B.1 Section 2.1.2.

Long Term Tracking and Database

The Group 1 and Group 2 responsible parties shall develop daily Construction Activity Reports and submit them to the EPA and DEQ by close of business each Friday for the past week's BRES activities. All data concerning the BRES inspections, evaluations, and corrective actions shall be added to the BRES O&M Data Base. In addition, the BRES O&M data base will be updated weekly and submitted to EPA and DEQ for review. The data base shall be updated with all of the approved reports and other information created to date by December 31, 2011 and shall be maintained as described above thereafter.

Current 2019 Status: The BRES data is being managed in a web-based database.

SDs ongoing remedial requirements regarding BRES and long-term data tracking are described in the BPSOU SOW Section 6.7(f) and Attachment B.1 Section 2.1.

3.3 Ground Water

MSD Subdrain (as named by EPA prior to a 2015 State district court ruling – the subdrain is now referred to as the BPSOU Subdrain)

The former Metro Storm Drain (MSD), now the BPSOU Subdrain, extends from the BSB City/County Shops approximately 4,000 feet through the corridor extending to the confluence with Blacktail Creek. It has been improved and upgraded over the last several years under initial remedial design and remedial action efforts. Contaminated alluvial groundwater shall continue to be captured by the subdrain ground water interception and pumping system under the channel and/or another appropriate groundwater collection system by the Group 1 and Group 2 Responsible Parties. The captured groundwater shall continue to be pumped from the terminal vault in the subdrain to the Butte Treatment Lagoons facility at LAO by the Group 1 and Group 2 Responsible Parties. The captured and pumped water will be treated by lime precipitation technology as described below by the Group 1 and Group 2 Responsible Parties before being discharged to Silver Bow Creek. All necessary operation and maintenance activities for the BPSOU Subdrain groundwater interception and pumping system shall be implemented by the Group 1 and Group 2 Responsible Parties.

Current 2019 status: This remedy element is now known as the BPSOU Subdrain. The Respondents have provided and SDs will continue to provide

ongoing treatment of water collected from the BPSOU Subdrain. The BPSOU Subdrain is being monitored, operated, and maintained following the procedure in the Draft Final Butte Treatment Lagoon Groundwater Treatment System Routine Operations, Maintenance, and Monitoring Plan. The Draft Final Butte Treatment Lagoon Groundwater Treatment System Routine Operations, Maintenance, and Monitoring Plan was submitted in 2018 for agency review and approval, and EPA and DEQ submitted review comments on the document in December 2018.

SDs ongoing remedial and O&M requirements regarding the BPSOU Subdrain are described in Attachment B.1 Section 2.4.4.

Wetland Demonstration Area/Contingency Overflow Pond

The sedimentation basin/former wetland demonstration project area near the intersection of Kaw Avenue and George Street shall be used as a contingency overflow pond for the operation and maintenance of the subdrain groundwater interception and pumping system. The Group 1 and Group 2 Responsible Parties shall submit a draft contingency overflow pond remedial action workplan to EPA and DEQ for review in consultation with DEQ by July 31, 2011. A final deliverable shall be submitted within thirty days of receipt of comment for approval by EPA in consultation with DEQ. Remedial Action activities shall begin under this plan shall begin in 2011 and be completed in 2012.

Current 2019 Status: In 2015 a redundant pipeline was installed from the BPSOU Subdrain vault to the Hydraulic Control Channel (HCC). This redundant pipe was installed as a backup to the primary pipeline that carries contaminated groundwater from the BPSOU Subdrain vault to the HCC. The redundant pipeline replaced the need for an overflow pond. The former wetland demonstration area will now become part of the stormwater control structure for the Buffalo Gulch area.

The SDs will continue to operate the HCC including the redundant pipe as part of the BPSOU Subdrain system. SDs further remedial requirements regarding this area are described in the BPSOU SOW and Attachment C, Section 2.

Irrigation Control

Current land use practices in the MSD area, particularly in some areas overlying portions of the Parrott Tailings, do not minimize recharge of groundwater through areas containing waste. Irrigated ball fields and unpaved portions of the City County Shops overlie a portion of the Parrott Tailings. Recharge of the groundwater

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is significantly increased by irrigation of the ball fields and melting of plowed snow that is frequently piled on the County Shop property. The Group 1 and Group 2 Responsible Parties shall immediately cease irrigation of the ball fields overlying the Parrot Tailings and discontinue the use of the unpaved County Shop area to pile snow removed from city streets and pavements. See Appendix D to the PRI Work Plan, the EPA direction letter of November 18, 2008 on this matter. The Group 1 and Group 2 Responsible Parties may complete a study to determine if there is a method to water the turf on the ball fields which would prevent the irrigation water from migrating into the tailings. If such a study is completed, that deliverable will be submitted to EPA for review and approval by EPA in consultation with DEQ.

Current 2019 Status: As required by the UAO WP, the Respondents stopped irrigating and storing snow in the vicinity of the ball fields. In June 2018, the Respondents submitted the Draft Street and Snow Management Plan to outline procedures and management responsibilities for managing street and snow management practices. Agency review and approval of the Street and Snow Management Plan is on-going (agency comments were submitted in August 2018). SDs will submit the updated document for Agency review and approval.

SDs ongoing remedial requirements regarding the Street and Snow Management O&M Plan are described in the BPSOU SOW Section 1.5 (e) and Attachment B.1 Section 2.4.6.

Localized Groundwater Study

The Group 1 and Group 2 Responsible Parties shall develop a groundwater study work plan to characterize groundwater flow properties and quality in the area between the subdrain vault and the groundwater collection features at the Butte Reduction Works. The draft groundwater study work plan shall be submitted to EPA and DEQ by the Group 1 and Group 2 Responsible Parties for review and comment. The final deliverable shall be submitted within thirty days of receipt of EPA comments for approval by EPA in consultation with DEQ by October 20, 2011. Additional groundwater monitoring wells may be necessary to conduct the study and, if so, shall be described in the work plan or ordered by letter from EPA. The assessment of the groundwater for this area shall be completed by December of 2012.

Current 2019 Status: An investigation for the area upgradient of the BRW and HCC capture systems was conducted by the Respondents. Monitoring for this investigation continues under the BRW Phase I Investigation QAPP. The
preliminary conclusion is that impacted groundwater enters Silver Bow Creek in and around the slag canyon.

SDs further remedial elements requirements regarding the localized groundwater study are described in Attachment B.1 Section 2.2.2.2 and Attachment C, Section 6.

Groundwater Flow Monitoring for the Subdrain

Load monitoring in the Subdrain was completed once in 2009 and was presented by the Group 1 and Group 2 Responsible Parties in the Draft Final Metro Storm Drain (MSD) 2009 Tracer-Dilution Study Technical (Atlantic Richfield 2010). This investigation concluded that alternative methods of measuring flows and loading would be equally effective and easier to implement than dye tracer methodology. As a result, the requirement for load monitoring using a dye tracer will be replaced by an alternate monitoring method as described in the 2011 ESD. Flumes shall be installed by the Group 1 and Group 2 Responsible Parties within manholes in the subdrain immediately and a load monitoring plan will be developed as a part of O&M of the Subdrain groundwater interception and pumping system to determine whether the subdrain continues to operate as expected and is not fouling or clogging. At a minimum, the load monitoring plan shall address the following elements:

- Determine a pumping level in the vault that ensures that the subdrain is not adding contaminated water back into the aquifer in the vicinity of the pump vault
- Establish flumes or weirs and totalizers within the subdrain to continuously monitor flow
- Identify monitoring wells adjacent to the subdrain to be monitored that will signify when subdrain cleanouts are needed
- Overall description of flow measurement and monitoring procedures
- Location and description of monitoring points
- Description of flow measurement techniques
- Developing an SOP for the flow measurement and water sampling within the subdrain
- Monitoring schedule based on two monitoring events per year to be conducted at high water table conditions (approximately June or July) and

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low water table conditions (approximately October or November) of each year.

An annual data summary report shall be prepared no later than June 30 of the year following data collection that includes: all measurements, analytical results and field notes for monitoring events; all flow rate and pumping rate data for the year; water level data from pertinent monitoring wells for the year; all analytical data pertinent to the subdrain collected between monitoring events; calculation of loads and mass balance to determine if the pumping rate is matching the subdrain collection rates and to assure that the subdrain is not adding contaminated water back into the aquifer near the pump vault; recommendations for operations changes, if needed: and other elements typical of a data summary report.

Current 2019 Status: This remedy element is now known as the BPSOU Subdrain. Sampling for the loading study was conducted by the Respondents from 2011 through 2014. Annual data summary reports were submitted by the Respondents for 2012 through 2015 and an interpretive report was submitted by the Respondents in 2016. A number of flow monitoring methods were tried in the subdrain which has a low pH and issues with scaling. All of the cleanouts originally installed in 2004 were removed and replaced by the Respondents with manholes fitted with blinding wings to direct all water through the manholes. Each manhole now contains either a flume or open pipe with flow instrumentation. The most reliable flow measurement device for this system is a magnehelic totalizing meter mounted on the outside of the pipe at the pump vault.

The SDs shall assess, construct appropriate improvements and continue to operate the BPSOU Subdrain as a key remedial element. For ongoing remedial and O&M requirements for the BPSOU Subdrain, see the BPSOU SOW Section 1.5 (b) and Attachment B.1 Sections 2.2 and 2.4.4.

BRW East End Grading and BRW Upgrades Work Plans

The Responsible Parties previously submitted, and EPA approved, a Butte Reduction Works Remedial Action Work Plan (2010). The tasks outlined in the BRW Upgrades work plan are primarily completed. A punchlist has been developed for the remaining work and includes various small maintenance tasks along the channel. The tasks remaining to be completed under this punch list include replacing the cleanout caps along the channel, performing minor slope repair along the channel, and some miscellaneous fencing to be done along the channel and in the BRW area. This work shall be implemented by the Group 1 and

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Group 2 Responsible Parties and be conducted throughout the summer and completed in the fall of 2011.

The Responsible Parties previously submitted, and EPA approved, a BRW East End Grading Plan. Per the BRW East End Grading Work Plan, Responsible Parties have completed all grading of the BRW-01 East, BRW-01 West, and BRW-00 ponds. This grading was completed to change the groundwater gradient to allow contaminated water to be collected in these ponds and reduce metals loading to Silver Bow Creek below its confluence with Blacktail Creek. The remaining task to be completed under this work plan includes completion of the access road through the site and re-seeding of disturbed areas within BRW. This work shall be completed by the Group 1 and Group 2 Responsible Parties in early summer of 2011.

Current 2019 Status: A noted above, portions Silver Bow Creek above its confluence with Blacktail Creek have been referred to as "MSD" in prior site documents. The area is now known as the Silver Bow Creek, and the subdrain is known as the BPSOU Subdrain. The Respondents completed the BRW East End Grading and Upgrades project in 2012. A construction completion report for this project was prepared by the responsible parties and approved by EPA and DEQ on August 7, 2012.

Culvert Removal

In addition to this grading work, the Group 1 and Group 2 Responsible Parties shall remove both sets of culverts located in the LAO section. The upstream culverts and local sediments upstream of the culverts are anticipated to be permanently removed in the fall 2011. The Group 1 and Group 2 Responsible Parties shall develop a work plan to replace the downstream culverts with a more permanent vehicle crossing structure and submit this deliverable to EPA for review and approval by EPA in consultation with DEQ by January 31, 2012. This work will be completed in 2012.

Current 2019 Status: The Responsible Parties completed the two Culvert Removal projects in 2012. A construction completion report for this project was prepared by the responsible parties and approved by EPA and DEQ on August 7, 2012.

BRW Groundwater and Surface Water Monitoring

During construction of the BRW ponds, the Responsible Parties have monitored both local wells and the Silver Bow Creek below its confluence with Blacktail Creek reach adjacent to the BRW. The Group 1 and Group 2 Responsible Parties shall continue to monitor both water levels and metals concentrations throughout

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the remainder of the year in the same manner to evaluate the effectiveness of the grading plan and report all monitoring results and data to EPA and DEQ upon collection. Based on this data, the Responsible Parties and EPA and DEQ shall meet in the fall of 2011 and EPA shall determine and order further remedial actions associated with the BRW area in 2012.

Current 2019 Status: The initial purpose of this monitoring was to test and determine the capture effectiveness of the HCC and BRW ponds. The investigation of the area between capture systems maintained the monitoring program until 2018. Remaining monitoring has been assimilated into and is conducted under the BRW Phase I Investigation QAPP.

Monitoring by the SDs continued past 2018 and shall continue as a part of the BRW Smelter groundwater pre-design investigation. For ongoing and further remedial requirements regarding this monitoring, see Attachment B.1, Section 2.4.4 and Attachment C Section 6.

Abandoned Aqueduct

Group 1 and Group 2 Responsible Parties shall determine potential impacts from material in and under the abandoned aqueduct. The material located in the abandoned aqueduct could be mobilized and transported to the creek during elevated stream conditions and affect surface water quality. A report about this material shall be submitted by the Group 1 and Group 2 Responsible Parties by September 30, 2011. Alternatives to be considered in this study range from no further action to removal of the aqueduct itself, its contents, or installation of sheet piling below the structure. The study will be evaluated by EPA and DEQ and a determination made in writing by EPA about the necessary actions shall be made in the winter of 2011-2012. The Group 1 and Group 2 Settling Defendants shall implement all required work in 2012.

Current 2019 Status: Based on investigation of the ground water conditions related to the BRW ponds construction by the Respondents, it was determined that waste directly under that aqueduct was not as significant of a problem as the various other sources in the area. Ground water capture associated with the BRW ponds expansion partially addressed the aqueduct as a source and a report specific to the aqueduct was not completed. Later, the pore water investigation conducted by EPA identified ground water inflows to surface water in and near this area. The SDs further remedial requirements specific to the BRW GW capture system are described in Attachment C, Section 6.

Subdrain Groundwater Management Report

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The Group 1 and Group 2 Responsible Parties shall develop a Subdrain Groundwater Management Report under direction from EPA and DEQ. The report shall include information about the installation of infiltration barriers over tailings in the subdrain corridor, diversion of groundwater from the subdrain to the Berkeley Pit, and further subdrain groundwater interception and pumping system upgrades and other measures to optimize the operation of the subdrain. The report shall be submitted in draft form by the Group 1 and Group 2 Responsible Parties by October 15, 2011 to EPA for comment by EPA in consultation with DEQ. The final deliverable shall be submitted within thirty days of receipt of comments to EPA for review and approval by EPA in consultation with DEQ.

Current 2019 Status: This area is now known as the BPSOU Subdrain. The BPSOU Groundwater Management Report, along with the appendices, was submitted to the EPA and DEQ in December 2014.

Elements of the Report may be incorporated, as appropriate, in future assessments and evaluations of the BPSOU Subdrain that SDs complete in satisfaction of the requirements described in Attachment B.1 Section 2.2.2.

Revised Groundwater Monitoring

An Interim Groundwater Monitoring Plan for the alluvial aquifer, dated November 14, 2007 was completed by the Agencies and implemented by the PRPs for the alluvial aquifer to ensure that groundwater controls are effective; to provide additional information as necessary on the movement, quality, and quantity of groundwater; and to provide data for ongoing oversight of the groundwater remedy. EPA, in conjunction with DEQ, has modified the Groundwater Monitoring Plan to reflect current conditions and concerns. The modified plan, known as the Interim Revised Ground Water Monitoring Plan (EPA 2011) is attached to the PRI Work Plan as Appendix E. The Group 1 and Group 2 Responsible Parties, as described in the UAO, shall implement the plan as written, including the installation and development of additional wells as described in the plan. EPA may request and order changes to the monitoring system and the Interim Revised Groundwater Monitoring Plan as data are evaluated.

