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Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed Sites - Field Sampling Plan (FSP) BRES No. 32 – Corra-2 Dumps

Mike McAnulty

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July 29, 2022

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Re: Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed Sites - Field Sampling Plan (FSP) BRES No. 32 – Corra-2 Dumps

Dear Agency Representatives:

I am writing to you on behalf of Atlantic Richfield Company to submit the Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed (IR) Sites - Field Sampling and Investigation Plan (FSP) Butte Remediation Evaluation System (BRES) No. 32 – Corra-2 Dumps per the Agency approval letter dated June 30, 2022. The Agency approval letter can be accessed at the following link: <https://pioneertechnicalservices.sharepoint.com/:b/s/submitted/ESgGr1l6JbpPv0FSZt-ECI8BkmYIt3M0zI0Yjgoso2p1qw>¹.

As described in Appendix D, Attachment C to the 2020 BPSOU Consent Decree (CD) (available at <https://www.co.silverbow.mt.us/2161/ButtePriority-Soils-Operable-Unit-Conse>), sites listed as IR Solid Media Sites within the BPSOU were reclaimed prior to the 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. Since 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 a review of available previous BRES field evaluations and site construction completion reports along with on-site evaluation and sampling. The site evaluation will include sampling within the existing site boundary performed according to the Atlantic Richfield Company 2022 *Final Insufficiently Reclaimed Sites Quality Assurance Project Plan (QAPP)* (referred to as IR Sites QAPP). The IR Sites QAPP is available at the following link:

¹ Please note the link provided is valid for one year from the date of this submittal.

<https://pioneertechnicalservices.sharepoint.com/:f/s/submitted/Eid2SfSSinhOsfQXY5CXGEOBe5Ilf5IQO01hBO43ZROggg>².

Field sampling within the existing boundary will be performed to determine whether contaminants are present, whether growth media is adequate, and whether there are previously unidentified sources contributing to site deficiencies.

This FSP provides details related to the field evaluation of the IR Site BRES No. 32 – Corra-2 Dumps. Proposed soil sampling stations and areas of known deficiencies are shown on Figure 1.

The site evaluation is anticipated to be completed in 2022. A site summary and declaration will be prepared to present all available site data and describe which, if any, BHRs criteria are not met. The site will be evaluated following the Recreational Land Use Waste Identification and Action Level Criteria provided in the IR Sites QAPP. A remedial action work plan (RAWP) describing actions that will be implemented at the site will be provided for Agency review and approval.

A list of FSPs, 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 Shaft	9/29/2021	11/5/2021
1R	BRES No. 104 – Colorado Dump Shaft, Final Revised	12/2/2021	12/6/2021
2	BRES No. 154 – Clark Mill Tailings NE	12/1/2021	12/6/2021
3	BRES No. 30 – Atlantic-1	1/12/2022	2/22/2022
4	BRES No. 16 – Curry	1/12/2022	2/22/2022
5	BRES No. 8 – Belle of Butte	3/11/2022	
6	BRES No. 38 – Sister Dump	6/16/2022	
7	BRES No. 32 – Corra 2 Dumps	6/20/2022	6/30/2022
8	BRES No. 158 – Waste Rock Dump	6/20/2022	7/11/2022
9	BRES No. 50 – Zelia	6/22/2022	6/30/2022
10	BRES No. 93 – Soudan Dump	6/23/2022	6/30/2022
11	BRES No. 96 – Washoe Dump	6/23/2022	7/11/2022
12	BRES No. 133 – Dexter Mill	7/14/2022	7/26/2022
13	BRES No. 37 – Josephine Shaft	7/20/2022	7/26/2022
14	BRES No. 34 - Eveline	7/22/2022	

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

² Please note the link provided is valid for one year from the date of this submittal.

Element	Reference Location	
	FSP	IR Sites QAPP
Title page and approval authority.		Page i
Introduction and appropriate Agency-approved QAPP reference.	X	
Goals and objectives of sampling.		Section 2.4, Section 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 (ID).	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 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	

Background

The Corra Dump 2 (BRES No. 32) is approximately 2.00 acres located along Bernie's Way Road and Scrap H Point in Walkerville, Montana. Site grading was completed in conjunction with the Granite Mountain Memorial Area Phase I reclamation. Site grading consisted of contouring waste rock dumps to a maximum slope of 3 horizontal:1 vertical. The Moose Channel Superfund storm water feature construction was also incorporated into the Corra 2 Dump.

