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Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed Sites - Field Sampling Plan (FSP) BRES No. 133 – Dexter Mill

Mike McAnulty

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August 15, 2022

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

Re: Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed Sites - Field Sampling Plan (FSP) BRES No. 133 – Dexter Mill.

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. 133 -Dexter Mill per the Agency approval letter dated July 26, 2022.

The Agency approval letter can be accessed at the following link:

https://pioneertechnicalservices.sharepoint.com/:b:/s/submitted/EfuNTVmsFf1BsvN_hYmBGAEBIwFo8U4-emDwYu1NPcjWw¹.

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 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

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

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:

<https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/Eid2SfSSinhOsfQXY5CXGEoBe5IIlf5IQO01hBO43ZROggg>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.

Additional sampling performed in adjacent areas outside of the existing site boundary to characterize gap zones where site characterization may be unknown or incomplete will be conducted according to the Atlantic Richfield Company *Final Unreclaimed Sites Quality Assurance Project Plan (QAPP)* (referred to as the Unreclaimed Sites QAPP) which also is a component of the BPSOU Solid Media Management Project Plan and is available at the following link:

<https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/Ev1dhUeMuUdLjU8tnuV5RioBvJZRYc2HpgEjM9KzT-PpjQ>³.

Sample results in the areas outside of the existing site boundary will be evaluated to determine if contaminants are present beyond the site boundary at concentrations exceeding action levels listed in Table 1 or Table 2 in the Unreclaimed Sites QAPP. Final sampling data will be used to assist in determining the final site declaration.

This FSP provides details related to the field evaluation of the IR Site BRES No. 133 -Dexter Mill. 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 Commercial 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

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

³ Please note the link provided is valid for one year from the date of this submittal.

Submittal	Site	Submittal Date	Approval Date
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	8/2/2022

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

Element	Reference Location		
	FSP	IR Sites QAPP	Unreclaimed Sites QAPP
Title page and approval authority.		Page i	Page i
Introduction and appropriate Agency-approved QAPP reference.	X		
Goals and objectives of sampling.		Section 2.4, Section 3.2	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	Section 3.2.1
Field activity methods and procedures, standard operating procedures.		Section 3.2, Table 4	Section 3.2, Table 4
Sample labeling and shipping.		Section 3.2.5, Appendix C	Section 3.2.5, Appendix C
Sample analysis specifying X-ray fluorescence vs. laboratory analysis and laboratory name.		Section 3.3	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 Dexter Mill (BRES No. 133) is approximately 5.07 acres located south of Iron Street and west of the Abundant Life Fellowship Church. Reclamation completed by ARCO at the site in 1991 included site grading. It was reclaimed along with Washoe Sampling Works, the Travona, the South Travona, and the Star West mine dumps. Specific details are not available for the Dexter Mill, but activities are consistent with the surrounding sites. Waste from the Dexter Mill was likely removed and the site graded level. About 350 tons per acre (tons/acre) of lime rock would have been applied, followed by 18 inches of cover material from the Interstate 90 borrow area. Granular 11-52-0 fertilizer mix was broadcast at a rate of 300 pounds per acre (lbs/acre). A double disc drill seeder was used to plant 25 lbs/acre of the Walkerville EPA seed mixture. Straw was then spread and crimped at a rate of 2 tons/acre.

The site is private third-party owned, and the landowner has modified the use of the area several times. On-site material stockpiling of unknown origins by the landowner is shown on Figure 1. It is currently used as a parking area. The site is considered IR and recommended for reevaluation for additional reclamation requirements or future use of the property owner. Future excavation at the site will be controlled through Butte-Silver Bow (BSB) institutional controls.