Current 2019 Status: Additional monitoring wells were installed by the Respondents in 2011 and 2012. The 2011 interim groundwater monitoring plan has been updated or modified annually since 2011 and monitoring is ongoing. Annual data summary reports are submitted in the first half of the year following sample collection. In 2018, the interim groundwater monitoring plan was converted to a QAPP.

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SDs shall continue groundwater monitoring under an approved plan. For ongoing remedial and monitoring requirements for groundwater monitoring, see Attachment B.1 Section 2.2.1.

3.4 Surface Water

The existing catch basin structures within BPSOU shall continue to be operated and maintained to maximize effectiveness by the Group 1 Responsible Parties. EPA may direct upgrades or improvements to the existing facilities, and such directions shall be implemented by the Group 1 Responsible Parties.

Slag Canyon Sediment Removal

Substantial bank and near-stream contamination removal and associated reclamation by Responsible Parties has occurred under prior order amendments and EPA direction. In addition to the ongoing monitoring of loads entering Silver Bow Creek along the BRW described above and below, the Group 1 and Group 2 Responsible Parties shall evaluate the feasibility and effectiveness of removing sediments within Silver Bow Creek from its confluence with the subdrain downstream through the BRW area. In this evaluation, the Responsible Parties will make a recommendation to EPA on an effective means of addressing these sediments. This evaluation will be conducted throughout the remainder of 2011, and a summary report that addresses these sediments will be submitted to the agencies by October 15, 2012. The Responsible Parties shall implement sediment removal or mitigation actions as a result of the evaluation of this report, as directed by EPA in consultation with DEQ.

Current 2019 Status: A sediment evaluation report was submitted by the Responsible Parties in 2012. The agencies provided comments of the report, but the report was not finalized. In 2016, EPA and NRDP separately collected sediment samples in the creeks at the site.

SDs shall address further remedial requirements for the contaminated instream sediments in the slag canyon/BRW area. See Attachment C, Section 6 for SDs' remedial requirements for contaminated sediments in this area.

Third Cycle Upfront Stormwater BMPs

Since 2009, the Responsible Parties have implemented two cycles of upfront stormwater control best management practices to mitigate contaminated storm water run-off. These actions included the reclamation and revegetation of areas identified as contamination contributors to storm water runoff, initiation of stormwater system sediment cleanout activities on a periodic basis, the expansion and improvement of existing catch basins, and the initiation of a curb and gutter

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program, among other things. These actions were conducted under order amendments and were consistent with the 2006 BPSOU ROD requirements for a yearly BMP program to address contaminated stormwater until in-stream ARARs are consistently met.

Since 2009, the Responsible Parties have also prepared a variety of preliminary evaluations that looked at how improvements or maintenance activities or other actions could enhance the overall performance of the existing storm water infrastructure and improve water quality within the BPSOU. The intent of these BMP evaluations is to improve water quality that discharges from the existing storm water infrastructure and other storm water sources into Silver Bow Creek below its confluence with Blacktail Creek. The BMP actions listed and required below (the Third Cycle Upfront Stormwater BMPs) are based on those evaluations and EPA's own determinations and experience, and describe the ongoing programs that shall be implemented by the Group 1 and Group 2 Responsible Parties, as well as any BMP actions that need to be further developed in order to control storm water runoff. The Group 1 and Group 2 Responsible Parties shall continue to evaluate the effectiveness of the storm water BMPs and determine if additional BMPs are necessary to meet the site ARARs as directed by EPA in consultation with DEQ.

A. Clean out of the BSB Stormwater System

This work includes the cleanout and/or repair of subsurface stormwater drain sections which are linked to hazardous substance releases or potential releases through stormwater events. The Group 1 and Group 2 Responsible Parties shall continue implementation of the sediment *Removal Plan for the Butte Silver Bow Municipal Stormwater System within the Butte Priority Soils Operable Unit* (May 2010), and complete the work for 2011and 2012 as soon as practicable. These practices need to continue into the future to prevent buildup of sediment in the BSB infrastructure.

Current 2019 Status: The plan was completed and the cleanout of the BSB stormwater system is an ongoing activity as part of the Superfund Stormwater Operations and Maintenance Plan.

SDs ongoing remedial element requirements for this activity are described in the BPSOU SOW Section 1.5 (e) and Attachment B.1 Section 2.4.5.

B. Illicit connections

An evaluation of the existing storm water structures in the uptown Butte area was conducted during the fall of 2008 in the Butte Silver Bow Municipal Storm Water Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1112 of 1422 Consent Decree for the Butte Priority Soils Operable Unit Partial Remedial Design/Remedial Action and Operation and Maintenance

System Improvement Plan. Numerous illicit sanitary sewer connections were located during the study. The Group 1 Responsible Parties shall continue to locate and repair all illicit sanitary sewer connections identified in the past or newly identified to the BSB stormwater system. All repaired illicit sanitary sewer connections shall be described in a report/deliverable and submitted to the EPA for review and approval in consultation with DEQ every three months during 2011 and 2012.

Current 2019 Status: This activity was completed by Respondents in 2016.

C. The implementation of a curb and gutter program in Butte

The Group 1 Responsible Parties shall continue full implementation of the Curb and Gutter Priority Plan for the Butte Silver Bow Municipal Stormwater System within the Butte Priority Soils Operable Unit (May 2010), and complete the work for 2011 and 2012 (and future years) as soon as practicable.

Current 2019 Status: This activity was completed by the Respondents in 2013 and a construction completion report was approved by EPA and DEQ on May 19, 2014.

D. The construction of stormwater catch basins at the base of Buffalo Gulch

A catch basin or more than one catch basin shall be constructed by the Group 1 and Group 2 Responsible Parties at the base area of Buffalo Gulch. These may include the purchase and development of catch basins on McDonough (BG-01), Lisac (BG-01) and/or WL-12 properties. The Group 1 and Group 2 Responsible Parties shall use best efforts to obtain these properties to build the largest catch basins possible in the area. Atlantic Richfield Company owns the land that WL-12 is proposed to be built on and discussions are ongoing for the purchase of other areas. A draft Buffalo Gulch Catch Basin(s) draft remedial action work plan shall be submitted to EPA and DEQ for review and comment by EPA no later than September 30, 2011. A final deliverable shall be submitted to EPA and DEQ. Catch basin work approved by EPA shall be installed in Buffalo Gulch in 2012.

Current 2019 Status: This activity was not implemented under the UAO WP, but will be completed under the Consent Decree.

SDs further remedial requirements regarding this basin are described in Attachment C, Section 2. EPA expects the Railroad respondents will be obligated to construct or facilitate the construction of the improvements that are part of the remedial requirements located on property owned by the Railroad responsible parties under a separate enforcement mechanism.

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E. Hydrodynamic Devices

The Group 1 and Group 2 Responsible Parties shall construct the following Hydrodynamic Devices described in the Draft Plan for Third Cycle Best Management Practices (April 2011) as modified by direction from EPA:

- Texas Avenue. This hydrodynamic device shall be installed in 2011. It will be a 10-year design flow device.
- Warren Avenue. This hydrodynamic device shall be installed in 2011. It will be a 10-year design flow device.
- Anaconda Road. This hydrodynamic device shall be installed in 2012. It will be a 10-year design flow device.
- Montana Street. This hydrodynamic device shall be installed in 2012. It will be a 10-year design flow device.
- Buffalo Gulch. Theses hydrodynamic devices are located at the bottom of Buffalo Gulch. One shall be located on the corner of Holland and Main Street and the other on the corner of Front and Dakota Street and will be 2year design flow devices.
- These shall be installed with the catch basins in 2012.

Current 2019 Status: The device to be located at Front and Dakota Street was not required. Installation of the other listed hydrodynamic devices was completed by the Respondents between 2012 and 2014, and a construction completion report was approved by the EPA and DEQ. The devices are being maintained in accordance with the approved Superfund Stormwater System Operations and Maintenance Plan.

SDs ongoing O&M requirements for these actions are described in the BPSOU SOW Section 1.5 (e) and Attachment B.1 Section 2.4.5.

F. BSB Street Maintenance and Snow Management Plan

The Group 1 Responsible Parties shall develop a comprehensive street maintenance and snow management plan for the BPSOU that will cover issues such as snow removal and storage, heavy metal sampling of sand before it is used on the streets, street cleaning and the use of water to prevent dust problems from potentially contaminated dirt on city streets. The workplan/deliverable shall be submitted to EPA for review and approval by EPA in consultation with DEQ by September 30, 2011. This plan shall be completed by the November 2011 and implemented thereafter. Current 2019 Status: The Respondents submitted a draft Street maintenance and Snow Management Plan to EPA and DEQ on June 11, 2018. EPA and DEQ provided comments on the plan on August 18, 2018. Agency review and approval of the revised plan is anticipated.

The SDs ongoing O&M requirements regarding these activities are described in the BPSOU SOW Section 1.5 (e) and Attachment B.1 Section 2.4.6.

EPA Oversight of BSB Municipal Activities

EPA and DEQ recognize that the curb and gutter and stormwater system improvement actions described above overlap with BSB's municipal functions. EPA and DEQ will cooperate with BSB in its oversight and approval of BSB actions in these situations to ensure that duplicate reporting or inconsistent obligations are avoided to the extent practicable. EPA and DEQ's oversight of these actions pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, does not extend to municipal actions which do not address the release or potential release of hazardous substances, such as stormwater system improvement actions outside of the Butte Site boundaries.

G. Additional Source Controls

Under the Remedy, an unreclaimed, disturbed site that does not exceed lead or arsenic human health action levels shall still be addressed by the Group 1 Responsible Parties if data collection, including data collection under the surface water monitoring and BMP program, demonstrates that surface water contaminants of concern (i.e., copper and zinc) from the site are migrating off-site and impacting surface water quality in Silver Bow Creek below its confluence with Blacktail Creek, Blacktail Creek, or Grove Gulch Creek. If such sites are discovered by the Group 1 Responsible Parties, remedial actions for these sites shall be designed in a workplan/deliverable submitted to EPA and DEQ and implemented as approved by EPA. The action to be implemented will be determined during review of a proposed work plan, but is anticipated to be consistent with previous source area actions completed in BPSOU. These sites shall also be evaluated and maintained over the long-term in accordance with the BRES, the Butte Hill Revegetation Specifications, and site-specific design plans.

Specifically, EPA, in consultation with DEQ, has determined that the following list of sites along with their current status shall be part of the Third Cycle stormwater BMP action under the Remedy.

• <u>New and Mahoney Street</u>. The property owner is in the process of developing a portion of this site. The Group 1 Responsible Parties shall oversee the

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development of the property and ensure the contamination up gradient of the site is addressed. A CCR for the site shall be submitted to EPA and DEQ 3 months after completion of these activities.

- <u>800 North Main</u>. The Group 1 Responsible Parties shall develop a workplan for this site in 2011. EPA, in consultation with DEQ, shall review and approve the workplan/deliverable. Remediation activities shall be completed by the end of 2012. A CCR for the site shall be submitted 3 months after completion of these activities.
- The Group 1 Responsible Parties prepared a draft technical memorandum on Additional Source Control and Engineering Sediment Control BMPs in May 2010. This evaluation presented a number of additional source control erosional areas that could benefit from mitigation. Twenty sites were identified and shall be addressed under a work plan/deliverable to be submitted to EPA for review and approval in consultation with DEQ as soon as practicable. Figure 1 of the PRI Work Plan shows the location of the source control areas to be addressed under this work. Potential mitigation for these sites includes soil caps, rip-rap lined ditches, rock check dams, vegetated swales, concrete chutes, sediment traps, traffic barriers, silt fences, tailings removal, membrane lined ditches, and protection under the BSB storm water ordinance. Three of the source control sites are located on railroad property, and shall be addressed under the O&M Plan or other specifically approved plans for those properties by the Group 2 Responsible Parties. Construction activities for these twenty sites shall begin in 2011 and shall be completed in 2012. Construction Completion Reports (CCRs) shall be submitted 3 months after completion of these activities.

Current 2019 Status: The SDs are currently working on the New and Mahoney and the Anderson Shaft sites remedial designs which are subject to EPA review and approval in consultation with DEQ under the UAO and its PRI Work Plan or under the Consent Decree and the BPSOU SOW. It is anticipated that these sites will be reclaimed in 2019/2020. The 800 North Main and the twenty sites referenced above have all been reclaimed/addressed and are now part of the BRES program.

SDs ongoing remedial and O&M requirements regarding these activities are described in the BPSOU SOW Section 1.5 (e) and Attachment B.1 Sections 2.1.2 and 2.4.5.

3.5 Groundwater Treatment Facility and Related Facilities

As noted above, the 2006 BPSOU ROD requires the continued operation of West Camp capture and pumping structures, the Butte Treatment Lagoons facility and

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the hydraulic control channel (HCC) for the treatment of captured ground and surface water in accordance with ARARs and any approved or applicable plans. The West Camp facilities, the Butte Treatment Lagoons facility and the HCC shall continue to be operated and maintained in as effective and efficient manner as possible by Responsible Parties such that Performance Standards are obtained under a variety of conditions for end of pipe discharges. Monitoring and data reporting under existing plans and understandings for the discharge shall continue.

In addition, the 2006 BPSOU ROD requires the re-design and upgrade of the Butte Treatment Lagoons facility. That remedial design action has been ongoing. The following actions are required of the Group 1 and Group 2 Responsible Parties for the 2011 and 2012 seasons.

Phase I—2011 Construction

- The existing West Camp Pump Station shall be upgraded. Work will include a new, larger precast concrete pump station building with new interior piping, valves and control system. A permanent diesel fired generator shall be installed to provide electrical power during outages, and a new electrical panel shall be installed. The existing well shall be retrofitted with a pitless adaptor and the existing above ground piping between the well and the control building shall be replaced with below grade piping. A new submersible pump shall be installed controlled by a new variable frequency drive.
- Eight treatment lagoon outlet structures shall be upgraded. All metal wing walls, handrails and exposed piping shall be repainted. Any metal wing walls requiring substantial repair due to corrosion shall be replaced with concrete structures. Existing screw operated slide gates shall be replaced with corrosion resistant guide channels and stop logs. Existing metal stop logs shall be replaced with synthetic stop logs. All deteriorated concrete structures shall be repaired or replaced. Existing silt curtains shall be replaced, and new silt curtains will be installed to optimize flow within the treatment lagoons. Permanent silt curtain anchors shall be installed and a means of measuring water elevation differential across each curtain shall be provided. Instrumentation will be upgraded for monitoring.
- The existing Automatic Sampling Building and Effluent Station shall be replaced. A new precast concrete sampling building will be constructed and a below grade effluent metering vault shall be installed. New sampling equipment shall be installed, and the instrumentation and control system shall be upgraded.
- A new Influent Pump Station shall be constructed and include a heated building to house the new pumps, piping, valves, flow meters, instrumentation and

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controls. A new inlet structure shall be constructed, and the existing inlet structure and pump station left in place for backup. Two new influent pipelines shall be constructed between the pump station and the CAS building. A dedicated diesel generator shall be installed to provide backup power during outages.

All of this Phase 1 work is described and addressed in *the Final Butte Treatment Lagoons (BTL) and West Camp Pump Station (WCP-1) Upgrades Design Report/Work Plan (, May 12, 2011)*, which was approved by EPA and DEQ and which is incorporated herein by reference.

Phase II—2012 Construction

The Phase 2 work described below shall be addressed under a remedial action work plan submitted by the Responsible Parties. The draft work plan shall be submitted to EPA and DEQ for comment by the October 30, 2011. A final workplan/deliverable shall be submitted for review and approval by EPA in consultation with DEQ within thirty days of receipt of comments or as otherwise approved by EPA. A Final Phase II LAO Butte Treatment Lagoons facility and related facilities Remedial Action Plan shall be completed and approved by March 30, 2012.