The future land use of the site will be access-controlled open space. East of the Moose Ditch, limestone rock from the Anaconda Quarry was applied at a rate of 350 tons per acre (tons/acre) to a depth of 2 inches. After the limestone was applied, 18 inches of soil cover was established on the site. The site is roughly separated into 3 different sections: west, central, and east. Each section has its own cover soil composition. The central section has 12 inches of soil sourced from Minnie Irvine as a base and 6 inches of landfill soil as the seedbed. The eastern section of the site is covered with 18 inches of Tiger Lily soil. The western section consists of 12 inches of soil sourced from Minnie Irvine as a base and 6 inches of landfill soil as the seedbed without limestone application.

Manure sourced from Dillon, Montana, was spread over the cover soil at a rate of 30 dry tons/acre. Fertilizer was applied on July 20, 1998, at a per acre rate of 60 pounds nitrogen (N), 80 pounds potassium oxide (K₂O), and 150 pounds phosphorus pentoxide (P₂O₅). Manure and fertilizer were chisel plowed into the top 6 inches of cover soil. Straw mulch was spread and crimped into the

cover soil at a rate of 2 tons/acre on July 28, 1998. The site was drill seeded on October 21, 1998, with 19 pounds per acre of the primary seed mixture.

The lower 150 feet of Moose Ditch was converted from a riprap ditch to a grass-lined ditch with the sediment that had accumulated in the bottom of the ditch being used as seedbed for its reseeded.

Previous Evaluation Findings

The site was evaluated in 2016 during the recurring BRES site evaluation process. A review of previous site evaluations will be incorporated into the site evaluation, sampling, and future remedial action. A preliminary review of the 2016 evaluation findings indicates issues with erosion, exposed waste, site edges, gullies, and barren areas. Four barren areas were identified on the site. Erosion and deposits were prevalent on the adjacent roadway due to barren areas. Storm water inlets were proposed to be fitted with a 6-inch plus angular rock to allow periodic sediment removal in addition to the existing storm water collection basin on the south-central portion of the site which collects water from the site’s central storm water ditch and accumulates sediment. A gully was forming along the eastern site edge and conveying sediment into the north parking lot. A second gully was forming just to the south of the parking area. Exposed waste was also present along the perimeter of the existing rock-lined ditch.

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 BRES No. 32 – Corra-2 Dumps. The approximate sample stations are included on Figure 1 with results provided in Table 1 below. Sample results highlighted below exceed ROD Solid Media soil screening criteria. The BPSOU action levels are listed in Table 1 and Table 2 of the IR Sites QAPP, Section 2.4.

Table 1: Previous Sampling Results from BPSOU Soil Sampling

COCs	Sample ID: PSERA9302	Sample ID: WD-073
Arsenic	27 mg/kg	72 mg/kg
Cadmium	38 mg/kg	76 mg/kg
Copper	414 mg/kg	1,520 mg/kg
Lead	10,700 mg/kg	8,930 mg/kg
Zinc	13 mg/kg	18,200 mg/kg
pH	4.4 S.U.	2.79 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 qualify existing site conditions and identify areas of focus that need additional evaluation. Site photographs were taken during the preliminary site evaluation to capture site conditions. The photographs are included in this section for reference. The site appears to be well vegetated with minor areas of bare ground. Although weed detection is difficult in winter months, it appears the site has limited weed establishment. Remediation efforts were conducted by Butte-Silver Bow (BSB) in 2021 addressing previous barren areas and vegetative improvement. EPA approved cover soil was placed in areas of repair as seen on Photograph 5.



Photograph 1: Site is Well Vegetated East of the Channel



Photograph 2: Storm Water Inlet on Southwest Corner of Site



Photograph 3: Asphalt and Concrete Storm Water Features-South



Photograph 4: Rock Lined Storm Channel Through Middle of Site

Existing storm water controls include rock and grass lined ditches located through the center of the site running north to south (Photograph 4 and Photograph 5), and two outlet structures at the south end of the ditch and in the southwest corner of the site (Photograph 2). These will be evaluated to determine their effectiveness and identify additional Best Management Practices or potential maintenance items.



Photograph 5: BSB Remediation Efforts Along Storm Water Channel

Site Characterization Plan

Per the IR Sites 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 of previous reclamation efforts. Figure 1 illustrates the proposed sample stations. 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 will be conducted to determine the extent of waste impact and soil preparation needed to meet the BHRS criteria. Following procedures in the IR Sites QAPP, the overall site will be sampled through a systematic procedure to determine the spatial characterization of waste, parameters of previous reclamation, and extent of transient material.

