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**Butte Priority Soils Operable Unit (BPSOU) Insufficiently
Reclaimed Sites - Field Sampling and Investigation Plan (FSP)
BRES No. 104 - Colorado Dump**

Mike McAnulty

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Nikia Greene
Remedial Project Manager
US EPA – Montana Office
Baucus Federal Building
10 West 15th Street, Suite 3200
Helena, Montana 59626

Erin Agee
Senior Assistant Regional Counsel
US EPA Region 8 Office of Regional Counsel
CERCLA Enforcement Section
1595 Wynkoop Street
Denver, CO 80202
Mail Code: 8ORC-C

Daryl Reed
DEQ Project Officer
P.O. Box 200901
Helena, Montana 59620-0901

Jonathan Morgan, Esq.
DEQ, Legal Counsel
P.O. Box 200901
Helena, Montana 59620-0901

Butte Priority Soils Operable Unit (BPSOU) Insufficiently Reclaimed Sites - Field Sampling and Investigation Plan (FSP) BRES No. 104 - Colorado Dump

Dear Agency Representatives:

As described in Appendix D, Attachment C to the 2020 Butte Priority Soils Operable Unit (BPSOU) Consent Decree (CD), sites listed as Insufficiently Reclaimed Solid Media Sites within BPSOU were reclaimed prior to establishment of the Butte Hill Revegetation Specifications (BHRS), which is Appendix B of Appendix E to the U.S. Environmental Protection Agency (EPA) 2006 Record of Decision (ROD) contained in the CD. Additional reclamation work may be required to bring the sites into compliance with the BHRS. The sites will be evaluated to assess past actions and to identify any site-specific conditions that fail to meet the BHRS.

The site evaluation will include reviewing previous Butte Reclamation Evaluation System (BRES) field evaluations (if available), on-site evaluations, and construction completion reports if available. The site evaluation will include additional sampling performed according to the Atlantic Richfield Company 2021 Final Reclaimed Areas Maintenance and Monitoring (M&M) Quality Project Plan (QAPP) (referred to as Reclaimed Areas M&M QAPP), which is a component of the BPSOU Solid Media Management Project Plan. Field sampling will be performed to determine the presence of contaminants, adequacy of growth media, or previously unidentified sources contributing to site deficiencies. This Field Sampling and Investigation Plan (FSP) provides details related to field evaluation of the Insufficiently Reclaimed Site BRES No. 104 - Colorado Dump. Proposed soil sampling locations and areas of known deficiencies are shown on Figure 1.

The site evaluation is anticipated to be completed in October 2021. A site summary and declaration will be prepared to present all available site data and describe which BHRS criteria are not met (if



any). A remedial action work plan (RAWP) describing actions to be implemented at the site will be provided for Agency review and approval.

A list of FSPs for the respective Insufficiently Reclaimed Sites, provided below, will be updated to record the status and progress related to FSP submittals.

Submittal	Site	Submittal Date	Approval Date
1	BRES No. 104 – Colorado Dump		

The crosswalk list provided below shows references where pertinent field sample collection and documentation elements are discussed.

Element	Reference Location	
	FSP	Reclaimed Areas M&M QAPP
Title page and approval authority.		Page i
Introduction and appropriate Agency-approved QAPP reference.	X	
Goals and objectives of sampling.		Section 2.6
Proposed schedule for field work.	X	Section 2.5.1
Site figure including sampling locations, number and depth of samples to be collected, and sample field identification.	X	
Field activity methods and procedures, standard operating procedures.		Section 3.3
Sample labeling and shipping.		Section 3.4.2
Sample analysis, specifying X-ray fluorescence (XRF) vs. laboratory analysis and laboratory name.		Section 2.7
Figure showing the site and/or area represented by a sample, sample ID, and aliquot locations for composite samples.	X	

Background

The BRES No. 104 Colorado Dump is approximately 1.7 acres and is located north of AWARE daycare center and east of Sparky’s Restaurant on East Park Street in Butte, Montana, 59701. Reclamation was initially conducted in 1986 by Montana Department of State Lands (MDSL). The work consisted of removing waste dumps, placing crushed lime rock in areas uncovered by waste dump removal, and laying 5-30 tons/acre of Trident Cement Plant flue dust and 300 pounds per acre (lb/acre) of fertilizer before seeding with Walkerville EPA (WEPA) seed mixture at 20 lb/acre.