- At the Butte Treatment Lagoons (BTL) facility, site utility improvements shall include a new potable water line, fire hydrants and sewage force main to service the planned Operation Building. Capacity of the existing effluent pump station electrical service will be increased to serve the new Influent Pump Station.
- The existing Chemical Addition System (CAS) shall be upgraded. Design information for all equipment will be provided, including specific capacities for all tanks, mixers, and lime handling equipment. An addition to the existing building shall be constructed. Improvements to the interior shall improve service life and ease maintenance. Lime feed equipment will be upgraded to provide redundancy and reliability. Either a portable lime tank or a second lime silo shall be provided. Compressed air shall be piped in from the new Operations Building when it is built, and the existing compressor removed. New influent piping shall be constructed, and the existing interior piping replaced. A connection to the new potable water line shall be made. The existing sluice box shall be replaced, and a new distribution tank constructed. All three distribution channels between the CAS building and the treatment lagoons shall be replaced.

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- Access roads serving the BTL area shall be generally improved. Gravel roads along the dikes shall be graded, and resurfaced with gravel. The Operations Building and CAS road and parking lot shall be paved. Signage and traffic control shall be updated.
- A new Operations Building shall be constructed to provide operator office and lab space, as well as heated maintenance and storage space. A new control center shall be installed and be connected to an extensive network of monitoring points. A dedicated diesel generator shall be installed to provide electrical power during outages.
- The following long-term plans shall be prepared as part of the Final Phase II LAO Butte Treatment Lagoons Facility Remedial Action Plan:
- <u>Water Management Plan</u> will address the treatment system design basis with a breakdown of incoming flows, detailed treatment capacity, detailed online storage volumes, off-line storage capacity, off spec water management, and alternate modes of operation.
- <u>Sludge Management Plan</u> will address sludge removal, sludge handling, dewatering and disposal. The plan will include specific design information on all structures and equipment.
- <u>Instrumentation, Controls and Monitoring Plan</u> will provide complete design information for all existing and new systems.
- <u>Construction Report</u> for the recent MSD Pump Vault upgrades and will include specific information for all installed equipment and control.

Current 2019 Status: The Phase I and II construction activities were completed by the Respondents in 2014 and a construction completion report was approved by the EPA and DEQ on October 29, 2014.

SDs are developing the operation and maintenance, and monitoring plan (OMM) for review and approval by EPA in consultation with DEQ. The OMM Plan will include the water management, sludge management and instrumentation, controls, and monitoring plans.

SDs ongoing O&M requirements for this facility are described in the BPSOU SOW Section 1.5 (e) and Attachment B.1 Section 2.4.4.

3.6 Surface Water Monitoring

The Responsible Parties shall continue to implement the Interim Surface Water Monitoring Interim Monitoring Plan (EPA, April 2007). In addition, the following

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actions shall be taken in addition to those described in the April 2007 monitoring plan:

- EPA or DEQ may require opportunistic wet weather sampling and monitoring upon notice and such sampling and monitoring shall be implemented as requested;
- Automated wet weather sampling for station SS-06A shall be set up to collect individual samples every hour for 24 hours; and
- SS-01 is added to this list of required sampling stations.

All data results shall be reported as directed by EPA and as stated in the 2007 Interim Surface Water Monitoring Plan. EPA and DEQ will develop a final Surface Water Monitoring Plan for implementation at a later date.

Current 2019 Status: The surface water monitoring program continues to be implemented. Under the UAO WP, the Respondents provided EPA and DEQ annual surface water data summary reports (DSR) for review and approval. The DSRs include all normal and wet weather flow, along with diagnostic sampling results. Furthermore, the Respondents submitted an interim Surface Water QAPP that was approved by the EPA and DEQ on June 11, 2018. The SWMP is Exhibit 1 to Attachment A of the BPSOU SOW.

Under the Consent Decree, the Final Surface Water QAPP will be reviewed and updated annually and resubmitted to EPA for review and approval. SDs ongoing surface water monitoring requirements are described in the BPSOU SOW Section 1.5 (c) and Attachment B.1 Section 2.3.1.1.

3.7 Other Remedial Requirements Butte Mine Waste Repository

The Group 1 Responsible Parties shall ensure that remediation waste management activities at the Butte Mine Waste Repository are implemented in compliance with the approved Butte-Silver Bow County BPSOU Mine Waste Repository Operations and Maintenance Plan, June 2009.

In addition, the Group 1 Responsible Parties shall construct a new repository cell within the GMMIA boundary. The draft remedial design/draft remedial action report describing this construction shall be submitted to EPA and DEQ for comment by March 31, 2012. A final workplan/deliverable shall be submitted within thirty days of receipt of comment for approval by EPA in consultation with DEQ. The repository shall be constructed in 2012. All future repository cells used to contain mine wastes from the BPSOU shall be closed in a manner consistent with

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the initial repository closure according to site specific design plans an

the initial repository closure, according to site-specific design plans, and shall comply with all pertinent ARARs. Closed repositories shall be evaluated and maintained over the long-term in accordance with the BRES, the Butte Hill Revegetation Specifications, and project-specific O&M plans. The Butte Mine Waste Repository O&M plan shall be submitted to EPA and DEQ for review and approval by EPA in consultation with DEQ no later than 30 days prior to the completion of any closure activities at the repository.

If it is determined by EPA, in consultation with DEQ, that Superfund waste cannot be disposed of in the Butte Mine Waste Repository because it is waste regulated under RCRA or the State equivalent of RCRA, or is otherwise not appropriate for disposal at the Butte Mine Waste Repository, the Group 1 Responsible Parties shall identify the names and locations of facilities where the waste materials will be shipped, the type and quantity of waste that will be generated and the method of transportation that will be used; and submit this information to EPA for review and approval, in consultation with DEQ.

Current 2019 Status: As discussed above, the Butte Waste Repository was expanded in 2013 and a construction completion report on the expansion was submitted and approved by EPA in consultation with DEQ on November 23, 2015. The mine waste repository is being operated and maintained in accordance with the Mine Waste Repository Operations and Maintenance Plan that was approved by the EPA and DEQ in 2015.

SDs ongoing O&M requirements regarding this facility are described in the BPSOU SOW Section 1.5 (e) and Attachment B.1 Section 2.4.1.

3.8 Institutional Controls

The Group 1 and Group 2 Responsible Parties shall monitor and enforce, with adequate funding and planning, the ground water control area rule enacted by DNRC and any amendments thereto. The Group 1 and Group 2 Settling Defendants shall monitor and enforce, with adequate funding and planning, the 2011 BSB Storm Water Ordinance and any amendments thereto.

EPA will submit final comments, based on the public input received on the draft plan, to the draft Group 1 Institutional Control Plan in the summer of 2011. The Group 1 Responsible Parties shall revise the plan accordingly and submit a final Group 1 Institutional Control Plan within 60 days of receipt of the comments for final EPA approval. EPA and DEQ will submit comments on the Group 2 draft institutional control plan in 2011, and the plan shall be revised by the Group 2 responsible Parties accordingly.

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EPA and DEQ will work with the county and others to ensure that workable and adequate zoning controls and permit requirements are enacted and enforced. EPA and DEQ will continue to work with the Responsible Parties for the installation of appropriate signage and fencing as needs arise and after input from affected landowners.

Current 2019 Status: See status description above.

A revised Institutional Control Implementation and Assurance Plan is attached to the Consent Decree as Appendix E.

3.9 Operations and Maintenance (O and M)

There are several short-term, EPA-approved O&M plans in existence for various actions within the BPSOU site. These plans shall continue to be implemented by the appropriate Responsible Parties until final O&M plans are approved by EPA in consultation with DEQ. The Remedy requires the development of long-term and integrated comprehensive monitoring and O&M plans for all aspects of the Remedy, and these shall be addressed as full remedial action is implemented. Interim O&M plans, as described below, shall be developed for review and approval by EPA in consultation with DEQ as described below. All approved O&M activities shall be implemented by the Responsible Parties as appropriate.

The Residential Metals Abatement Program Plan and the IC Plans have or will have long term implementation elements included within those plans and do not require separate O&M plans.

During the O&M period, Responsible Parties as appropriate shall submit quarterly O&M data reports and an annual O&M report to document and evaluate the operation and performance of the system(s), including performance monitoring results, unless otherwise noted in this UAO.

Current 2019 Status: See status description for O&M plans above.

Railroad O&M

This plan by the Group 2 Responsible Parties shall address the areas remediated or capped on railroad property and shall include any catch basins or waste repositories on such land. The draft Interim Group 2 Railroad O&M plan shall be submitted to EPA and DEQ for review and comment within 30 days of the effective date of the UAO. A final Interim Group 2 O and M Plan/deliverable shall be submitted to EPA and DEQ by the Group 2 Responsible Parties within 30 days of receipt of comments for approval by EPA in consultation with DEQ. The plan shall include the date certain for transfer of certain waste repository land previously identified to BNSF

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to Butte Silver Bow County (which was a condition of the original waste repository approval construction) or for the removal of such wastes from the repository to a new, approved repository.

Current 2019 Status: The Group 2 Respondents submitted an interim stormwater O&M plan that was approved by the EPA. The Railroads are also in the process of developing an O&M plan for remediated and capped areas that are located on Railroad Properties.

Ongoing remedial and O&M requirements for the Group 2 Respondents will be addressed in a separate compliance document and are not included in the Consent Decree.

Ongoing O&M requirements for remediated railroad properties owned by RARUS are described in the BPSOU SOW, Attachment B.1 Section 2.4.7.

BTL, West Camp, and MSD Groundwater Capture System O&M

The draft Interim BTL System, West Camp, and MSD Groundwater Capture System O&M plan was submitted by Group 1 and Group 2 Responsible Parties to EPA and DEQ for review and comment. A final Interim BTL System and MSD Ground Water Capture system O&M Plan/deliverable shall be submitted to EPA and DEQ for approval by EPA in consultation with DEQ within thirty days of receipt of comments by EPA or as otherwise indicated by EPA.

Current 2019 Status: See status description above.

Interim Stormwater Ponds and Engineering Controls O&M

This plan shall address all stormwater ponds and stormwater engineered structures within the Butte Site. The plan shall also address any other stormwater BMP components if those components are not addressed under other O&M plans (such as source area plans) or municipal operation plans. The draft Stormwater Ponds and Engineering Controls O& M plan shall be developed and submitted to EPA and DEQ for review and comment by EPA in consultation with DEQ by December 15, 2011. A final such plan/deliverable shall be submitted within thirty days of receipt of comments by Group 1 and Group 2 Responsible Parties for approval by EPA in consultation with DEQ.

Current 2019 Status: See status description above.

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3.10 2011 UAO PRI Work Plan Appendices

Appendix A – Soil, Groundwater, and Surface Water Performance Standards

2019 Status: In-stream Surface Water Performance Standards have been modified as described in the Surface Water Compliance Determination Plan, Attachment A to the BPSOU SOW.

Appendix B – Butte Site and BPSOU Map

2019 Status: A current Figure of the BPSOU Surface Boundary is attached to the Consent Decree as Appendix B.

Appendix C – Schedule

2019 Status: The approved integrated schedule for RD/RA activities is found in Exhibit 1 of the BPSOU SOW, and in Table 2-1 of Attachment B.1 of the BPSOU SOW.

Appendix D – EPA November 8, 2008 letter on snow disposal

2019 Status: As noted above, issues regarding BSBC snow removal have been addressed under the prior UAO activities.

Appendix E – Revised Interim Ground Water Monitoring Plan, 2011

2019 Status: As noted above, the 2011 Ground Water Monitoring Plan has been revised and is now a QAPP.

Figure 1 – Source Control Area Map

2019 Status: The current Source Areas Map is attached to the Consent Decree as Appendix G.

ONGOING REMEDIAL ELEMENTS SCOPE OF WORK

BUTTE PRIORITY SOILS OPERABLE UNIT of the SILVER BOW CREEK / BUTTE AREA SUPERFUND SITE Butte-Silver Bow County, Montana

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1.0 INTRODUCTION

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2.0 MAJOR BPSOU ROD COMPONENTS

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2.1 Solid Media

2.1.1 Residential Contamination

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2.1.2 Non-Residential Solid Media and the Butte Reclamation Evaluation System (BRES)

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2.1.2.1 Non-Residential Solid Media

osal/gc/lUfserUg leUc/mp i ltrshlf g lec WUrc tsyhfct asfUc/le esehctl/cerlUa UhcU Uric BI oDd lefay/c WUrc hsf9 blactqg lade2 WUrctq tg carch WUrctqUe/fserUg leUc/tslatOTic nDX hcxylhct ri UrUa tyfi tsyhfc UhcU cJfcc/le2 Ufrlse acvcat ush UtcelfqacU Ue/gchfyhp Whrile ric BI oDd mc l/cerlulc/Ue/U/hcttc/OSe U/lrlseqlu Ue yehcfaUg c/q /ltryhmc/tlrc/sct esr cJfcc/acU sh Utcelf Ufrlse acvcatqlr g Up trlaa mc hcfaUg c/lutrshg WUrchuhsg tyfi tlrc lt esrg UeU2c/mp BMI t fsetrhyfrc/ Urbur sunic hcg c/pqUau bhsvl/c/le ArrUfig cer C rs ric BI oDd oD1 O Mstr 9es We tsyhfc UhcU Whrile ric BI oDd i Urc mcce hcfaUg c/Ue/ U/lrlseUa fUbble2 Ue/hcfaUg UHse hcxylhcg cert Unc fserUec/le ArrUfig cer C rs ric BI oDd oD1 qocfrlset 7 Ue/-OHs Wevchrichc Urc UhcU Whrile ric BI oDd ri Uri Uvc esr mcce fi UhUfrchl(c/shi Uvc fi Ue2c/ fse/lrlset tyfi ri Urbfi UhUfrchl(UHse lt ecfcttUhpOTic se2sle2 hcg c/lUa carg cert ushese-hctl/cerlUatsal/gc/lUUhcQ

- PO Plan and QAPP ' Tic osal/ Mc/IUMUEU2cg cer I ale 30MMI GUE/ UtsflUc/ : AI I tqWi lfi / ctfhlmct ric uyaaese-hctl/cerlUatsal/ g c/IU bhs2hUg qti Ua mc fsg bacrc/ mp ric oXt UE/ tyng lmc/ rs EI A Wri le , L/Upt suric Eurcfrlvc XUc ushhcvlcWUE/ UbbhsvUaple fsetyarUfse Wri XE: qrs bhsvl/c ush ric tUg bale2 UE/ fi UhUfrchl(Ufse su UhcU leU cxyUcap try/lc/q ecWap / ltfsvchc/ tlrctq UE/ bhsvl/c U ecW tc/lg cer / cfltlse as2lf ushtlrct Wilfi g Up bstc yeUffcbrUmac trshg WIchfsefchetO
- . O Schedule for implementation 'Ti c tfi c/ yac us hlg bacg cerle2 ri c Wsh9q U Wcau & 21f / lU2hUg t us hcJ cf yrls eqti Uanr bhs vl/ c/ le ri c oMMI O

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1128 of 1422 Csetcer Xcfbcc ushri c Byrrc I hishirp oslat DbchLhac delr