Existing site grading will be evaluated to determine storm water flow patterns and identify whether additional storm water controls are necessary to prevent sediment migration. The location and condition of existing storm water features will be field-verified and recorded so appropriate corrective actions can be implemented. Upgradient and adjacent contributing sources of storm water will also be investigated.

Items identified below will be evaluated to determine whether they are adequate and to identify additional remedial measures. The following provides the minimum site characterization items that will be considered. Additional items may be identified during the remedial design process.

- Evaluate plant species cover to BHRS seed mix specifications.
 - Coordinate and confirm plant species with biology/plant ecologist or related subject matter expert.
- Confirm existing storm water controls designed for a 25-year, 24-hour Soil Conservation Service Type I storm event.
- Evaluate potential site storm water controls to mitigate run-on/runoff.
- Identify remedial improvements to mitigate site erosion and improve vegetative areas to meet BHRS.
- Identify maintenance items for successful long-term operation.

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

Sampling Procedure

All soil sampling and characterization activities will follow the IR Sites QAPP, which also describes the quality assurance/quality control policies and procedures that will be used during collection and analysis. Fieldwork is anticipated to begin completed in 2022.

Sample Station	2 Depth Intervals (inches)
IR-32-SS01	(1) 0-6, (2) 6-18
IR-32-SS02	(1) 0-6, (2) 6-18
IR-32-SS03	(1) 0-6, (2) 6-18
IR-32-SS04	(1) 0-6, (2) 6-18
IR-32-SS05	(1) 0-6, (2) 6-18
IR-32-SS06	(1) 0-6, (2) 6-18
IR-32-SS07	(1) 0-6, (2) 6-18
IR-32-SS08	(1) 0-6, (2) 6-18
IR-32-SS09	(1) 0-6, (2) 6-18
IR-32-SS10	(1) 0-6, (2) 6-18
IR-32-SS11	(1) 0-6, (2) 6-18
IR-32-SS12	(1) 0-6, (2) 6-18
IR-32-SS13	(1) 0-6, (2) 6-18
IR-32-SS14	(1) 0-6, (2) 6-18
IR-32-SS15	(1) 0-6, (2) 6-18

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 McNulty

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

Attachments:

Figure 1 – Insufficiently Reclaimed Sites BRES No. 32 Corra 2 Dumps Proposed Sample Stations
Attachment 1 - Document Links

