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Butte Priority Soils Operable Unit (BPSOU) Unreclaimed Sites Final Field Sampling Plan (FSP) Package #6: UR-05, UR-27, UR-28, UR-29, UR-30, and UR-34

Mike McAnulty

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October 18, 2021

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**Butte Priority Soils Operable Unit (BPSOU) Unreclaimed Sites Final Field Sampling Plan (FSP)
Package #6: UR-05, UR-27, UR-28, UR-29, UR-30, and UR-34.**

Dear Agency Representatives:

As described in Appendix D, Attachment C to the 2020 Consent Decree, areas listed as Unreclaimed Solid Media Sites within Butte Priority Soils Operable Unit (BPSOU) may have potentially been impacted by historic mining and therefore may pose a threat to human health, contribute metals-impacted sediments to existing or planned wet weather control features, or contribute to the degradation of surface water quality. There are a total of 39 unclaimed sites, multiple sites will be organized in a package for approval. Field sampling plan (FSP) package #6 (FSP Package #6) includes Unreclaimed (UR) Sites UR-05, UR-27, UR-28, UR-29, UR-30, and UR-34. Site evaluations will be performed using means and methods provided in the Atlantic Richfield Company Final Unreclaimed Sites Quality Assurance Project Plan (QAPP) published October 12, 2018, which was prepared in accordance with U.S. Environmental Protection Agency (EPA) guidance documents EPA QA/R-5 and EPA QA/G-5 for QAPP development. The QAPP was updated in 2021 (referred to herein as UR Sites QAPP) as a component of the BPSOU Solid Media Management Project Plan. Results from site evaluations will be used to prepare site declarations and assist with determination of site remediation requirements. Site evaluations will begin in the third quarter of 2021 and are anticipated to be completed 2022, or as site access allows. Site declarations for sites sampled in 2021 are anticipated to be provided for Agency review and approval by the end of 2021. Declarations of sites sampled after 2021 will be provided as soon as feasible. Remedial action will be performed following Agency approval of pertinent site-specific remedial action work plans.

A preliminary list of FSP packages, provided below, will be updated to record the status and progress related to FSP package submittals.



Package	Sites	Submittal Date	Approval Date
1	UR-31, 32, and 39	May 19, 2021	June 8, 2021
2	UR-24, 26, and 40	June 30, 2021	August 27, 2021
3	UR-06, 07, 20, 22, 35, and 36	July 2, 2021	August 27, 2021
4	UR-16 and 21	August 20, 2021	August 30, 2021
5	UR-12, 13, 33, and 38	August 23, 2021	August 30, 2021
6	UR-05, 27, 28, 29, 30, and 34	September 14, 2021	TBD
7	UR-01, 02, 03, 04, 15, and 17	September 14, 2021	TBD

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

Element	Reference Location	
	FSP	UR Sites QAPP
Title page and approval authority.		Page i
Introduction and appropriate Agency-approved UR Sites QAPP reference.	X	
Goals and objectives of sampling.		Section 2.4, 3.2
Proposed schedule for field work.	X	
Site figure including sampling locations, number, and depth of samples to be collected, and sample field identification.	X	Section 3.2.1
Field activity methods and procedures, standard operating procedures.		Section 3.2, Table 4
Sample labeling and shipping.		Section 3.2.5, Appendix C
Sample analysis, specifying X-ray fluorescence (XRF) vs. laboratory analysis and laboratory name.		Section 3.3
Figure showing the site and/or area represented by a sample, sample ID, and aliquot locations for composite samples.	X	

Soil sampling is proposed for FSP package #6 at 6 UR Sites located in the uptown area of Butte, Montana, near the west side reservoir. The results of the soil sampling will be used to support the site declaration and potential future remediation requirements for each site. This FSP is consistent with Section 3.0 Data Acquisition protocol described in the UR Sites QAPP. These 6 UR Sites are each less than 1.3 acres. Sites UR-29 and 30 are located in a residential neighborhood close to Kennedy Elementary school. Sites UR-5, 27, 28, and 34 are located in residential neighborhoods. Field sampling efforts exclude residential areas (yards, driveways, etc.) shown within site boundaries. These areas will be addressed through the Residential Metals Abatement Program (RMAP) administered by Butte Silver Bow. This package includes sites that have high chance of exposure to children. Each site is discussed separately below. The attachments at the end of this document include figures for each site showing the proposed soil sampling locations.

Site: UR-05 NW Corner of N. Montana St. and Ruby St.