I Urllan cg c/ llaXct12e0n cg c/ llaAfrlse Ue/ DbchLflse Ue/ MUerceUefc

- wO Data Summary Reports ' olg bale2 mp ric oXt ush hcg c/lla /ctl2e0hcg c/lla Ufrlse ush tlrct0LhcUt ti Ua mc /sfyg cerc/ rihsy2i bchls/lf XontO
- 80 Corrective Action Plans ' Defc tUg bac fsacfrlse Ue/ leushg Uflse 2Ufichle2 UfrlvIrlct Uhc fsg bacrc/ Ue/ lr i Uf mcce / crchg lec/ mp EI A le fsetyarUflse Wri XE: ri Uf uyhri ch Ufrlse Uf tlrct Uhc Uf lt ecfctt Uhpq U Cshhefrlve Afrlse I aUe 3CAI Gti Ua mc bheb Uhc/ mp ri c oXt Ue/ lg bacg cerc/ ybse Ubbhsv Uamp EI A le fsetyarUflse Wri XE: O
- 50 Construction Completion Reports (CCR) ' Sg bæg cerc/ fæleybt ti Ua mæ/sfyg cerc/ mp ri c oXt ri hsy2i CCn tqU hæylhc/O
- FO Long-Term Database 'Xcvcasbg cer su Uase2-rchg / UfUhUtc ush Ua ese-hctl/cerlUa g c/lU mp ric oXt ti Ua mc / ctfhlmc/ le U XMI q hcuchcefc/ le ric oMMI Ue/ lg bacg cerc/ mp ric oXtO

2.1.2.2 BRES Program

Ts Uf sg g s/Uc ric / lvchtc aLe/ rpbct Ue/ ce/ aLe/ ytct While ric BI oDd qric Bn Eo 3tcc UrUF ig cer E rs ric. LLF n cfsh/ suXcfltlseGWU /ctl2ec/ rs U/hctt hcfaUg c/ ybaLe/t le hctl/cerlUap hcfhcUflseUap Ue/ fsg g chflUaDe/ythlUaaLe/ tcrrle2tqcJfay/le2 hctl/cerlUapUh/tOT ic tptrcg i Uf fsg bsecent ri Uf Uas Whr rs nc Ubbalc/ rs UrcU hcfaUg c/ Uf sbce tbUfc While rilt yhnLe tcrrle2On cfaUg c/ UrcUqlefay/le2 fsvchtslafUbtqg ytr Uf i lcvc Ue/ g UerUe ric bchshg Uefc trUe/Uh/t / ctfhlmc/ mp EI A le ric Bn Eo / sfyg cerOT ic tptrcg Uats tcrt fshhcfrlvc Uf rlse "rhl22cht" mLic/ se ric bchls/lf g selrshle2 Ue/ cvUayUflse subctbsetc Uf rlse thrctOT ic rhl22cht esrc/ le ric Bn Eo hcxylhc fshhcfrlvc Uf rlse le Urlg cap Ue/ Ubbls bhlUc g Ueechle Uf fsh/Uefc Wri ric tfic/yale2 hcxylhcg cert suric Bn EoOT ic Bn Eo I hs2hUg q lefay/le2 ric / cvcasbg cer su tfic/yact Ue/ fshhcfrlvc Uf rlse baLet Wichc ecfcttUhp rs U/hctt iltrshlf g lec Wtrc tsyhfc g UechlUatqfserleyct rs mc lg bacg cerc/O

Ti c. LLF Bn Eo lg bæg cerUflse / sfyg cert ti Uanne hevlte/ Ue/ Ubbhsve/ np EI A Ue/ XE: qU bUr suri c oMMI qle sh/ chrs lefshbshUr sbrlg l(Uflse refi elxyctqecWrefi esæ2let Ue/ ættset æUec/ ubsg lg bæg cerle2 ri c Bn Eo bhsfe/ yhetO

Aaa hefallg c/ UheUtq lefay/le2 fsvch tsla fUbtq gytr Ufileve ric behushg Uefe trUe/Uh/t / etfhlme/ mp EIA le ric Bn Eo / sfyg cerOTic heg c/lUa carg cert ushric Bn Eo bhs2hUg UheQ

PO *Plan and QAPP* ' Tic Bn Eo I aléq UtsflUtc/ Bn Eo MUéyla Ué/ UtsflUtc/ : AI I qWi lfi Utc bUr su ric oMMI qti Uta mc tyng lmc/ rs EI A Wri le, L/Upt su ric Eucefrlvc XUtcqush hcvlcWUé/ UbbhsvUaqle Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1129 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat DbchLhac d elr I UhlUan cg c/ IUaXct12e0n cg c/ IUaAfrise Ue/ DbchLHse Ue/ MUerceUefc

> fsetyarUflse Wiri XE: qushri c fserleyc/ lg bacg cerUflse suri c Bn Eo bhs2hUg qlefay/le2 rhUele2 suri c ulca/ rcUg se ri c Bn Eo bhsfc/yhctq cvUayUflse su hcfaUg c/ tlrctqhcbshrle2 su ulca/ /UfUq/cvcasbg cer su fshhcfrlvc Ufrlse baUetqlg bacg cerUflse su fshhcfrlvc Ufrlse baUet Ue/ UeyUatyg g Up hcbshrtOTi c Bn Eo baUe Ue/ : AI I ti Uanre hcvlcWc/ Ue/ hcvltc/ Uf ecfcttUp se Ue UeyUanUfltOTi c UfrlvIrlct / ctfhlmc/ le ri c Bn Eo I aUe ti Uanre lg bacg cerc/ mp ri c oXtO

- . O *Schedule for implementation* 'Ti c tfi c/ yæ us hlg bæg cerle2 ri c Wsh9 ti Ua næ bhs vl/ c/ le ri c hcvltc/ Bn Eo I aLeO
- wO Data Summary Reports (DSRs) 'Xont le ric Bn Eo bhs 2hUg lefay/c Bn Eo j lca/ XUfUoyg g Up n cbshrt Ue/ TcfielfUancfsg g ce/Uflset hcbshrt Ue/ ti Uanc tyng lnc/rs EI A Ue/ XE: np ric oXtO
- 80 Corrective Action Plans Aurch UBn Eo let bcfrls eqlulr / crchg lec/ ri Ut Ut lrc V / culf lcef lct hcxylhc uyhri chqUCAI ti Uanc bhcbUhc/ qUbbs vc/ mp EI A le fset yarUlse Wri XE: qUe/ lg bacg cerc/ mp ri c oXtO
- 50 Construction Completion Reports Sg bacg cerc/ fshaftlvc Ufrlset ti Uana / sfyg cerc/ ri hsy2i CCntO
- FO Long-Term Database Xcvcæbg cer su Uæe2-rchg / UfUhlfc ti Uæmc / ctfhlmc/ le UXMI Ué/ hcuchcefc/ le ri c hcvltc/ Bn Eo baléO

2.2 Groundwater

Ti c n cg c/p hxylhct ri c f Ubryhc Ue/ rhcUg cer suf serUg leUc/ 2hsye/WUrchrs ri c cJrcer/ctfhlmc/ le ri lt AmUfig cer BOPUe/ le AmUfig cer Crs ri c BI oDd oD1 O Tic. LLF BI oDd ncfsh/ suXcfltlse fserUec/ UWUvchsuAnAn trUe/Uh/t ush ri c UaayvlUa 2hs ye/ WUrch Whri le ri c / culec/ rcfi elfUa lg bhUfrlfUhlahp 3TSG1 Uvch AhcU/ctfhlmc/ le ric. LLF BI oDd ncfsh/ su XcfltlseOSe Uærrch/ Uc/ Dfrsmch ...q. LP, qEI A Ue/ XE: Ubbhsvc/ oXtVhcvltc/ bslert sufsg balUefc 3I DCGWcaa UeUaptlt ush g selrshle2 ri c fserUg leUtc/ UaayvlUa 2hsye/WUtch bayg c rs tybbshr fsg ballefc Wri nDX hxyllrg cert hc2th/le2 ric bayg cO XUU fsæcfrlse rs tybbshr EI AV hevleWqle fsetyarUlse Whi XE: qsuri c TSmsye/Uhp/ctfhlmc/le ric. LLF BI oDd n DX Ue/ rs ctrUnalti ecWI DC Wcaat lt se2sle2OTi c n cg c/p Waa esr Ue/ It esr lerce/c/ rs facUe yb 2hsye/WUrch rs g ccr 2hsye/WUrch bchshg Lefc trLe/Lh/t Wrile ric msye/Lhp suric WLvc/ trLe/Lh/tOTichcushcq ni chc Uhc es I chushg Uefc orUe/Uh/t ush2hsye/WUrchWiri le ni c UhcUsuri c BI oDd UaayvlUa Ukyluch ri Ut lt fsvchc/ mp ri c 2hsye/WUtch TS WUvch msye/UpO 4 hs ye/Witch I chus hg Uefc or Ue/Uh/t l/cerlulc/ le ri c n DX g ytr mc g cr syntl/c su ric TSnsve/Up U/crchg lec/mp g selrshle2 le ric hcvltc/ bslert sufsg balUefc Weat is no ctruhaltic/ Ut / ctfhlmc/ UhsvcO

2.2.1 Groundwater Management Plan

Ti c 4 hsye/Witch MUEU2cg cer I alé 34 1 MI Glt ri c svchlaa balé ushi sW rs U/htt 2hsye/Witch g selrshe2 hxylhcg cert l/cerlulc/ le ri c . LLF ncfsh' suXcfltlseq. LPP EoXqUe/ . L. Lncfsh' suXcfltlse Ug ce/g cerO Ti c 4 1 MI Uats / ctfhlmct i sWri c svchlaahcg c/lUaUfrlse UbbhsUfi g cert ri c 2hsye/Witchhcg c/p tbcflulc/ le ri c n DXOFi c 4 1 MI ti UaU/hcttct

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1130 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat Dbchthac d elr I UriUán cg c/ IUá Xct 12e0n cg c/ IUá Afrise Ué/ Dbchtfise Ué/ MUerceUéfc

ric olrc-1 l/c 4 hsye/Wutch Mselrshle2 I hs2hLg q ric Cserhsac/ 4 hsye/Wutch AhcU I hs2hLg q ric Byrrc ThcUrg cer 6U2sset Mselrshle2 I hs2hLg Ue/ ric 4 hsye/Wutch j asWMselrshle2 ushric BI oDd oym/hUeO Tic se2sle2 hcg c/IUacarg cert ushric 4 hsye/WutchMUeU2cg cer I ale UncQ

1. Complete Plan' 1 lri le, L/ Upt suri c Eucfrlvc XUcqoXt ti Ua tyng lr U/hUr 4 1 MI ushkcvlcWUe/fsg g cer mp EI A le fsetyarUflse Wri XE: OA uleUa4 1 MI le hctbsetc rs U2cefp fsg g cert lt tynhcfr rs fsg g cerqhcvlcWUe/UbbhsvUamp EI A le fsetyarUflse Wri XE: OSr lt UerlflbUrc/ri Ur i lt bale ti Uamc hcvlcWc/Ue/yb/Urc/UeeyUapOoXt ti Ualg bacg cer UaUfrlvlrlct / ctfhlmc/le ri c Ubbhsvc/41 MI O

2.2.1.1 Site-Wide Groundwater Monitoring

Ae Serchig 4 hsye/Witch Mselrshie2 I alé ushri c Uayvilla Ukyluch Wuf ultr bhcbUhc/ le . LL7 Ué/ WUf lg bacg cerc/ mp ri c d AD n ctbse/ cert ushri c Uayvilla Ukyluchrs cetyhc ri Uf 2hsye/Witch fserhsat Unc cucfrivezrs bhsvi/ c U/lriseUaleushg Uflse Uf ecfett Uhp se ri c g sveg cerqxyUalrpqUé/ xyUérinp su 2hsye/Witchz Ué/ rs bhsvi/ c/UfU ush se2sle2 sveht12i r su ri c 2hsye/Witch heg c/pOA g s/lulc/ baléq 9esWe Uf ri c Serchig n cvltc/ 4 hsye/ 1 Utch Mselrshie2 I alé 3EI A . LPPGWUf 1ttyc/Ué/Ubbhsvc/ le . LPP Ué/ lefay/c/ ri c letrUfaUflse Ué//cvcasbg cer su U/lriseUa WeatO olefc . LPPqEI A i Uf hexylhc/ ri c d AD n ctbse/ cert rs bchls/lfUap g s/lup ri c Serchig 4 hsye/Witch Mselrshie2 I alé rs heuacfr fythcer fse/lriset Ué/ fsefchetO Ti c thre-Wi/c 2hsye/Witch g selrshie2 It se2sle2O Ti c syrtrUé/le2 heg c/IUa caeg cert ush se2sle2 thre-Wi/c 2hsye/Witch g selrshie2 UfeQ

PO Groundwater QAPP ' Se . LP-q ric lerchig g selrshe2 bale WU fsevchrc/rs U: AII ushg U/Ue/Ubbhsvc/mp EIA le fsetyarUflse Wri XE: se Kyec Pwg. LP-OTic tlrc-W/c 2hsye/Wtchg selrshle2 : AII tbcflulct ric oXt hctbsetlmlarlct ushtUg bale2 su bchushg Uefc Wcatq lhhl2Uflse Ue/ / sg ctrlf Wcaatq 5-pcUh hcvlcW Wcaat Ue/ I sler su Csg ballefc 1 cat 3000 TS ms ye/ Up / crchg leUise Wcat COTi c olrc-W/c4hsye/Wt/chMselrshle2: AII ti Uafserleyc rs mclg bacg cerc/ mp ric oXtOTilt : AII ti Ua mc hcvlcWc/ Ue/ yb/Utc/ UevUap mp ric oXtqUe/ oXt ti Ua tyng lr ric 4 hsye/WUrch Mselrshle2 : AII ush hcvlcWUe/ UbbhsvUale Uffsh/Uefc Mri ocfrlse. Of Ooyfi yb/Uct g Up lef ay/ c t Ug bale 2 mp ri c o Xt su 2hs ye/ WUrch g selrs he 2 Wcaat let rUac/ np ric MserleUNUyhlanctsyhfc Xlg U2c Ihs2hlg byhtyler rs ric I Uthsr TUale2t Mlec 1 Urc n cg svUa I hskcfrq U hxylhc/ mp EI A le fsetyarUflse Whri XE: OTic EIA g Up Ubbhsvc UtcbUhUfc trUe/Usec : AII ushri c t Ug bale 2 su/ sg ctrlf Ue/ llhl 2 Ulse Weat Ut sflUe/ Wri ric Cserhsac/4 hsye/WLtch AhcU3tcc ocfrlse. OOPO mcas WCD

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1131 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat DbchLhac d elr I UhlUan cg c/ IUaXct12e0n cg c/ IUaAfrise Ue/ DbchLise Ue/ MUerceUefc

. O Schedule for implementation 'Tictfic/yacushlg bacg cerle2 ric1 sh9 /ctfhlmc/ le ric4 hsye/WLrch: AII lt bhsyl/c/ le ric4 hsye/WLrch

- : AIIO wO Data Summary Reports – I yhtyler rs ric rchg t su ric 4 hsye/Włch : AIIqXon t ushri c olrc-1 l/c 4 hsye/WłchMselrshle2 bhs2hlg ti Ua mc bhcblhc/ leeyUap mp ric oXt le/ tymg lrrc/ ushhcvlcWle/ Ubbhsvla
 - np EI Agle fsetyatelse Wri XE: O
- 80 Recommendations Report AeeyUap Ué/ le fsekyefrlse Wiri ric UéeyUa2hsye/WLrchXonqUrcfielfUahcfsggce/Uflset hcbshrtiUannc bhcbUhc/ mpricoXtOTichcbshrtiUa/ctfhlmcbhsbstc/fiUé2ctrsric gselrshle2 bhs2hLgUé/WaatchvcUricnLftlushricUéeyUayb/Ufcsu ric4hsye/WLrch: AIIOoXt tiUalgbacgcerUaUbbhsvc/fiUé2ct hctyarle2uhsgriltbhsfcttO
- 50 Compliance Comparison Report A fsg bUhltse su ric / UrU rs 2hsye/Wutch xyUalrp I chushg Uefc or Ue/Uh/t ti Uanno bhob Uhc/UeeyUap mp ric o XtO
- FO Long-Term Database 'Xcvcæbg cer su Uæe2-rchg / UfUhlfc ush 2hs ye/WUrch/UfUti Utant / ctfhlnt/le ricolrc-W/cXMI qhcuchcefc/ le ric41 MI Ue/lg bæg cerc/mpricoXtO