Previous Evaluation Findings

In 2019, the site was evaluated per the recurring BRES field evaluations. The evaluation found issues present with vegetation, bare ground, and site edges. Vegetation is poor with minimal biodiversity and a high amount of bare ground. The site's erosion includes surface rock movement, pedestalling, flow patterns, and soil movement. Low pH material and sediment are being carried off the south end of the site onto neighboring property due to active rills. The northern and western site edges are actively eroding with waste material and lime rock visible. Depositional areas, more weeds, steeper slope, and less vegetation leading to increased erosion were also observed on the site edges. Weeds are concentrated along the southern and western site edge. Weed species include spotted knapweed and cheatgrass. An area of old roadbed materials and concrete was identified in the northeastern corner of the site and is dominated by tumble mustards, baby's breath, and Mullen. An area immediately north of the site was identified as eroding to the site and had lime rock exposed.

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. 133 – Dexter Mill. 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**

Contaminants of Concern	Sample ID: MS-029	Sample ID: MS-030
Arsenic	229 mg/kg	228 mg/kg
Cadmium	28 mg/kg	75 mg/kg
Copper	288 mg/kg	1,040 mg/kg
Lead	5,970 mg/kg	8,610 mg/kg
Zinc	8,400 mg/kg	24,500 mg/kg
pH	2.94 S.U.	5.27 S.U.

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. Site photographs were taken in the spring of 2022 and included in this section for reference. The site has moderate grass cover across most of the area. Stockpiles of old roadbed material were located near the gravel parking lot and have been removed since the previous evaluation in 2019. Tumble mustard and cheatgrass are prevalent in barren and disturbed areas. The west half of the site contains a wide grass-lined open channel that may see flows and sediment translocation during intense storm events. Photograph 6 shows the culvert at the south end of the grass channel that contains sediment. The culvert appears to be transporting sediment through the south road into residential areas.



Photograph 1: Gravel Parking Lot.



Photograph 2: Barren Areas throughout Site with Poor Vegetation on the Northeast Quadrant.



Photograph 3: Good Grass establishment in Southern Area.



Photograph 4: Moderate Vegetation Cover on West Boundary.



Photograph 5: Off-Site Translocation of Material through Culvert. Previous Sediment control has deteriorated.



**Photograph 6: Possible Waste Dump with Light Colored Material.
Evaluation Proposed Under Unreclaimed Sites Scope of Work not Insufficiently Reclaimed.**

Site Characterization Plan

Per the IR Sites QAPP, the site will be sampled at 2 depth intervals [(1) 0 to 6 inches and (2) 6 to 18 inches] to determine whether waste is present and/or confirm the depth of previous reclamation efforts. Additional samples obtained outside of the existing site boundary will be obtained from 3 depth intervals [(3) 0 to 2 inches, (4) 2 to 6 inches, and (5) 6 to 12 inches] per the Unreclaimed Sites QAPP sampling protocol. 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). The field team leader will be responsible for determining the appropriate sampling protocol as dictated by the location of the opportunistic sample(s).

Results will be used to prepare the site declaration and prescribe site remedial improvements. The overall site will be sampled following procedures in the IR Sites QAPP using a systematic procedure to determine the spatial characterization of waste, parameters of previous reclamation, and extent of transient material. Sampling performed outside of the existing boundary will be used to determine if waste extends beyond the existing boundary at concentrations which exceed levels listed in Table 1 or Table 2 of the Unreclaimed Sites QAPP and will be used to assist in the determination of the final site declaration.

Existing site grading and drainages will be evaluated to determine storm water flow patterns and identify if additional storm water controls will help prevent sediment migration. The location and condition of existing storm water features will be field-verified and recorded to be used in corrective actions. Contributing sources of storm water upgradient and adjacent to the site will also be investigated.

A potential waste rock pile (Photograph 6) along the south boundary was identified during previous BRES field evaluations. The area is proposed to be evaluated under the Unreclaimed Sites Program scope of work and is not intended to be evaluated through this effort. This will ensure the characterization of the pile will be appropriately assessed and documented through the correct scope of work.