Background

Site UR-05 is approximately 0.3 acres. It is located just west of the intersection of North Montana and Ruby Streets and on the east side of the Tullamore subdivision (Figure 1). Most of the site is owned by Butte-Silver Bow. The site has multiple, private third-party ownership. The site is bordered on the north by a walking trail, on the west and south by private residences, and on the east by North Montana Street. Site UR-05 is vacant and has a moderate amount of established grass with weeds around the boundary. The north boundary of the site contains sandy and dry soils. The south boundary of the site has bare areas with low manganese and iron staining. There is an abandoned vehicle on the site. The area east of the vehicle contains light, yellow-colored soil with developing rills that drain south. Note that Figure 1 shows a boat in the northwest corner, however the boat is no longer there (at the time of this document submittal).

The site is along the east edge of the Missoula Gulch drainage basin.

Previous Sampling Efforts

Data obtained from the Geocortex web-based database at <https://eis2.woodardcurran.com/Html5Viewer/index.html?viewer=BPButte.BPSOU> contain the records for previous soil samples collected near Site UR-05 obtained during BPSOU railroad grade sampling efforts, however none of the samples were within the boundary of UR-05. Some sample results contain the letter “J” which is indicative of a data qualifier. The letter “J” accompanying sample results typically indicates specific criteria may not have been met when analysis was performed, and results are considered qualified. These criteria are dependent upon laboratory protocol. Laboratory data qualifiers are defined in the data deliverable provided by the laboratory which performed the analysis. The EPA 2020 National Functional Guidelines for Inorganic Superfund Methods Data Review provides the following definition for J qualified data, “*The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.*” The approximate sample locations are shown on Figure 1 with results provided in Table 1 below. Some of the sample results exceeded BPSOU soil screening levels for stormwater contaminants of concern (COCs) (arsenic, copper, lead, and zinc). The BPSOU action levels are listed in Tables 1 and 2 of the UR Sites QAPP.

**Table 1: Previous Sampling Results from BPSOU Soil Sampling
(units are milligrams per kilograms)**

COC	Sample Station ID			
	CON003-00	CON3-0230	PSERA9307	BF-006
Arsenic	92	105 J	190	283 J
Cadmium	4	5	5	18
Copper	579 J	643	825	1,200
Lead	294	1,360	555	1,330
Zinc	1,370 J	1,100	1,490	3,500
Sample Date	5/15/91	5/15/91	4/1/93	6/23/87

COC: contaminant of concern. J: estimated result

Site: UR-27 317 W. Copper St.

Background

Site UR-27 is approximately 0.05 acres. It is located at 317 West Copper Street at the back (or north) half of the lot. This is northeast of the intersection of West Copper and North Washington Streets in uptown Butte (Figure 2). Site UR-27 is bounded on the west by a vacant lot, on the north by W. Gagnon Street, on the east by the residence at 315 W. Copper St., and on the south by the south half of the lot at 317 W. Copper Street. Site UR-27 is owned by private third-party residents.

Site UR-27 is a portion of a vacant lot in a fairly dense residential area. The site is mostly bare ground and may be used for parking by area residents. There are weeds on the south end of the site. Site UR-27 is in the Missoula Gulch drainage basin.

The site has relative homologous areas and is very small. Per the UR Sites QAPP, a site less than 1 acre requires 5 samples. Two samples were recommended for this site to achieve the 10-foot diagonal spacing and represent the material observed on the site.

Previous Sampling Efforts

No previous sample data available.

Site: UR-28 Waukesha St. (800 Block), approximately 835 Waukesha

Background

Site UR-28 is approximately 0.12 acres and is located on the north side of the 800 block of Waukesha Street (Figure 3), a residential area. Site UR-28 is owned by private third-party residents. Site UR-28 is vacant land and is completely bare with sporadic weeds. Rills have formed down the middle of the site with vehicle travel appearing to make them greater in the width. Two cars and a truck bed trailer are currently parked on the lot. The site is in the Missoula Gulch drainage basin and drains to catch basins (CB) CB-8 and CB-9.

Previous Sampling Efforts

No previous sample data available.

Site: UR-29 Greens Apts. – Surrounding areas

Background

Site UR-29 is approximately 1.3 acres. It is located at the west end of Lexington Street on the south side of the street (Figure 4). On the north side of Lexington is the Montana Technological University (Montana Tech) student housing known as the Greens. Site UR-29 occupies a south-facing slope. The east portion of the site extends as far south as Zarelda Street.

Site UR-29 is owned by private third parties and Butte-Silver Bow. Site UR-29 is vacant land in a residential area. The NW portion of the site has moderate grass cover with 2 small areas of what appears to be impacted soil. In the middle of the northern boundary, a drain from the Greens housing complex enters the site and rills have formed through what looks to be impacted soils. There is a rock outcropping that contains dark, goldish-colored soil with manganese staining. Drainage appears to run towards the residence more than the drainage ditch on the eastern boundary of the site. Two cars are parked on the southwest end of the site. The site drainage discharges into Missoula Gulch and to CB-8 and CB-9.