2.2.1.2 Controlled Groundwater Area Monitoring

At Uhcxylhc/ letrlryrlseUafserhsa 38CGqUfserhsæc/ 2hsye/WitchUhcUush ric UayvlUaUkyluchTS (sec Ue/ srichUhcU su 2hsye/WitchfserUg leUflse le Byrrc WU ctrUhaltic/ mp Byrrc olavchBsWCsyerp rs bhcvcer/sg ctrlf ytc su ric fserUg leUtc/ 2hsye/WitchUe/ bhsvl/c ush srichfserhsat ush 2hsye/WitchytcOTic 2hsye/WitchfserhsaUhcUSC WU ceUfrc/ mp ric orUtc su MserUeUXcbUrg cer su NUtyhLanctsyhfct se DfrsmchPwq.LL, OTic se2sle2 hcg c/lUacag cer ush ric fserhsæc/ 2hsye/WitchUhcUg selrshle2 ltQ

- PO Controlled Groundwater Area QAPP 'Cserhsæc/4 hsye/Wtfch AhcU gselrshle2 gtþ mc lefæy/c/ ye/ch ric4 hsye/Wtfch : AII sh U trtue/Ussec : AII Wilfi ti Usa mc bhcbUhc/mp ric oXt sh hcvlcW Ue/ UbbhsvUamp EIA le fsetyærUflse Wri XE: OSr lt UerIflbUfc/ri Ur ri lt : AII ti Usamc hcvlcWc/Ue/yb/Ufc/UeeyUsapOd bse UbbhsvUamp EIA le fsetyærUflse Wri XE: qricolrc-W/cCserhsæc/4 hsye/Wtfch AhcU : AII shrictrUe/Ussec : AII ti Usafserleycrs mc lg bæg cerc/mp rico XtO
- . O Schedule for implementation 'Ti c tfi c/ yæ ushlg bæg cerle2 ri c Wsh9 ti Uænæ bhs vl/ c/ le ri c 4 hs ye/ WUrch MU&U2cg cer I aU&O
- wO Data Summary Reports ' olg bale2 httyat ush ric Cserhsac/ 4 hsye/Which AhcU: AII ti Ua nc / sfyg cerc/ np ric oXt ri hsy2i bchls/lf XontO hsfc/yhct Waanc / cvcasbc/ ushleushg le2 ale/s Wecht suhttyat uhsg tUg bale2 Ue/ lg bacg cerc/ np ric oXtO

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1132 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat DbchLhac d elr I UhlUan cg c/ IUaXct12e0h cg c/ IUaAfrise Ue/ DbchLilse Ue/ MUerceUefc

- 80 Corrective Action Plans ' Defc tUg bac fs acfrlse Ue/ leus hg Uflse 2Ufi chle2 Ufrlvlrlct Uhc fsg bacrc/ Ue/ hr i Uf moce / crchg lec/ mp EI A ri Ufuyhri chUfrlse Uftlrct(UhcUf Whri le ri c Cserhs ac/ 4 hs ye/ WUrchAhcU ht ecfctt UhpqUCAI ti Uanno bhcbUhc/ mp ri c oXt Ue/ hg bacg cerc/ ybse UbbhsvUanp EI A le fsetyarUflse Whri XE: O
- 50 Construction Completion Reports Sg bacg cerc/ fshhefrlvc Ufrlset ti Uant / sfyg cerc/ mp ri c oXt ri hsy2i CCn tqU hcxylhc/ O
- 6. Long-Term Database ' Xcvcasbg cer su U ase2-rchg fserhsac/ 2hsye/Witch UhcU/UfUhlitc mp ric oXt ti Ua mc / ctfhlmc/ le ric olrc-W/c XMI q hcuchcefc/ le ric 4 hsye/Witch MUéU2cg cer I alé Ué/ lg bacg cerc/ mp ric oXtO

2.2.1.3 Butte Treatment Lagoons, West Camp, and BPSOU Subdrain Groundwater Capture System Operations, Maintenance, and Monitoring

Tic Bync Thc/fg cer 6/2sset 3BT6G lt /ctl2ec/ rs cetyhc ri /f fser/lg le/lc/ 2hsye/Wi/ch f/bryhc/ uhsg olavch BsW Chcc9 Uhsvc lrt fseuaycefc Wni Balf9rUaChcc9q6sWchAhcUDec 36ADGq1 ctr Clg b le/ sri ch Uhc/l lt rhc/lc/ rs An An I chushg lefc or le/Uh/t l/cerlulc/ le Anr/fig cer A rs ri c BI oDd oD1 OTic BT6 /ctl2e Uts cetyhct ri Uri c baler f le mc sbch/lc/ culficerap le/ cucfrivcap le Uv/Hicrp sufse/Irlsetq le/ tay/2c /ltbstUafle sffyh le Uffsh/Uefc Wri ri c nDX le/ An An tO Ti c BT6 i U ye/ch2sec lg bhsvcg cert rs lefhc/lc ri c hcal/hdarp su ri c tptrcg lefay/le2 ri c U/lrlse su hc/ye/Uer byg bt le/ blbct le/ le lg bhsvc/ tybchvltshp fserhsa le/ /U/UfxyltIrlse 3oCAXAGcccfrhself g selrshle2 tptrcg rs g selrshle/ fserhsasbch/flse suri c rhc/fg cer balerO

Ti c BI oDd oynt hUe cJrce/t uhsg Ue UhcUU kUfcer rs ri c Byrnc Clvlf Ccerch Ubbhs Jlg Ucap & GLL ucer rs Uhsyr –LL ucer cUr suri c fseuaycefc su olavch Bs WChcc9 Ue/ Balf9rUaChcc9Ofri U mcce lg bhsvc/ Ue/ yb2hU c/ mp ri c oXt svchri c pcUt OCserUg leUtc/ UaayvUua2hsye/WUtchfserleyct rs mc fUbryhc/ mp ri c BI oDd tynt hUe 2hsye/WUtchlerchfcbrlse Ue/ byg ble2 tptrcg 3tcc Abbce/lJ C rs ri c CXGqtyfi ri Ufg selrshle2 hctyart ti sWri Uf le-trhcUg fi hself tyhuUfc WUtch trUe/Uh/t Uhc g cr g str su ri c rlg cOTi c fUbryhc/ 2hsye/WUtch lt byg bc/ uhsg ri c oynt hUe rchg leUa vUyar rs ri c BT6 uUflahrp Uf 6ADOTi c fUbryhc/Ue/byg bc/WUtch lt rhcUtc/mp alg c bhcflbhrUflse rcfi es as 2p mcushc mcle2/ltfi Uh2c/rs olavch Bs WChcc9OTi c Hp/hUyaff Cserhsa Ci Ueeca Uts fUbryhct fserUg leUtc/2hsye/WUtch le BI oDd Ue/ri Uf WUtch It Uts fluteg InrC/rs ri c BT6 ushrhcUfg cerQj leUtapq U/IrlseUa2hsye/WUtch fUbryhc ush rhUetg InrUars ri c BT6 Ue/tymtcxycer rhcUfg cer lt / ctfhlmc/ le ArrUfi g cer C rs ri c BI oDd oD1 Ue/ti Ua mc Ig bacg cerc/O

Ti c byhbstc suri c 1 ctr CLg b ulf lanp lt rs g UerUe Witchævcat meas Wri c fhirlf La Witchævca Lé/ nbc Lf serLg leUc/ 2hsye/Witch U hexylhe/ mp ri c

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1133 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat DbchLinc d elr I UriUan cg c/ IUa Xct12e0n cg c/ IUa Afrise Ue/ DbchLilse Ue/ MUerceUefc

> . LLF n cfsh' su Xcfltlse Ue/ ric. LPP Eo XOTic 1 ctr CUg b uUf lahp lt Uats Ue lg bshrUer se 2sle 2 hcg c/p fsg bsecer rs Uas Wushric g UeU2cg cer su leuas Wrs ric BT6O

Ti c hcg c/ lUacæg cert us hBT6 g selrs hle2 UcQ

Bymc TheUg cer 6U2ssetq1 ctr CUg bqUe/ BI oDd oym hUe 4 hsye/ Wirch CUbryhe optreg DbchUflsetqMUereeUefcqUe/ Mselrshe2 I aUe Ue/ : AI I – In 2018, the Draft Final BTL Operation & Maintenance and Monitoring (BTL OMM) Plan was submitted by the SDs and EPA and DEQ submitted review comments on the document in December 2018. A Final BTL OMM Plan is due from the SDs and is subject to review and approval by EPA in consultation with DEQ. The BTL OMM Plan includes a monitoring QAPP as an appendix and shall be reviewed and updated annually by the SDs. Upon approval, the BTL OMM Plan shall be implemented by the SDs.

- PO Schedule for implementation 'Ti c tfi c/ yæ us hlg bæg cerle2 ri c Wsh9 lt bhs vl/ c/ le ri c BT6 DMM I aleO
- . O Data Summary Reports' Xont ushri c BT6 g selrshle2 bls2hlg ti Ua næ blæbUæ/ xyUrchap np ri c oXt ushtyng lnrUars EI A Ue/ XE: qUe/ Ue UeeyUaXon ti UauUats blæbUæ/ np ri c oXt Ue/ tyng lnrc/ rs EI A Ue/ XE: O
- wO Optimization Report' At hcxylhc/ np EI Aqle fsetyarUlse Wri XE: q UrcfielfUasbrlg l(Ulse hcbshr suric tptrcg tiUanrc bhcbUhc/ np ric oXt ybse EI A hcxyctrOTic hcbshr tiUa/ctfhlmc bhsbstc/ fiUe2ct rs sbchUlset Ue/ ric BT6 DMM I aUeqUe/ ric tfsbc sutyfi Uhcbshr Waa nc/cvcasbc/ np EI Aqle fsetyarUlse Wri XE: O
- 80 Compliance Comparison Report Se Uffsh/Uefc Wri richcxyllog cert le ricn DXqUfsg bUhtse surictUg bale2 surhcUc/Wtfch/ltfiUf2c/ rs olavch BsW Chcc9 rs Ichushg Uefc orUe/Uh/t tiUa nc bhcbUhc/ UeeyUap np ricoXtO
- 50 Long-Term Database Xcvcas bg cer su Uase2-rchg / UfUhltc ush BT6 ti Uant / ctfhlmc/ mp ri c oXt le ri c olrc-W/c XMI qhcuchcefc/ le ri c BT6 DMM I alle Ue/ lg bacg cerc/ mp ri c oXtO

2.2.2 BPSOU Subdrain Groundwater Management Report

Ti c n ctbse/ cert Wchc / lhcfrc/ le ri c . LPP d AD rs / cvcasb UBI oDd oym/hUe 4 hsye/ WUrch MUEU2cg cer n cbshr 3U900Q MoX oym/hUe 4 hsye/ WUrch MUEU2cg cer n cbshr GOHs Wcvchq/ yc rs uyhri ch 1 sh9 U bUhr su ri c n cg c/ pqU / ctfhlmc/ le ArrUf i g cer CquleUal(UHse su ri c hcbshr le lrt d AD tbcflulf tfsbcqlt esr hcxylhc/ OSetrcU qEI A hcxylhct Utlg laUh cvUayUHse su ri c BI oDd fUbryhc Ue/ rhcUg cer tptrcg bchushg Uefc mc fsg bacrc/ qU / ctfhlmc/ mcasWOoXt g Up yrlal(c hcacvUer bshrlset su ri c

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tyng lnc/ MoX oym/hUe 4 hsye/WUrch MUeU2cg cer n cbshr le bhcbUhe2 Ue/ fsg bacrle2 ri c bchushg Uefc cvUayUrlse Ut / ctfhlmc/ mcasWO

2.2.2.1 Evaluation of the BPSOU Capture and Conveyance System Performance

Ti c BI o Dd tym/hUe WU letrUac/mpri c o Xt ubsg . LLwri bsy2i . LL5 Ue/ i U ye/ch2sec yb2hU ct rs lg bhsvc hcaUhlarpOTi c tptrcg hcxylhct hsyrlec g UerceUefcq Ue/ fsg bsecert Waa cvceryUap ecc/ rs mc hcbaUfc/O Se bacg cerUflse suri cusyhri Ue/ uleUa Bctr MUeU2cg cer I hUfrlfct fpfac lefay/le2 ric Xl22le2t EUtr orshg WItch BUtle AhcUg ByuuUas 4 yafi orshg Witch BUtle 3t Gille/ Nshritl/c TUale 2t (EUtr Byuulas 4 yafi Ahclu laa Ut / ctfhlmc/ le ArrUfig cer C rs ric BIoDd oD1 qUe/ ric I Uthsr TUale2t 1 Urc n cg svla blskefr i Uc ri c bsrcerllars Uucfr ri c BI oDd tym hle fUbryh: Ue/ fsevcpUefc tptrcg O j sas We2 lg bacg cerUflse su ric ArrUfig cer C rs ric BIoDd oD1 hcg c/lUa cæg certqybse esrlfc ubsg EI Aqric oXt ti Ua cvUayUc ric hcg c/ IUa bchushg Uefc su ric BI oDd tym/hUe Ue/ BT6 tptrcg rs / crchg lec lu Uep uyhrich yb2hU ct sh sbrlg l(Ulse rs ric cJltrle2 tptrcg t Urc ecc/c/OEI A Waa l/cerlup ric hxylhcg cert ush cvUayUflse le fsetyarUflse Wri XE: OTic / UfU Ue/ Le Laptlt uns g ri c bhlshd AD hexylhe/ try/let g Lp me ytc/ le ri lt cushrq Lt Ubbhs bhl UrcO

Ti c byhbstct suri c cvUayUrlse Urc rsQ

- PO EvUayUrc Wicrich ric tptrcg UcxyUrcap gUeU2ct ric bayg ct su fserUg leUrc/ 2hsye/WUrch mp bhcvcerle2 bayg c cJbUetIse Ue/ bhcvcerle2 ric/ltfiUa2c sufserUg leUrc/ 2hsye/WUrchrs tyhuUfc WUrch le olavch BsW Chcc9 mcasW lrt fseuaycefc Wri BaUf9rUa Chcc9 Ue/ BaUf9rUa Chcc9 acU le2 rs cJfcc/Uefct su tyhuUfc WUrch An Ant sh ec2Uflvc lg bUfrt rs ric mceculfIUaytct suric fhcc9tz
- . O 6ss9 ushsbbshryelrlet rs sbrlg l(c ric tptrcg rs g UeU2c ric bayg c su fserUg leUfc/ 2hsye/WUfch lefay/le2 bsttlmac fi Ue2ct rs g cris/t sh æfUflset Ue/ uyhrich yb2hU ct su 2hsye/WUfch fsæcfrlse Ue/ fsevcpUefc uUflahrletz
- wO EvUayUrc nic hcalUndalrp su nic tptrcg Ue/ as s9 ush sbbshryelrlct rs tlg balup D) MM Ue/ lg bhsvc hcalUndalrp np U/le2 hc/ye/Uer fsg bsecentz
- 80 EvUayUrc lg bUfnt su lg bacg cerUflse su ric rcfielfUa cacg cert se sbchUflseqcuacfrlvcecttqUe/ hcaUhlarp suric tptrcg z
- 50 6ss9 ushsbbshryelrlet rs sbrlg l(cricfUbryhenphe/yfle22hsye/WUrch leuasWrs ricBT6 rheUrg certptregOTiltfsya/lefay/cltsaUrlsesu faeUe2hsye/WUrchUe/UtcbUhUrerheUrg cerrefiesas2pushrheUrle2 1 ctrCUgb2hsye/WUrchZUe/
- FO Etrlg Uc hcg Uele2 aluc sutptrcg fsg bsecert rs no Unac rs U cxyUcap bhcbUhc ushhcbaIfcg cerO