Items identified below will be evaluated to determine whether they are adequate and to identify if additional remedial measures are necessary. The following provides the minimum potential 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.
- Evaluate site storm water controls to mitigate run-on/runoff.
- Evaluate existing storm water controls designed for a 25-year, 24-hour Soil Conservation Service Type I storm event.
- Identify remedial improvements to mitigate site erosion and vegetative areas to meet BHRS.
- Identify maintenance items for successful long-term operation.
- Evaluate steep slopes for regrading and eroding of possible mining waste.

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 and procedures within the existing site boundary will follow the IR Sites QAPP. Samples will be obtained from the sample stations listed below. The IR Sites QAPP also describes the quality assurance/quality control policies and procedures that will be used during sample collection and analysis.

Sample Station	2 Depth Intervals (inches)
IR-133-SS01	(1) 0-6, (2) 6-18
IR-133-SS02	(1) 0-6, (2) 6-18
IR-133-SS03	(1) 0-6, (2) 6-18
IR-133-SS04	(1) 0-6, (2) 6-18
IR-133-SS05	(1) 0-6, (2) 6-18
IR-133-SS06	(1) 0-6, (2) 6-18
IR-133-SS08	(1) 0-6, (2) 6-18
IR-133-SS09	(1) 0-6, (2) 6-18
IR-133-SS10	(1) 0-6, (2) 6-18
IR-133-SS11	(1) 0-6, (2) 6-18
IR-133-SS12	(1) 0-6, (2) 6-18

All soil sampling and characterization activities beyond the existing site boundary at sample stations listed below will follow the Unreclaimed Sites QAPP.

Sample Station	3 Depth Intervals (inches)
IR-133-SS07	(3) 0-2, (4) 2-6, and (5) 6-12
IR-133-SS13	(3) 0-2, (4) 2-6, and (5) 6-12
IR-133-SS14	(3) 0-2, (4) 2-6, and (5) 6-12

This field work is anticipated to be completed in 2022.

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 – Insufficiently Reclaimed Sites BRES No. 133 Dexter Mill Proposed Sample Stations
 Attachment 1 - Document Links