Commercial development of the area also led to additional remediation and construction of engineered cover areas throughout the northern portion of the site. In 2001, a daycare facility was

constructed consisting of a commercial building, sodded areas, and asphalt parking areas. Note that this portion of the site is being evaluated under a separate sampling program and is excluded from this evaluation.

Previous Evaluation Findings

The site was determined to be an insufficiently reclaimed area and therefore was not evaluated per the recent BRES field evaluations .

Previous Sampling Efforts

Data obtained from the Geocortex web-based database at <https://eis2.woodardcurran.com/Html5Viewer/index.html?viewer=BPButte.BPSOU> contains the records for previous soil samples collected near the BRES No. 104 – Colorado Dump. The approximate sample locations are shown on Figure 1 with results provided in Table 1 below. Sample results highlighted below exceed Record of Decision (ROD) Solid Media soil screening criteria. The BPSOU action levels are listed in Table 3 (Section 2.6.1) of the Reclaimed Areas M&M QAPP.

Table 1. Previous Sampling Results from BPSOU Soil Sampling

COCs	Sample ID: WD-083	Sample ID: WD-084	Sample ID: FSUA-36
Arsenic	2,430 mg/kg	445 mg/kg	61 mg/kg
Cadmium	30 mg/kg	23 mg/kg	0 mg/kg
Copper	3,580 mg/kg	6,210 mg/kg	723 mg/kg
Lead	818 mg/kg	1,280 mg/kg	457 mg/kg
Zinc	9,390 mg/kg	8,860 mg/kg	1,000 mg/kg
pH	-	-	2.91 S.U.

COC: Contaminant of concern. mg/kg: milligrams per kilogram. S.U.: standard unit.

Preliminary Site Evaluation

A preliminary site visit was conducted to better qualify existing site conditions and identify areas of focus for additional evaluation. The site consisted of a decomposing engineered cap that appears to have mine waste leaching through the rock cap, as shown in Photograph 1 below.



Photograph 1. Possible Mining Waste Leaching through Rock Cap

Storm water flows causing sediment conveyance into the site boundary are suspected to be originating from adjacent property located on the corner of Park and Main Street. As seen in Photograph 2 below, flows are causing rills to develop that transport materials to the south end of the alleyway.



Photograph 2. Storm Water Flows Causing Rills that Transport Material to the South End of the Alleyway.

An adjacent property owner is currently building a new parking lot that is predicted to increase flows and sediment deposition during high storm water events. There are potential measures to divert water to a manhole location (SWC AB-M-2201) located 10 feet north of the concrete foundation (shown in Photograph 3). Additional evaluation of the storm water structure is warranted.



Photograph 3. Manhole AB-M-2201 Located North of Concrete Foundation

Site Characterization Plan

Per the Reclaimed Areas M&M QAPP, the site will be sampled at 2 depth intervals (0-6 inches and 6-18 inches) to determine the presence of waste and/or confirm the depth and previous reclamation efforts. Figure 1 illustrates proposed sample locations. Opportunistic samples may be obtained in the field at the discretion of field sampling personnel or Agency oversight representative(s).

Results will be used to prepare the site declaration and prescribe site remedial improvements. Sampling along the north slope and western alleyway will be conducted to determine the extent of waste impact and soil preparation needed to meet the BHRS criteria. Following procedures in the Reclaimed Areas M&M QAPP, the overall site will be sampled through a systematic procedure to determine spatial characterization of waste, previous reclamation, and extent of transient material.

Existing site grading will be evaluated to determine storm water flow patterns and identify potential additional storm water controls to prevent sediment migration. The location and condition of existing storm water features will be field verified and recorded for appropriate implementation into corrective actions. Upgradient and adjacent contributing sources of storm water will also be investigated.

Items identified below will be evaluated for adequacy and identification of additional measures. The following provides minimum potential site characterization items to consider. Additional items may be identified during the remedial design process.

- Evaluate 2 concrete shaft caps.
- Coordinate remedy and end land use with landowner(s).
- Remove existing engineered (rock) cap.
- Evaluate adequacy of existing storm water structures to 25-year, 24-hour, Soil Conservation Service (SCS) Type I storm event requirements.
- Evaluate installation of additional storm water controls designed for a 25-year, 24-hour, SCS Type I storm event.
- Evaluate site storm water controls to mitigate run on/runoff.
- Identify remedial improvements to mitigate site erosion and vegetative areas to meet BHRS.

Final remedial cap configuration (i.e., vegetative or engineered) will be coordinated with the landowner's end usage. A final RAWP will be provided for Agency review and approval.