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Se U/lrlse rs ric hcxylhc/ rcfielf Ua cacg cert qUé U/lrlse Ua levctrl 2U lse i U mcce fse/yfrc/ mp ric oXt le ric BI oDd tym/hUe UhcUlefay/le2 se2sle2 2hs ye/WUrch g selrshle2qse2sle2 g selrshle2 suric tym/hUeqUe/ letrUadHse Ue/ g selrshle2 suecWWcaat le . LP7OEJ behlcefc su sbehUfle2 ric tptrcg lt Uats vUayUnac 9esWac/2c ri Uf WUf esr bhevlsytap UvUaUnacO Ti c ecW leus hg Uflse ti Ua mc lefshbshUrc/ lers ric cvUayUflseOAt esrc/ Umsvcq cacg cert su ric bhevlsyt BI oDd oym/hUe 4 hsye/WUrch MUéU2cg cer n cbshr g Up trlaa mc behrlecer Ue/ vUal/Ue/ g Up mc fUhlc/ ushWUh/q myr g ytr mc hevlcWc/Ue/ yb/Urc/U hexylhc/ mp EIA le fsetyarUflse Wri XE: O

Ti c tym/hUe fsg bsecer su ri c 2hsye/WUrch fsæcfrlse Ue/ rhcUrg cer tptreg hexylhet hsyrlee g UerceUefc Ue/ /set esr i Urc fsg bære he/ye/UefpOA behtltreer lttye lt ri e Uffyg yaUflse sulhse bheflblrUre le ri e blbe Ue/ tym/hUe 2hUrca bUf9OSu ri e tym/hUe uUat sh ece/t bUhrlUa hebaUfeg eerq es tptreg t cJltr rs fserleye sbehUflset /yhle2 hebUhrO A//lrlseUapqri ehe lt es g eri s/ ush g UeU2le2 2hsye/WUrch fsæcfrlse lu fi Ue2et Ure ece/e/ rs lefheUte shhe/yfe ri e hUret shU kytr ri e æfUflset su fsæcfrlseO

Ti c cvUayUlse ti Ua fsetl/ch U vUhlcrp su UbbhsUfi ct rs bhsvl/c ush hc/yfle2 bhcflbhrUfc Uffyg yaUlseq UasW ush usW g UeU2cg cerq lefay/c hc/ye/Uer tptrcg tqsvchUa sbrlg l(Ulse suri c tptrcg qUe/ rs bhcbUhc ush cvceryUafsg bsecer hcbaUfcg ceroCsetl/chUlse ti Uanno 21vce rsQ

- PO A//lrlse sutcfse/Up 2hsye/WUrchfsaacfrlse g cris/t tyfi U Wcaat sh hcbaUfcg cer tym/hUe 3cQOcvUayUrc ric cuccfrlvcectt su cJrhUfrlse WcaatGa
- . O A//lrlse suUi cU chtptrcg rs ri c tym/hUe bhsvle2 tsg c fserhsasvch ri c fsæcfrlse Ue/hsyrle2 suWUrchz
- wO I heveerlse sug lJ le2 lhse-hlfi qasWbH Wurch Wni Ua9Ualecqi l2i chbH Wurch Wni le ri c tym/hUe Wilfi fUytet bhcflbhrUilse su lhse Ue/ bay22le2 sutptreg fsg bsecertz
- 80 Drichfsg bsecert shbhsfc/yhct Wilfi U/hctt ric lttyct l/cerlulc/ le ric tcfrlse 3cQOBI oDd oym/hUe; l/cs SetbcfrlseGtUe/
- 50 Dri chlg bhsvcg cert rs g ccr ri c byhbstc suri lt cvUayUlseO

Tic se2sle2 hcg c/lUa cacg cert ush ric BIoDd fUbryhc Ue/ rhcUrg cer tptrcg bchushg Uefc cvUayUrlse UncQ

- PO Scoping ' ofsble2 suri c cvUayUrlse ti Uame fse/yfre/ mp ri c oXt Wri EI A Ue/ XE: qbhlshrs Uep ecW/UrUfsæcfrlseqg s/cale2 UeUaptltqsh /ctl2eO
- . O Work Plan and QAPP Ae cvUayUilse Wsh9 bale ti Ua nc bhcbUhc/ mp ri c oXt Ue/ tymg lmc/ le / hUm rs EI A Ue/ XE: ushfsg g cerqWilfi lefshbshUfct ri c hctyart sutfsble2 Ue/ bhctcert smkcfrlvct Ue/ 2sUat su

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ri c cvUayUilseOSu levctrl2Uilse lt ecc/c/qUWsh9 balé ushUbhc-/ctl2e levctrl2Uilse ti Uanne tyng lnrc/rs EI A ushhevlcWqle fsetyarUilse Wiri XE: qfsetltreer Wiri ocfrlse wOvsuric BIoDd oD1 le fssh/leUilse Wiri ri c /hUr Wsh9 baléO1 lri le FL / Upt su ri c hefelbr su fsg g cert uhsg EI Aqri c oXt ti Uatyng lr UuleUaWsh9 balé ushEI A hevlcWUé/ UbhsvUa le fsetyarUilse Wiri XE: O Ti c Wsh9 balé ti Ua me lg bacg cerc/mp ri c oXt ybse EI A UbhsvUaqUé/ lg bacg cerc/le Uffsh/Uéfc Wiri ri c tfi c/yac fserUec/le ri c Wsh9 baléO

- wO Schedule for implementation 'Tictfic/yæushlg bæg cerle2 ric1 sh9 ti Ua næ bhsvl/c/ le ric BIoDd fUbryhæUe/ rhæUrg cer tptrcg bchushg Uefc cvUayUrlseO
- 80 Data Summary Report' olg bale2 hctyart ush ri c cvlaylflse ti la mc / sfyg cerc/ mp ri c oXt ri hsy2i UXon tymg lmc/ rs EI A le/ XE: O
- 50 Evaluation Report Aurch fsg bærlse su ri c Urlvlrlct / ctfhlmc/ le ri c Wsh9 bale mp ri c oXt qri c oXt ti Ua tymg lr U/hUr cvUayUlse hebshrq Wilfi ti Ua fserUe ri c Unsvc / ctfhlmc/ cvUayUlse Ue/ fserUe hefsg g ce/Ulset ushlg bhsvle2 shsbrlg l(le2 ri c BT6 Ue/OshBI oDd oym/hUe tptrcg qUf UbbhsbhlUrc Ue/ tybbshrc/ mp ri c cvUayUlseOTi c /hUr hebshr lt tymcfr rs fsg g cer mp EI A le fsetyarUlse Wri XE: O 1 lri le, L/Upt suhefelbr suEI A fsg g cert se ri c/hUr hebshrqri c oXt ti Ua tymg lr UuleUa cvUayUlse hebshr ush EI A hevleWUe/ UbbhsvUa le fsetyarUlse Wri XE: OTi c uleUa hebshr ti Ua fserUe UbbhsvC/ hefsg g ce/Ulset ushlg bhsvcg cer shsbrlg l(UlseO
- FO Optimization Report' At hcxylhc/ np EI A le fsetyarUflse Wri XE: qU rcfi elfUa sorlg l(Uflse hcbshr ti Ua nc bhcbUhc/ np ri c oXt ybse EI A hcxyctrOTi c hcbshr ti Ua hcfsg g ce/ fi Ue2ct rs BI oDd fUbryhc Ue/ rhcUfg cer tptrcg bchushg Uefc cvUayUflseq Ue/ ri c tfsbc Waa nc / cvcasbc/ np EI A le fsetyarUflse Wri XE: Ooyfi Uhcbshr ti Ua nc tyng lnrc/ np ri c oXt le / hUr Ue/ lt tynkcfr rs fsg g cer np EI A le fsetyarUflse Wri XE: OA uleUa BT6 Dbrlg l(Uflse n cbshr lt / yc ubsg ri c oXt Wri le FL / Upt su ri c hcfclbr su EI A fsg g cert g U c le fsetyarUflse Wri XE: Oj leUa Dbrlg l(Uflse n cbshr Uc tynkcfr rs hcvlcWUe/ UbbhsvUanp EI A le fsetyarUflse Wri XE: O
- 70 Design and Implementation of Recommendations' j sas We2 Ubbs vUa suri c hcfsg g ce/ Utlset le ri c EvUayUtlse Ue/ Dbrlg l(Utlse hcbshrt Ue/ U hcxylhc/ np EI A le fsetyarUtlse Wri XE: q oXt ti Ua bhcbUn hcg c/ lUa/ ctl2e balet le / hUr ushEI A hcvlcWle fsetyarUtlse Wri XE: O d bse Ubbhs vUa su ri c uleUa hcg c/ lUa / ctl2e bale Ue/ Uffsg bUeple2 hcg c/ lUa Ufrlse baleqri c oXt ti Ua lg bacg cer ri c 1 sh9 hcxylhc/ np ri ctc baletO

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2.2.2.2 Localized Groundwater Study

j sæs We2 fsetthyfrlse su ric Bn1 bse/tq ric dAD nctbse/cert g selrshc/msri æs fUa Wcæt Ue/ric olavch Bs WChcc9 hcUfi U kUfcerrs ric Bn1 O Tic dAD nctbse/cert g selrshc/WUtch ævcætq fserUg leUer fsefcerhUflset Ue/srich bUhUg crcht rs cvUayUfc ric fUbryhc cucfrlvcectt se ric yb2hU lcer c/2c suric Bn1 bse/t Ue/Hp/hUyalf CserhsaCi Uecca 3HCCCCDTic se2sle2 hcg c/lUa cæg cert ush ric Bn1 2hsye/WUfch Ue/ tyhUfc WUfchg selrshle2 UcQ

- PO Monitoring Implementation 'Tic levctrl2Ulse Ue/ g selrshle2 yb2hU lcer suri c Bn 1 (HCC f Ubryhc tptrcg WU g UerUec/ yerla. LP-q Wi ce ri c fserleyc/ 2hsye/ WU ch cævUlse g selrshle2 UfrlvIrlct Wchc g U c bUr suri c Bn 1 I i Uc S: AI I 3An . LP-COTi c Bn 1 I i Uc S : AI I hcrUec/ tbcflulf fsg bsecert suri c ushg chg selrshle2 bh2hUg Wi læ cJbUe/le2 g selrshle2 rs U/hctt / UfU2Ubt Whri le ri c Bn 1 olrc rs tybbshr hcg c/lUa/ctl2eOoXt ti Ua fserleyc g selrshle2 ri hsy2i fsg bærlse suri c Bn 1 I i Uc SSevctrl2Ulse Ue/ ri c tyntcxycer Bn 1 I i Uc SSevctrl2Ulse : AI I 3An . LP, CO
- . O *Complete Report* ' Mselrshle2 ti Uafserleyc mp ri c oXt U UbUr suri c Byrrc n c/ yfrlse 1 sh9t 3Bn 1 Gog carch AhcU2hsye/ WIrch bhc-/ ct12e levctrl2Uilse / ctfhlmc/ le ArrUfig cer C rs ri c BI oDd oD1 O
- wO Design and Implementation of Recommendations 'Aep / ctl2e Ue/ lg bacg cerUflse hcfsg g ce/Uflset U ric hctyar suri lt g selrshle2 ti Ua mc U/hcttc/ mp ric oXt le hcg c/IUa / ctl2e Uf bUhr su ric Bn 1 n cg c/IUa Eacg cer bshrlse su ArrUf i g cer C rs ric BI oDd oD1 O
- 80 Construction Completion Reports (CCRs) ' Sg bacg cerUflse su hcfsg g ce/Uflset ti Uana / sfyg cerc/ ri hsy2i CCn t U hcxylhc/

2.3 Surface Water

Se U/lrlse rs ri c 2hsye/Wtrch hcg c/pqri chc thc g yarlbac tyhutfc Wtrch hcg c/p fsg bsecert ri th Wchc hcxylhc/mp ri c . LLF BI oDd ncfsh/su Xcfltlseq th g s/lulc/mp ri c . L. Lncfsh/su Xcfltlse Ag ce/g cerOFi c bhlg Up tyhutfc Wtrch hcg c/p fsg bsecer lefay/ct ftbryhc sufchrue trshg Wtrchqletrtaalflse suBMI t rs hc/yfc lg btfr rs olavch Bs WChcc9 mcas Whrt fseuaycefc Wri Batf9rUa Chcc9 te/ Batf9rUa Chcc9 uhsg fsert& lettc/trshg Wtrch te/tytbce/c/tc/lg cert te/ hcg svta su le-trhct& fsert& lettc/tc/lg cert OFi c tc/lg cert te/ hcg svta su le-trhct& fsert& lettc/c/rs lefay/c ri c hcg svta su tha fsert& lettlse le ri lt thcu Wri le ri c uass/batte le ri c . L L ncfsh/su Xcfltlse t& ce/g cerOTi c . LLF BI oDd ncfsh/su Xcfltlse Uts hcxylhc/ri th ri c curaycer uhsg ri c BT6 utflamp g ccr I chshg tefc orte/th/tt ush/ltfi Ut2ctO

Ti c lg bæg cerUflse su ri c ByuuUas 4 yafi q 4 hsvc 4 yafi q Nshri tl/c TUale2tq Xl22le2t EUtrq d ef Ubryhc/ j as W AhcUtq Ué/ Setyuulflcerap n cfaUg c/ olrct q Ué/ d ehcfaUg c/ olrct su AnrUfi g cer C rs ri c BI oDd oD1 WaaU/hctt ri c hcg c/ lUa hcxylhcg cert ush fserUg leUc/ trshg WUfch Ué/ tytbce/c/ tc/lg certO Ti c

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1138 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat DbchLhac d elr I UhlUan cg c/ IUaXct12e0n cg c/ IUaAfrise Ue/ DbchLilse Ue/ MUerceUefc

lg bacg cerUflse su ric Bn 1 og carch AhcU Ué/ Balf9rUa Chcc9 bshrlset su AntUfig cer C rs ric BI oDd oD1 WaaUfsg balti ric hcg c/lUahcxylhcg cert ush ric le-trhcUg tc/lg cer hcg svUa Ué/ ric usss/balle fserUg leUflse hcg svUa 3ric orUfc Waa esrq is Wovchq mc hctbsetImac ush UrrUele2 tyhuUfc Ué/ 2hsye/WUfch trUe/Uf/t Uf bUhr su riclh fsg g lrg cer rs fse/yfr BTC nlbUhUé Afrlset GO Cserleyc/ sbchUflse suric BT6 ti Uafserleyc le Uffsh/Uéfc Wni Ubbhsvc/ balét O AnrUfig cer A Ué/ srich bUhrt surilt / sfyg cer sh srich Ubbhsvc/ balét / ctfhlmc fsg balUéfc g selrshle2 hcxylhcg cert ushle-trhcUg bchushg Uéfc trUé/Uf/t Ué/ ric BT6 / ltfi U2cOAbbhsbhUfc g selrshle2 suri c BT6 / ltfi U2c ti Uanne Ig bacg cerc/ mp ric oXtO