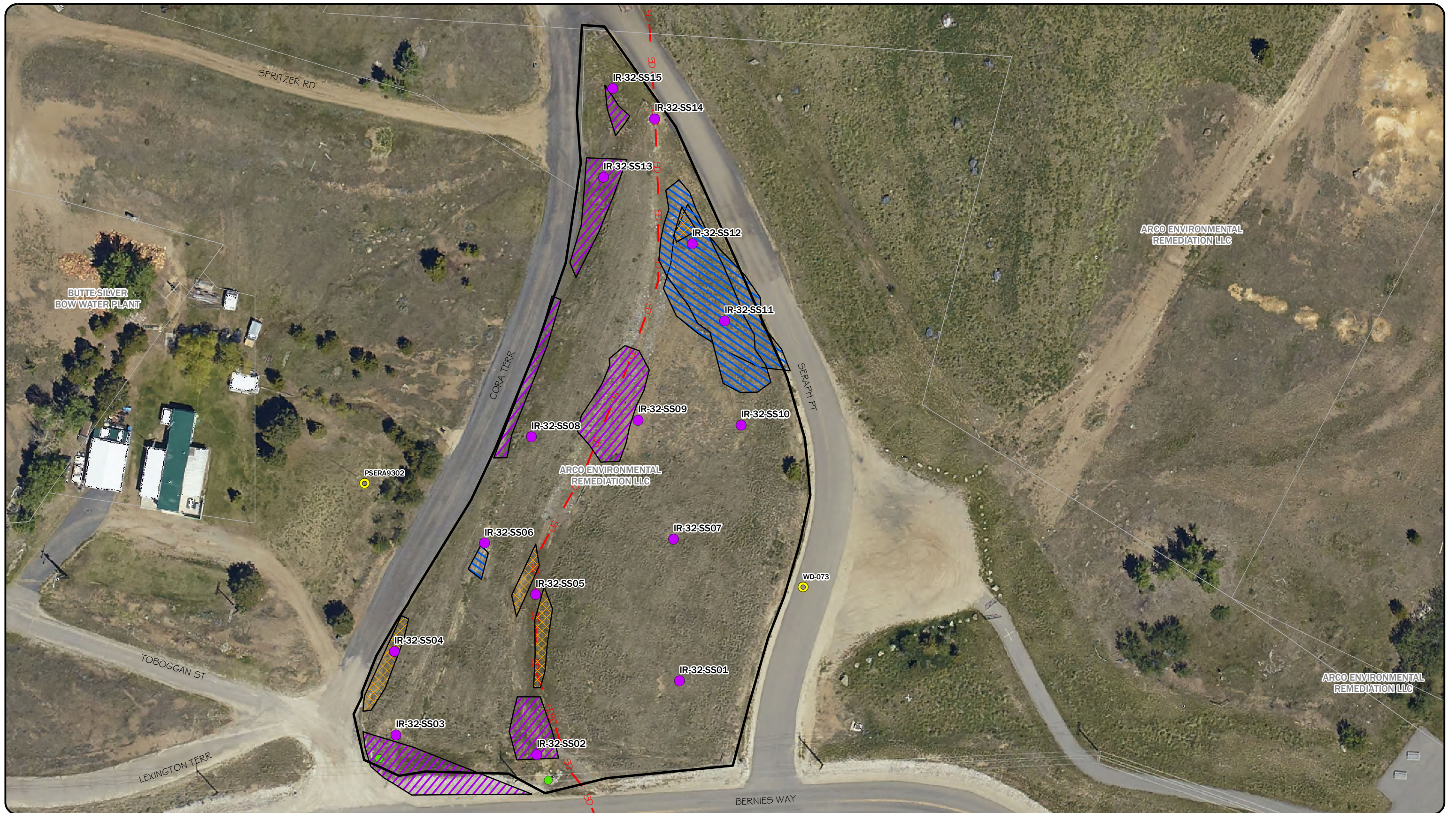
Cc: Patricia Gallery / Atlantic Richfield - email
Chris Greco / Atlantic Richfield – email
Josh Bryson / Atlantic Richfield - email
Mike Mc Anulty / Atlantic Richfield - email
Loren Burmeister / Atlantic Richfield – email
Dave Griffis / Atlantic Richfield - email
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Irene Montero / Atlantic Richfield - email
David A. Gratson / Environmental Standards / email
Mave Gasaway / DGS - email
Brianne McClafferty / Holland & Hart - email
Joe Vranka / EPA - email
David Shanight / CDM - email
Curt Coover / CDM - email
James Freeman / DOJ - email
John Sither / DOJ - email
Dave Bowers / DEQ - email
Carolina Balliew / DEQ - email
Matthew Dorrington / DEQ – email
Wil George/ DEQ – email
Jim Ford / NRDP - email

Pat Cunneen / 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
Lauren Knickrehm / 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
Karen Maloughney / BSB – email
Josh Vincent / WET - email
Craig Deeney / TREC - email
Scott Bradshaw / TREC - email
Brad Archibald / Pioneer - email
Pat Sampson / Pioneer - email
Joe McElroy / Pioneer – email
Andy Dare / Pioneer – email
Karen Helfrich / Pioneer - email
Leesla Jonart / Pioneer - email
Randa Colling / Pioneer – email
Ian Magruder/ CTEC- email
CTEC of Butte – email
Scott Juskiewicz / Montana Tech – email

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

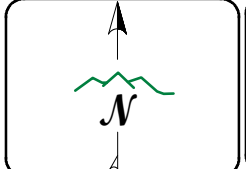
Figures

Figure 1 – Insufficiently Reclaimed Sites BRES No. 32 Corra 2 Dumps Proposed Sample Stations



- SAMPLE UNDER IR QAPP
- HISTORIC SAMPLE STATIONS
- INSUFFICIENTLY RECLAIMED AREA
- PROPERTY OWNERSHIP
- BRES EVALUATION EXPOSED WASTE
- BRES EVALUATION BARREN AREA
- BRES EVALUATION VEGETATIVE IMPROVEMENT
- SD — STORM WATER LINE
- STORM WATER OUTLET

THE PARCEL BOUNDARIES SHOWN ARE FOR REFERENCE USE ONLY AND DO NOT REPRESENT A LEGAL SURVEY



DISPLAYED AS: _____
 PROJECTION/ZONE: MSP
 DATUM: NAD 83
 UNITS: INT'L FT
 SOURCE: PIONEER/AR/BSB/QSI 2020

FIGURE 1

INSUFFICIENTLY RECLAIMED SITES BRES No. 32 CORRA-2 DUMPS PROPOSED SAMPLE STATIONS

DATE: 4/27/2022

Attachment 1
Document Links

Document Links

Insufficiently Reclaimed Sites QAPP:

<https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/Eid2SfSSinhOsfQXY5CXGEOBe5Ilf5IQO01hBO43ZROggg>.