Sampling Procedure

All soil sampling and characterization activities will follow the Reclaimed Areas M&M QAPP, which also describes the quality assurance/quality control policies and procedures to be used during collection and analysis. Fieldwork will likely commence in the fall of 2021, assuming that access has been obtained for all subject parcels.

Site Summary Report and Declaration

After the site evaluation and data collection activities have been completed, a summary report will be prepared and submitted to Agencies for review and approval. The report will include a summary of all available site sampling data and a site declaration specifying any deficient BHRS criteria.

If you have questions or comments, please do not hesitate to call me at (907) 355-3914.

Sincerely,



Mike Mc Anulty
Liability Manager
Remediation Management Services Company
An affiliate of Atlantic Richfield Company

Attachments:

Figure 1 - Colorado Dump - BRES No. 104

Cc: Patricia Gallery / Atlantic Richfield - email
Chris Greco / Atlantic Richfield – email
Mike Mc Anulty / Atlantic Richfield - email
Loren Burmeister / Atlantic Richfield – email
Dave Griffis / Atlantic Richfield - email
Jean Martin / Atlantic Richfield - email
Irene Montero / Atlantic Richfield - email
David A. Gratson / Environmental Standards / email
Mave Gasaway / DGS - email
John Davis / PRR - email
Joe Vranka / EPA - email
David Shanight / CDM - email
Curt Coover / CDM - email
James Freeman / DOJ - email
John Sither / DOJ - email
Jenny Chambers / DEQ - email
Dave Bowers / DEQ - email
Carolina Balliew / DEQ - email
Matthew Dorrington / DEQ - email
Jim Ford / NRDP - email
Ray Vinkey / NRDP - email
Harley Harris / NRDP - email
Katherine Hausrath / NRDP - email
Meranda Flugge / NRDP - email
Ted Duaine / MBMG - email
Gary Icopini / MBMG - email
Becky Summerville / MR - email
Kristen Stevens / UP - email
Robert Bylsma / UP - email
John Gilmour / Kelley Drye - email
Leo Berry / BNSF - email
Robert Lowry / BNSF - email
Brooke Kuhl / BNSF – email
Mark Engdahl / BNSF - email
Jeremie Maehr / Kennedy Jenks - email
Annika Silverman / Kennedy Jenks - email
Matthew Mavrinac / RARUS - email
Harrison Roughton / RARUS - email
Brad Gordon / RARUS - email
Mark Neary / BSB - email
Eric Hassler / BSB - email
Julia Crain / BSB - email
Chad Anderson / BSB - email
Brandon Warner / BSB – email
Abigail Peltomaa / BSB - email

Eileen Joyce / BSB – email
Sean Peterson/BSB – email
Gordon Hart / BSB – email
Jeremy Grotbo / BSB – email
Josh Vincent / WET - email
Craig Deeney / TREC - email
Scott Bradshaw / TREC - email
Brad Archibald / Pioneer - email
Pat Sampson / Pioneer - email
Mike Borduin / Pioneer - email
Joe McElroy / Pioneer – email
Andy Dare / Pioneer – email
Karen Helfrich / Pioneer - email
Leesla Jonart / Pioneer - email
Connie Logan/ Pioneer – email
Ian Magruder/ CTEC- email
CTEC of Butte / email
Scott Juskiewicz / Montana Tech – email

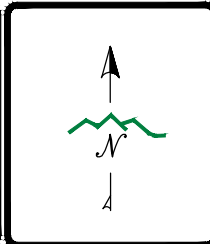
File: MiningSharePoint@bp.com - email
BPSOU SharePoint - upload



LEGEND:

- PROPOSED SOIL SAMPLE LOCATION
- PREVIOUS SOIL SAMPLE LOCATION
- MANHOLE INLET
- ANACONDA ROAD/BUTTE BREWERY STORMWATER
- PROPERTY OWNERSHIP
- SITE BOUNDARY

BRES NO. 104 - COLORADO DUMP IS 3.1 ACRES



DISPLAYED AS: _____

COORD SYS / ZONE: MSP

DATUM: NAD 83

UNITS: INTL FT

SOURCE: PIONEER/QSI 2021

SCALE IN FEET

0 40 80

FIGURE 1 INSUFFICIENTLY RECLAIMED SITES

BRES-104

COLORADO DUMPS

PROPOSED SAMPLE LOCATION

PIONEER
TECHNICAL SERVICES, INC.
1101 SOUTH MONTANA
BUTTE, MONTANA 59701
(406) 782-5177

DATE: 9/2021