2.3.1 BPSOU Surface Water Management Plan

Ti c BI oDd oyhulf c 1 Uch MU&U2cg cer I alæ 301 MI G EJi Inhr P rs ArrUfi g cer A rs ni c BI oDd oD1 Ue/ ri c o1 CXI qbhctcer ni c balæ ush i sWrs U/hctt Ua tyhulf c WUch g selrshle2 hcxylhcg cert l/cerlulc/ le ni c n DX Ue/ / ctfhlmet i sW ni c svchUa hcg c/lUa Ufrlse Ubbhs Ufi g cert ni c tyhulf c WUch hcg c/p tbcflulc/ le ni c n DXqU Ir lt lg bacg cerc/ ye/chri lt Csetcer XcfhccOTi c o1 MI U/hcttct ni c tyhulf c WUch g selrshle2 / crUaq lg bacg cerUflse su fchrUe hcxylhcg cert / ctfhlme/ le ArrUfi g cer A 3ri c o1 CXI Gtc/lg cer g selrshle2 Ue/ hcg svUaq2hsye/WUch g selrshle2 Ue/ bsrcerlUaU/lrlseUa2hsye/WUchfUbryhcqUe/ sri chcacg cert suri c tyhulf c WUch hcg c/pOSe Uep lefsetltrcefp mcrWcce ni c o1 MI Ue/ ni c o1 CXI q ni c o1 CXI fserhsatOTi c se2sle2 hcg c/lUa cert ushri c oyhulf c 1 Uch MU&U2cg cer I alæ UrQ

- PO Schedule for Completing the Plan' Tic oyhulfc 1 Urch MUeU2cg cer I alle ti Urante lg bacg cerc/ mp ric oXtO
- . O Updated Plan' Ti c oyhulf c 1 Urch MUEU2cg cer I alé g Up mc hcvlcWc/ uhsg rlg c rs rlg c / yhle2 Ué/ Urch ri c fsg ballef c / crchg leUflse g selrshle2 bchls/OAep hcvltlse su ri c o1 MI lt tymcfr rs EI A UbbhsvUaq le fsetyarUflse Wiri XE: q Ué/ ri c bhsfc/yhct ush g s/lulfUflse tcr ushri le I UhU2hUbi PP, suri c Csetcer XcfhccO

2.3.1.1 Surface Water Monitoring

Ti c n DX hcxylhet Lé EI A-Ubbhsvc/ fsg bhei cetlvcq æe2-rehg tyhulfc Wurch g selrshle2 bhs2hlg ri U ti Ua lefay/c fsæcfrlse su fsg ballefc Lé/ /lU2estrlf uasW Lé/ Wurch xyUalrp / UU ush eshg Ua uasW Lé/ Wer WeUri ch fse/lrlsetq U Weaa U tc/lg cer Lé/ meeri lf glfhs-levehrenhlue 3BMSG g selrshle2 le hefelvle2 tyhulfc Wurchtq U / etfhlme/ le ri c Ubbhsvc/ oyhulfc 1 Urch MUEU2cg cer I alé 301 MI GOoc/lg cer g selrshle2 Wiri le lerchg lmeer trshg Wurch fsevepUefet U ri c BI oDd lt Uats hexylhe/ U / etfhlme/ le ri c Ubbhsvc/ o1 MI OTi c heg c/lUa cæg cert ush thre-WI/c tyhulfc Wurch g selrshle2 UrcQ

PO Surface Water Monitoring QAPP' Se Kyec. LP-qric lerchlg BIoDd tyhulfc g selrshle2 balle WLf fsevchrc/ mp ric oXt rs U: AII ushg LF

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1139 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat Dbchthac d elr I UrlUan cg c/ IUa Xct 12e0n cg c/ IUa Afrise Ue/ DbchtHse Ue/ MUerceUefc

3' Utc/ Abhla. 8q. LP-GUe/ Ubbhs vc/ mp EI Aqle fsetyarUtlse Wri XE: O Tic tyhulfc Witch g selrshle2 : AII tbcflulct ric tlg bale2 su fsg ballefc le/ bchshg lefc trUlsetqUse2 Wri /ll2estrlf tlg bale2 sffyhle2 rs U/htt cJfcc/Uefct sh sri ch bcfyalUhlrlct le ri c tyhulfc Wtch/ tftOTilt: AII ti thanc lg bacg cerc/ mp ri c oXtqte/ hcvlcWc/ Ue/ yb/Uc/ UeeyUapOTic yb/Uct tiUa lefay/c msri le-trhcUg tc/lg cer Ue/ BMSg selrshe2 Urchlg bæg cerUflse su Bn 1 Ue/ BTC n cg c/p UfrlsetqUe/ bhsrsfsat us hg UeU2cg cer sufsetnhyfrlse WUrchq lefay/le2 U rcg bshlhp vlhllefc uhsg fsg ballefc Wri le-trhclg I chushg Uefc orUe/Uh/tqfsetltrcer Whri srich Cjn BUtle bhskcfrt Ue/ hc2yaLflsetq ri Lf tybbsht ri c / ltfi Lf2c su actt-lg bLfrc/ XE: fsetrhyfrlse WUrch/lhcfrap rs tyhulfc WUrchOTic yb/Urc ti Ua bhsvl/c ri Uf fsetrhyfrlse WUrch Wilfi / sct esr g ccr ri c rcg bshUpp vUhlUefc true/Ut/t hexylhet rheurg cerue/ti Usame rhuetuchhe/rs ric BT6 Utrlg et Wice ric vsayg c Ue/ ficg ltrhp sutyfi WUrch Waa esr svchWicag ric BT6 V fUbUFlrp Ue/Oshbhcvcer lruhsg g ccrle2 / ltfi Uh2c trUe/Uh/tqU Ubbls vc/ mp EI A / yhle2 n cg c/ IUaXct12eOCsetrhyfrlse WUrchg ccrle2 rcg bshlhp vlhllefc trle/ lh/t / sct esr hxyllc rhcl/g cerO

- . O Schedule for implementation 'Ti c tfi c/yac us hlg bacg cerle2 ri c Wsh9 lt bhs vl/c/le ri c thrc-W/c oyhulf c 1 Urch Ms elrs hle2 : AI I O
- wO Data Summary Reports 'Se U/lrlse rs ric hcbshrle2 hcxylhcg cert fserUec/ le ArrUf ig cer A rs ric BI oDd oD1 qUXon ush ric thrc-W/c tyhuUfc Wufch g selrshle2 bhs2hUg ti Ua mc bhcbUhc/ UéeyUap mp ric oXt ushtymg hrUars EI A Ué/ XE: OXon hcbshrt ti Ua mc tyng hrc/mp ric oXt le / hUr Ué/ Uhc tymkcfr rs fsg g cer mp EI A le fsetyarUflse Wri XE: OT ic uleUa Xon lt / yc uhsg ric oXt Wri le wL / Upt suric hcfclbr su EI A fsg g cert g U c le fsetyarUflse Wri XE: Oj leUa Xon t Uhc tymkcfr rs fsg g cerqhcvlcW Ué/ UbbhsvUa mp EI A le fsetyarUflse Wri XE: O: yUhrchap / UfU hcbshrtq Wri syr uyaa : A0 C leushg Uflseq ti Ua Ua S g bacre vUal/ Uflse su aUhshUshp / UfUri hsy2i syr ric pcUh le Ué cushr cetyhc ri U ri c aUhshUshp / UfUg cert ric : A0 C hcxylhcg certO
- 80 Surface Water Compliance Comparison and Interpretation Report Tic/ctfhbrlse Ue/fsercer suric hcbshr lt lefay/c/le ocfrlse 7@vsu ric o1 MI Ue/tiUa nc bhcbUc/UeeyUap np ric oXtOoyfi Uhcbshr tiUa nc tyng lrrc/le/hUr np Kyec wL^{ri} sucUfi pcUhushEIA fsg g cer le fsetyarUise Wri XE: qUe/lt tynkcfr rs EIA UbbhsvUiO
- 50 Preliminary Diagnostic Evaluation Report I httcert richtyart suric cvUtyUlse suricfUtc3tGsuUecJfcc/UefcO
- FO Diagnostic Response Investigation Plan and Report 'Suri c bhcalg leUp hcbshrle/lfUct ri UfUe levctrl2Uflse lt ecc/c/qri c XIU2estrlf n ctbsetc Sevctrl2Uflse I aUe lt /cvcasbc/Ue/ri c levctrl2Uflse lt fse/yfrc/OA XIU2estrlf n ctbsetc Sevctrl2Uflse n cbshr bhctcerle2 ri c ule/le2 suri c

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1140 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat DbchLhac d elr

I Urllån cg c/llåXctl2e0n cg c/llåAfrlse Ue/ DbchUlse Ue/ MUerceUefc

levetrl2Urlse tiUaa noc tymglmc/ le /hUar ush EIA fsggcer le fsetyarUrlse Wiri XE: O

- 70 Optimization Report 'At hcxylhc/ np EI A le fsetyatHse Wri XE: q Lé/ fsetItrcer Wri ric hcxylhcg cert suric CX Lé/ ArtUfig cer AqU rcfi elfUasbrlg l(UHse Lé/ hcfsg g ce/ UHset hcbshrti Uanc bhcbUhc/ np ric oXt ybse EI A hcxyctrOTic hcbshrti Ua/ ctfhlmc bhsbstc/ fi Lé2ct rs tyhulfc WIrch fsevcpLéfct Lé/ srich hcg c/ Lla carg certq oXt hcfsg g ce/ UHset hc2Uh/ le2 tyhulfc WIrch g selrshle2q Lé/ Lép g s/ lulc/ tyhulfc WIrch g selrshle2 hcxylhcg certOTic n cbshr lt tyhucfr rs hcvlcW Lé/ UbbhsvLa np EI A le fsetyarUHse Wri XE: OA// lrlseLa / crUat hc2Uh/ le2 ri c tyhulfc WIrchhcg c/ p sbrlg l(UHse hcbshr Urcus ye/ le ric o1 MIO
- -O Design and Implementation of Recommendations j sæs We2 Ubbs vUa su ric su ric hcfsg g ce/Ulset le ric Dbrlg l(Ulse hcbshr Ue/U hcxylhc/mp EI A le fsetyærUlse Wri XE: qoXt ti Ua bhcbUhc/hUr hcg c/lUa/ctl2e baUet ush lg bæg cerUlse su Ubbsvc/sbrlg l(UlsetO d bse EI A UbbhsvUa le fsetyærUlse Wri XE: qsu UuleUa hcg c/lUa/ ctl2e baUe Ue/Uffsg bUeple2 hcg c/lUa Ufrlse baUeq oXt ti Ua lg bæg cerric 1 sh9 hcxylhc/mp rictc baUetO
- , O Csetrhyfrlse Csg bærlse n cbsht 3CCntG' Sg bæg cerUflse su hcfsg g ce/Uflset ti Utame/sfyg cerc/rihsy2i CCnt U hxylhe/O
- PLOLong-Term Database 'Xcvcæbg cer su Uæe2-rchg /UfUhUfc ush tyhulfc Wutch Waa mc/ctfhlmc/mp ric oXt le ric olrc-W/c XMI q hcuchcefc/le ric o1 MI Ue/lg bæg cerc/mp ric oXt ybse UbbhsvUaO

2.4 **Operations and Maintenance Plans**

D) M I alet 3Wi lfi g lþ læts lefay/c g selrshle2 hxylhcg cert Gush læn hcg c/llæ cæg cert læ/ ri chtrllyt lhc / ctfhlmc/ le ri c BI oDd oD1 qWi lfi læts fser let ri c hxylhcg cert læ/ tfi c/yæt ush ri c fsg bærlse su læn D) M I alet OTi c rcJr mæs W tybbæg cert læ/ / ctfhlmet ri c hxylhcg cert ush fchr le D) M balet OAæa lbbhs vc/ lerchlg shule læD) M I alet ti læfserleyc rs mc lg bæg cerc/ mp ri c oXtO

2.4.1 Mine Waste Repository

A Byrrc Mlec 1 Urc n cbstlrshp WU bhcvlsytap ctrUnaltic/ Ue/ g Up mc /ctl2eUc/ ushric/ltbstUasuhcg svc/ WU rc Ue/ fserUg leUflse UtsflUc/ Wri BI oDd hctbsetc UfrlsetOl i ce ric cJltrle2 trhyfryhc lt uyæqlr ti Uæ mc fæstc/ mp ric oXt le fsg balUefc Wri An An tOA ecWhcbstlrshp ti Uæ mc fæstc/ mp ric oXt le fsg balUefc Wri An An tOA ecWhcbstlrshp ti Uæ mc fæstc/ mp ric oXt ytle2 hcbstlrshp luri UffUbUflmp lt ecc/c/Osrqrssqti Uæ mc fæstc/ mp ric oXt ytle2 ric tUg c g cris/tOSe . LPwqric fyhcer Byrrc 1 Urc n cbstlrshp WU cJbUe/c/ Ue/ Ufsetrhyfrlse fsg bærlse hcbshr se ric cJbUetlse WU tymg lrrc/ Ue/ Ubshsvc/ mp EI A le fsetyæUflse Wri XE: se Nsvcg mch. wq. LP5OFi c Mlec 1 Urc n cbstlrshp lt mcle2 sbchUrc/ Ue/ g UerUec/ ye/ch Ue Ubbhsvc/ D) M MUeyUa Wilfi It lefæy/c/ Wri ric fsetrhyfrlse fsg bærlse hcbshr ushri It hcg c/ IUacæg cerO
Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1141 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishrp oslat DbchLhac d elr I UriUan cg c/ IUa Xct12eOn cg c/ IUa Afrise Ue/ DbchLise Ue/ MUerceUefc

2.4.2 GMMIA

Ti c 4 htélic MsyerUe Mcg shlúa Serchbherlvc AhcUWU hefaUg c/ byhtytér rs nDX hexylheg cert té/ cei téfeg cert Wehe g U c le 9ecble2 Wiri Irt i ltrshlf táfi thtfrehOFi etc lefay/ c hefaUg le2 tsyhfe thet le bymalfap ytc/ thettq hethlfrle2 tffett rs fehrue thett su i ltrshlf g lele2 até/tftbeq letruade2 blfelf thett té/ Wté9le2 rhUatqeei téfle2 cJltrle2 vc2ertflseqté/ /lvehrle2 trshg Wteh hyes un rs ni c Beh9eaep I lrOTi etc tfrlset Wehe fsetltreer Wiri ni c bhetchvtflse hexylheg cert té/ sri chtrtté/th/t té/ ri c fsyerp V i ltrshlfta btf9 batéOTi c 4 MMSA lt té/ ti tia ne sbehtfe/ té/ g UerUec/ mp ni c oXt ye/ch té tbbhsvc/ D) M baté Wilfi lt lefay/c/ Wiri ni c fsetrhyfrlse fsg bærlse hebshr ush ni c Mlec 1 the nebstlrshpq Wilfi Wtf tbbhsve/ se Nsveg meh. vq. LP5O

2.4.3 Syndicate Pit

Ti c ope/lf Urc I lr WU hcfaUg c/ byhtyUer rs n DX hcxylhcg cent Ue/ i U mcce ytc/ U Ug lec rhUele2 fcerchOoi Uas W rs g s/chUrc tasbct Wchc hcfaUg c/ ytle2 tslat fUbtqhsf9 fUbtqUe/ 2hUvcabU9le2 UrcU Oorceb tasbct Wchc esr hcfaUg c/OTi c blr mItc fserleyct rs mc ytc/ U Utc/lg cer mItleO Ti c ope/lf Urc I lr lt Ue/ ti Ua mc sbchUrc/ Ue/ g UerUec/ ye/ch Uj leUa oybchuye/ orshg WUrch optrcg DbchUrlset Ue/ MUerceUefc I aLeOTi lt D) M baUe WU Ubbhsvc/ mp EI A le fsetyarUrlse Wri XE: se Ay2ytr 7q . LP-O