Previous Sampling Efforts

There is no record of previous soil sampling at Site UR-29 nor in its vicinity.

Site: UR-30 N. Henry Ave. and W. Zarelda St. – SW Corner

Background

Site UR-30 is approximately 0.44 acres. It is located at the southwest corner of Zarelda Street and North Henry Avenue. The site is bordered on the south by Hornet Street and on the west by private residences (Figure 5). The majority of Site UR-30 is owned by Butte-Silver Bow. A small portion of the site along the west edge is owned by a private third party. Site UR-30 is vacant land in a residential area in uptown Butte. Grass is established across the site and the north boundary contains a small fine-gravel area with no vegetative growth. There are 3 small areas with light, yellow-colored soil on the site.

The site drains into Missoula Gulch and to CB-8 and CB-9.

Previous Sampling Efforts

There is no record of previous soil sampling at Site UR-30 nor in its vicinity.

Site: UR-34 Desperation Air Shaft – East of Site

Background

Site UR-34 is approximately 0.14 acres. It is located along the north side of the Butte-Anaconda and Pacific (B.A.&P) railroad walking trail between North Emmet and North Western Avenues (Figure 6). The site is bordered on the north by private residences and on the west by the remnants of the former Desperation Air Shaft. Ownership of Site UR-34 includes Atlantic Richfield Company, Butte-Silver Bow, and private third-party residents.

Site UR-34 is vacant land on a fairly steep south-facing slope in a residential area. The site is moderately well vegetated with a few distinct bare areas. The eastern section of the site is currently being used by private landowners as a grass mulch dump. The Butte Silver-Bow RMAP has attempted to gain access to these residential yards to obtain soil samples. Access to perform sampling has not been granted by either property owner. Access and sampling efforts will continue to be monitored by Butte-Silver Bow RMAP. No samples are proposed in these areas in this plan.

The site is in the Missoula Gulch drainage basin and drains to CB-8 and CB-9.

Previous Sampling Efforts

Data obtained from the Geocortex web-based database at <https://eis2.woodardcurran.com/Html5Viewer/index.html?viewer=BPButte.BPSOU> contain the records for previous soil samples collected along the (B.A.&P) trail near Site UR-34. Some sample results contain the letter “J” which is indicative of a data qualifier. The letter “J” accompanying sample results typically indicates specific criteria may not have been met when analysis was performed, and results are considered qualified. These criteria are dependent upon laboratory protocol. Laboratory data qualifiers are defined in the data deliverable provided by the laboratory which performed the analysis. The EPA 2020 National Functional Guidelines for Inorganic Superfund Methods Data Review provides the following definition for J qualified data, *“The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.”* The approximate sample locations are shown on Figure 6 with results provided in Table 2 below. Some of the sample results (highlighted below) exceeded BPSOU soil screening criteria for stormwater COCs (arsenic, copper, lead, and zinc). The BPSOU action levels are listed in Tables 1 and 2 of the UR Sites QAPP.

**Table 2: Previous Sampling Results from BPSOU Soil Sampling
(units are milligrams per kilograms)**

	Sample Station ID	
COC	BHP002-00	FSUA-61
Arsenic	625 J	523
Cadmium	9	NA
Copper	2,520	850
Lead	766	1,360
Zinc	1,620	1,240
Sample Date	5/14/91	12/14/95

COC: contaminant of concern. NA: not analyzed. J: estimated result

Unreclaimed Sites Quality Assurance Project Plan

All field work and soil analysis will be completed in accordance with the UR Sites QAPP. The QAPP will be reviewed annually and updated as needed on Agency review and approval. Soil sampling will be conducted at the 6 UR Sites at depth intervals of 6 to 12 inches, 2 to 6 inches, and 0 to 2 inches. Sampling will take place in that order from the deepest interval (6 to 12 inches) to the shallowest interval (0 to 2 inches). Proposed sample locations for each site are shown on Figures 1 through 6.

Sampling Procedure

All sampling procedures are to be followed according to the UR Sites QAPP, which describes the activities necessary to conduct soil sampling and characterization activities on UR Sites within BPSOU. It also describes the quality assurance/quality control policies and procedures to be used during collection and analysis. Implementation of this fieldwork will likely commence in the fall of 2021 and resume in spring 2022, assuming that access has been obtained for all subject parcels.