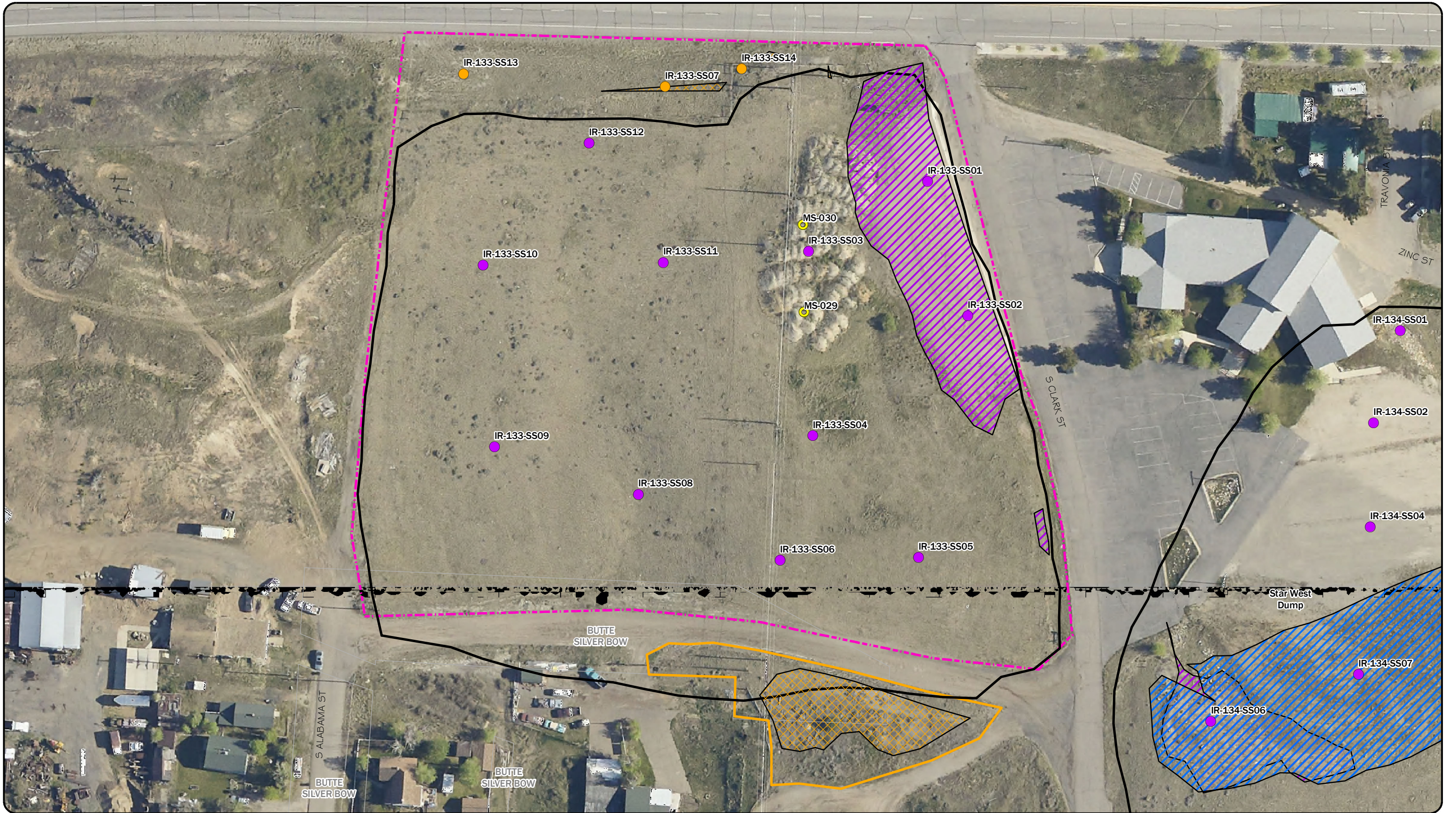
Cc: Patricia Gallery / Atlantic Richfield - email
Chris Greco / Atlantic Richfield – email
Josh Bryson / Atlantic Richfield - email
Loren Burmeister / Atlantic Richfield – email
Dave Griffis / Atlantic Richfield - email
Jean Martin / Atlantic Richfield - email
Irene Montero / Atlantic Richfield - email
David A. Gratson / Environmental Standards / email
Mave Gasaway / DGS - email
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 Duaima / 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

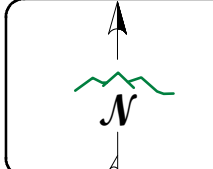
Figures

Figure 1 – Insufficiently Reclaimed Sites BRES No. 133 Dexter Mill Proposed Sample Stations



- LEGEND**
- SAMPLE UNDER IR QAPP
 - SAMPLE UNDER UR QAPP
 - HISTORIC SAMPLE STATIONS
 - PROPOSED IR BOUNDARY CHANGES
 - INSUFFICIENTLY RECLAIMED AREAS
 - PROPERTY OWNERSHIP
 - PROPOSED UNRECLAIMED SITE
 - BRES EVALUATION EXPOSED WASTE
 - BRES EVALUATION BARREN AREA
 - BRES EVALUATION VEGETATIVE IMPROVEMENT

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/BSB/AR/QSI 2020

0 35 70 140
Feet

FIGURE 1

INSUFFICIENTLY RECLAIMED SITES BRES No. 133 DEXTER MILL PROPOSED SAMPLE STATIONS

DATE: 5/16/2022

Attachment 1
Document Links

Document Links

Insufficiently Reclaimed Sites QAPP:

<https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/Eid2SfSSinhOsfQXY5CXGEOBe5IIf5IQO01hBO43ZROggg>⁴.

Unreclaimed Sites QAPP:

<https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/Ev1dhUeMuUdLjU8tnuV5RioBvJZRYc2HpgEjM9KzT-PpjQ>⁵.

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