2.4.4 BTL, West Camp and BPSOU Subdrain GW Capture and Treatment System

Ti c n DX hxylhet ni c fserleyc/ sbchUflse su 1 ctr CUg b fUbryhe Ué/ byg ble2 trhyfryhetqri c BT6 uUflahrpqUé/ ri c HCC ushri c rheUg cer su fUbryhe/ 2hsye/ Ué/ tyhuUfc WUfch le Uffsh/Uéfc Whi An Ant Ué/ Uép Ubbhsve/ sh UbbalfUhae baUétOTi c 1 ctr CUg b uUflahletq ri c Byrne TheUg cer 6U2sset uUflahrpqUé/ ri c HCC ti Uafserleye rs ne sbchUfc/ Ué/ g UerUec/ le U cuerfrive Ué/ cuulfleer g UéechU bsttlmae mp ri c oXt tyfi ri Uf I chushg Uéfc orUé/Uf/t Uhe smUec/ ye/ch UvUhlerp su fse/Irlset ush ce/ sublbc/ltfi U2ctOMselrshle2Ué//UFUhebshrle2ye/chcJltrle2D) M baUét Uhe se2sle2O

Ti c XhUr j leUa Bymc TheUg cer 6U2sse 4 hsye/ Witch TheUg cer optreg n syrlec DbchUilsetqMUerceUefcqUe/ Mselrshle2 I ale Wit tyng lmc/ mp d AD n ctbse/ cert rs EI A Ue/ XE: ush hevlcWUe/ fsg g cer se Ay2ytr wLq. LP-qUe/ EI A Ue/ XE: tyng lmc/ hevlcWfsg g cert se ri c/sfyg cer le Xcfcg mch. LP-OTi c oXt ti Ua tyng lr UXhUr j leUa Bymc TheUg cer 6U2sse 4 hsye/ WitchTheUg cer optreg n syrlec DbchUilsetqMUerceUefcq Ue/ Mselrshle2 I ale ush hevlcW Ue/ bsttlmac UbbhsvUa mp EI A le fsetyarUilse Wni XE: qUe/ ti Ua lg bacg cer ri c bale ybse EI A UbbhsvUa le fsetyarUilse Wni XE: O

Case 2:89-cv-00039-SEH Document 1180-1 Filed 06/08/20 Page 1142 of 1422 Csetcer Xcfhcc ushri c Byrrc I hishirp oslat DbchLhac d elr I UhiUan cg c/ IUa Xct 12e0n cg c/ IUa Afrise Ue/ DbchLise Ue/ MUerceUefc

2.4.5 Stormwater Structures O&M Plan

Ti c oybchuye/ orshg Wtfch optreg Dbchtflset Ue/ MUerceUefc I ale WU Ubbhsvc/ np EI A le fsetyarUflse Wri XE: se Ay2ytr 7q. LP-Ue/ ti Uanne lg bæg cerc/ np ri c oXtOolefc . LL, qri c d AD n ctbse/ cert i Uvc Uts bhcbUhc/ U vUhlerp su bhcalg leUp cvUayUflset ri Uf æs9c/ Uf i sW lg bhsveg certqg UerceUefc UfrlvIrlet sh sri ch Ufrlset fsya/ cei Uefc ri c svchUa bchushg Uefc suri c cJltrle2 trshg Wtfch leuhUfrhyfryhc Ue/ lg bhsve Wtfch xyUalrp Wri le ri c BI oDd OTi c lercer su ri ctc cvUayUflset lt rs lg bhsve Wtfch xyUalrp ri Uf /ltfi Uf2ct uhsg ri c cJltrle2 trshg Wtfch leuhUfrhyfryhc Ue/ sri chtrshg Wtfchtsyhfct lers olavch BsW Chec9 meas W lrt fseuaycefc Wri BaUf9rUa Chec9OTi c oXt fserleye rs cvUayUfc ri c cuefrlveectt suri c cJltrle2 trshg WtfchBMI t Ue/ /crchg lec lu U/lrlseUa Ufrlset shsbchtflseUalg bhsveg cert se ri stc BMI t Uc ecfettUpO

Ti c oXt ti Ua tyng lr ni ctc cvUayUtlset rs EIA Ué/XE: se hcxyctrqUé/ ni c oXt ti Ua lg bacg cer ni c Ufrlset hcfsg g ce/c/mp ni c cvUayUtlset U/lhcfrc/mp EIA le fsetyarUtlse Wri XE: O

2.4.6 BSBC Street Maintenance and Snow Management Plan

Ti c d AD n ctbse/cert n ctbsetlmac I Uhrlct / cvcasbc/ U / hUr fsg bhci cetlvc trhccr g UerceLéfc Lé/ tesW g LéU2cg cer balé ush ri c BI oDd ri Uf Waa fsvch lttyct tyfi Uf tesW hcg svUa Lé/ trshU2cqi cUvp g crUatUg bale2 sutUé/ moushe lr lt ytc/ se ri c trhccrtqtrhccr facUéle2qUé/ ri c ytc suWUfchrs bhcvcer/ytr bhsmacg t uhsg bsrcerlUap fserUg leUfc/ / lhr se flrp trhccrtOTi c d AD n ctbse/cert i U/c tyng lnrc/ ri c XhUr orhccr Ué/ oesWMUéU2cg cer I alé se Kyec PPq. LP–qUé/ ri c EI A Ué/ XE: bhsvl/c/ fsg g cert se ri c balé se Ay2ytr P–q. LP–OTi c oXt ti Uatyng lr Uhcvltc/ balé Wri le, L/ Upt suri c Eurcfrlvc XUfcOTi c oXt ti Ualg bacg cer ri c balé ybse EI A UbbsvUaqle fsetyarUflse Wri XE: O

2.4.7 RARUS Properties O&M Plan

Ti c d AD n ctbse/cert tyng lnc/ U/hUr D) M I ale rs ri c U2ceflct se ocbrcg nch. Fq. LP, ushri c hUabsU bhsbchlct sWec/ np n An d o n UabsU Csg blepOEI A le/ XE: Waa bhsvl/c fsg g certqle/ ri c bale ti la nc hctyng lnc/ np ri c oXt Wri le wL/lpt suri c hcfclbr sufsg g cert ushEI A hcvlcWle/ Ubbhsvlale fsetyarlflse Wri XE: O

2.5 Document Submittal and Review Process

Ti c oXt Waame hexylhe/ rs tyng lr Ua/sfyg cert / ctfhlme/ i chele rs ri c EI A Ue/ XE: ushhevleWOTi ctc / sfyg cert Waa Uats me bhsvl/c/ rs ri c bymalf U bhsvl/c/ le ri c BI oDd oD1 OTi c EI A le fsetyarUflse Wri XE: WaahevleWri c / sfyg cer Ue/ bhsvl/c ri c oXt Wri fsg g cer sh UbbhsvUasuri c / sfyg cer3tGle Uffsh/Uefc Wri BI oDd oD1 hexylheg certqocfrlse FOSuri c EI A le fsetyarUflse Wri XE: bhsvl/ct fsg g certqri c oX Waahevlte ri c / sfyg cer nUtc/ se EI A fsg g cert Ue/ hetyng lr ri c / sfyg cer U U/ hUr uleUoAurchhefelbr suri c / hUr uleUa/sfyg cer3tGi ri c EI A WaahevleWri c / sfyg cer Ue/ / crehg lec lufsg g cert i U/ metec

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I UrlUan cg c/ IUaXct12e0n cg c/ IUaAfrise Ue/ DbchUise Ue/ MUerceUefc

sh bhs vl/c ri c oXt Wri U/lrlseUafsg g cerOTilt EIA Ue/XE: hcvlcWbhsfctt Waa fserleyc yerla Uaafsg g cert i Uvc mcce U/hcttc/Ue/sh hctsavc/O1 i ce fsg g cert i Uvc mcce hctsavc/qri c EIA le fsetyarUflse Wri XE: Waabhsvl/c ri c oXt Wri UbbhsvUasuri c/sfyg cer3tGO

2.6 **Project Deliverables and Schedule**

Aaa/ calvchUhact Ué/ rUf9t hcxylhc/ ye/ chri lt ofsbc su 1 sh9 g ytr mc tyng lnrc/ sh fsg bacrc/ mp ri c / cU alect sh Whri le ri c rlg c / yhUflset altrc/ le ri c n X Ué/ n A ofi c/ yact ush ri c De2sle2 n cg c/ lUa Eacg cert tcr ushri nœas Wle TUhac . -POoXt g Up tyng lr bhsbstc/ hcvltc/ n X ofi c/ yact shn A ofi c/ yact ush EI A UbbhsvUaO d bse EI A V UbbhsvUaqri c hcvltc/ n X Ué/ Ushn A ofi c/ yact tybchtc/ c ri c n X Ué/ n A ofi c/ yact tcr ushri nœas Wq Ué/ Uép bhcvlsytap-Ubbhsvc/ n X Ué/ Ush n A ofi c/ yactO

Table 2-1 RD and RA Schedules for the Ongoing Remedial Elements

Reference Section	Document or Activity	Submittal or Completion Date		
2.1 Solid Media				
2.1.2 Non-Residential Solid Media and the Butte Reclamation Evaluation System (BRES)				
2.1.2.1 Non-Residential Solid Media				
	I ale	1 lri le, L/ Upt su Eux frlvc XUc		
	: AI I	At hcxylhc/		
	of i c/ yac us hSg bacg cerUflse	At hcxylhc/		
	XUfUoyg g Upp n cbshr	At hcxylhc/		
	Cshhcfrlvc Afrlse I allet	At hcxylhc/		
	Csetrhyfrlse Csg bærlse n cbshr	At hcxylhc/		
	d b/ Urc 6 s e 2-rchg / UrUhUrc	At hcxylhc/		
2.1.2.2 BRES Program				
	I alė	1 lri le, L/ Upt su Eux frlvc XUc		
	: AI I	At hxylhc/		
	ofic/yacushSg bacg cerUilse	At hxylhc/		
	XU/Uoyg g Upp n cbs hr	At hxylhc/		
	Cshhefrlve Afrise I alet	At hxylhc/		
	Csetrhyfrlse Csg bærlse n cbshr	At hcxylhc/		
	d b/ Urc 6se2-rchg / UrUhUt c	At hxylhc/		
2.2 Groundwater				
2.2.1 Groundwater N	Ianagement Plan			
	I alé	1 lri le, L/ L/ t su Eucfrlvc XL/c		
2.2.1.1 Site-Wide G	roundwater Monitoring			
	olrc-W/ c 4 hs ye/ Wtrch Ms elrs he 2	AeeyUap le Nsvcg mch		
		A The L NL		
	ofi c/ yac usinsg bacg ceruise	Aceytap le Nsvcg mcn		
	Autoyg g up n cbsn	Accepting to MUL		
	n crsg g ce/ triset n cbshr			
	Csg ballet c Csg builtse n cbshr	Acey Lap le Kyec		
	d b/ the 6se2-reng / trumtte	De2s1e2		

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2.2.1.2 Controlled Groundwater Area Monitoring			
	Cserhsac/4 hsye/WutchAhcU	AeeyUap le Nsvcg mch	
	: AI I		
	of i c/ yx us hSg bxg cerUflse	AeeyUap le Nsvcg nch	
	XU/Uoyg g Unp n cbshr	AeeyUap le MUp	
	Cshhefrlve Afrilse I allet	At hxylhc/	
	Csetthyfrlse Csg bærlse n cbshr	At hxylh/	
	d b/ Urc 6se2-rchg / UfUhUt c	De2sle2	

2.2.1.2 Controlled Groundwater Area Monitoring			
	Cserhsac/4 hsye/WurchAhcU : ALI	AeeyUap le Nsvcg mch	
	ofic/yacushSg bacg cerUilse	AeeyUap le Nsvcg mch	
	offer yac using bacg certaise	Accyclip ic its veg iten	

Reference Section	Document or Activity	Submittal or Completion Date		
2.2.1.3 Butte Trea	tment Lagoons, West Camp, and BPS	SOU Subdrain Groundwater Capture		
System Operations, Maintenance, and Monitoring				
	I alė	At ecc/c/qluhcvltc/ Le/ tyng lnc/ ri ce ytc		
		/ Urc subaLé UbbhsvUaO		
	: AI I	AeeyUap le Nsvcg nch		
	of i c/ yæ us hSg bæg cerUflse	AeeyUap le Nsvcg mch		
	XUfUoyg g Upp n cbshr	: yUnchapqUe/ ce/ supcUntyg g Up le MUp		
	Csg ballefc Csg blitse n cbshr	AeeyUap le Kyec		
	Dbrlg l(Ulse n cbshr	At hxylhc/		
	d b/ Urc 6se2-rchg / UrUhUt c	De2sle2		
2.2.2 BPSOU Subdra	ain Groundwater Management Repo	rt		
2.2.2.1 Evaluation of the BPSOU Capture and Conveyance System Performance				
	ofsble2 Mccrle2	, L/ Lpt Urch &n ECCn		
	1 sh9 I alè lè/: AI I	, L/		
	of i c/ yæ us hSg bæg cerUlse	, L/		
	XUJUoyg g Unp n cbs hr	, L/ Lpt Urchulca' levctrl2Uilse		
	EvUayUlse n cbshr	P. L/ Upt Urchulca' levctrl2Uilse		
	Dbrlg l(Ulse n cbshr	P. L/ Upt UrchcvUayUlse hebshr		
	Xctl2e Le/ Sg bacg cerUflse su	NcJrulca/ tcLise		
2.2.2.2 Localized (Froundwater Study			
	Mselrshe2 Le/ So bacg certilse	De2sle2		
	Csg bære n ebshr	. L/Ubt Urchulca/ levetrl2Utlse		
	Xct12e Le/ Sp bacg certifise su	i sas We2 ulca/ tcUtse		
	n cfsg g ce/ Ulset			
	Csetrhyfrlse Csg bærlse n cbshr	, L/ Upt Urchfsetrhyfrlse		
2.3 Surface Water				
2.3.1.1 Surface Water Monitoring				
	oyhuUfc1 UrchMselrshle2: AII	AeeyUap le Nsvcg mch		
	of i c/ yac ushSg bacg cerUlse	AeeyUap le Nsvcg mch		
	XU/Uoyg g Upp n cbshr	AeeyUap le MUp		
	oyhuUfc1UfchCsgbalUefc	AeeyUap le Kyec		
	Csg bUhltse Ue/SerchbherUflse n cbshr			

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	I hcalg leUp XIU2estrlf EvUayUIse	1 lri le FL/ Lþt sulæxyctr shesrlulf Ulse	
	n cbshr		
	XlU2estrlf n ctbsetc Sevctrl2Uflse I aUe Ue/ n cbshr	At hxylh/	
	Dbrlg l(Ulse n cbshr	At hxylhc/	
	Xctl2e Ue/ Sg bæg cerUflse su n cfsg g ce/Uflset	orUr wL/Upt UrchUbbhsvUasusbrlg l(Urlse hcbshr	
	Csetrhyfrlse Csg bærlse n cbshr	, L/ Upt Unchfsetnhyfrlse	
	d b/Urc 6se2-rchg /UrUhUt c	De2sle2	
2.4 Operations and Maintenance Plans			
2.4.1 Mine Waste Repository	I aLé	d b/ Ure Ut hexylhe/	
Reference Section	Document or Activity	Submittal or Completion Date	
2.4 Operations and Maintenance Plans			
2.4.2 GMMIA	I ale	d b/ Urc Uf hexylhe/	
2.4.3 Syndicate Pit	I ale	d b/ Urc Uf hexylhe/	
2.4.4 BTL, West Camp and BPSOU Subdrain GW Capture and Treatment System	I alė	d b/ Uc U hxylhc/	
2.4.5 Stormwater Structures O&M Plan	I alle	d b/ Ure Ur hexylhe/	
2.4.6 BSBC Street Maintenance and Snow Management Plan	I alé	1 lri le , L/ Upt su Euxfrlvc XUrc	

I Urllan cg c/llaXctl2e0n cg c/llaAfrlse le/ DbchLflse le/ MUercelefc