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 Unreclaimed Site UR-05 Proposed Sample Locations
Figure 2 Unreclaimed Site UR-27 Proposed Sample Locations
Figure 3 Unreclaimed Site UR-28 Proposed Sample Locations
Figure 4 Unreclaimed Site UR-29 Proposed Sample Locations
Figure 5 Unreclaimed Site UR-30 Proposed Sample Locations
Figure 6 Unreclaimed Site UR-34 Proposed Sample Locations

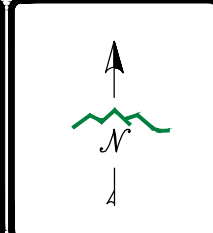
Cc: Patricia Gallery / Atlantic Richfield - email
Chris Greco / Atlantic Richfield – email
Josh Bryson / Atlantic Richfield - email
Mike Mc Anulty / Atlantic Richfield - email
Loren Burmeister / Atlantic Richfield – email
Dave Griffis / Atlantic Richfield - email
Jean Martin / Atlantic Richfield - email
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 Duaime / 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
 UR-05 IS 0.32 ACRES



DISPLAYED AS:
 COORD SYS/ZONE: MSP
 DATUM: NAD 83
 UNITS: FEET
 SOURCE: PIONEER

SCALE IN FEET
 0 30 60

FIGURE 1 UNRECLAIMED SITE
 UR-05
 PROPOSED
 SAMPLE LOCATIONS

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

DATE: 10/2021



NORTH WASHINGTON ST.

WEST COPPER ST.

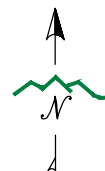
UR-27-SS-01

UR-27-SS-02

LEGEND:

⊕ PROPOSED SOIL SAMPLE LOCATION

UR-27 IS 0.03 ACRES



DISPLAYED AS: _____
 COORD SYS/ZONE: MSP
 DATUM: NAD 83
 UNITS: FEET
 SOURCE: PIONEER

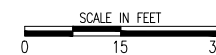


FIGURE 2

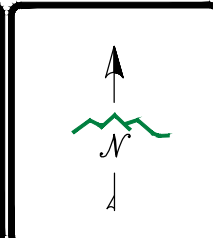


UNRECLAIMED SITE
 UR-27
 PROPOSED
 SAMPLE LOCATIONS

DATE: 10/2021



LEGEND:
 ⊕ PROPOSED SOIL SAMPLE LOCATION
 UR-28 IS 0.12 ACRES



DISPLAYED AS: _____
 COORD SYS/ZONE: MSP
 DATUM: NAD 83
 UNITS: FEET
 SOURCE: PIONEER

SCALE IN FEET
 0 15 30

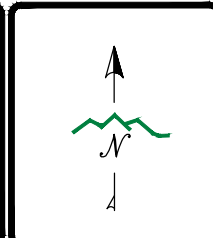
FIGURE 3 UNRECLAIMED SITE
 UR-28
 PROPOSED
 SAMPLE LOCATIONS

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

DATE: 10/2021



LEGEND:
 + PROPOSED SOIL SAMPLE LOCATION
 UR-29 IS 1.31 ACRES



DISPLAYED AS: _____
 COORD SYS/ZONE: MSP
 DATUM: NAD 83
 UNITS: FEET
 SOURCE: PIONEER

SCALE IN FEET
 0 25 50

FIGURE 4 UNRECLAIMED SITE
 UR-29
 PROPOSED
 SAMPLE LOCATIONS

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

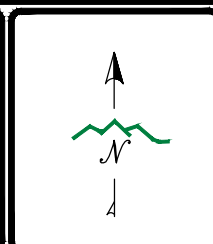
DATE: 10/2021



LEGEND:

● PROPOSED SOIL SAMPLE LOCATION

UR-30 IS 0.44 ACRES



DISPLAYED AS: _____

COORD SYS/ZONE: MSP

DATUM: NAD 83

UNITS: FEET

SOURCE: PIONEER

SCALE IN FEET

0 20 40

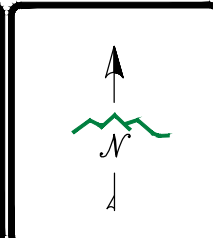
FIGURE 5 UNRECLAIMED SITE
UR-30
PROPOSED
SAMPLE LOCATIONS

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

DATE: 10/2021



LEGEND:
 + PROPOSED SOIL SAMPLE LOCATION
 ▲ PREVIOUS SOIL SAMPLE LOCATION
 UR-34 IS 0.14 ACRES



DISPLAYED AS: _____
 COORD SYS/ZONE: MSP
 DATUM: NAD 83
 UNITS: FEET
 SOURCE: PIONEER

SCALE IN FEET
 0 20 40

FIGURE 6 UNRECLAIMED SITE
 UR-34
 PROPOSED
 SAMPLE LOCATIONS

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

DATE: 10/2021