Summer 8-2-2022

Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed Sites - Field Sampling and Investigation Plan (FSP) BRES No. 50 – Zelia

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August 2, 2022

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Re: Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed Sites - Field Sampling and Investigation Plan (FSP) BRES No. 50 – Zelia

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. 50 – Zelia per the Agency approval letter dated June 30, 2022. Comments provided in the approval letter are addressed within this Final FSP below. Note the area referenced in the comment letter south of the boundary shown on Figure 1 is not included in the sampling efforts described in this FSP as it appears to be a separate source area noncontiguous with the boundary presented in the Consent Decree (CD) Further Remedial Elements Scope of Work (FRESOW) Figure UR-1.

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

https://pioneertechnicalservices.sharepoint.com/:b:/s/submitted/EXor1NaqygZOuo5kk6yNcRMBDvlsefwW4faibjWxL3Srcw[1].

As described in Appendix D, Attachment C to the 2020 BPSOU 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 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 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.

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

The site evaluation will include a review of available previous BRES field evaluations and site construction completion reports. It will also include an on-site evaluation. The site evaluation will include additional sampling performed according to the Atlantic Richfield Company *2022 Final Insufficiently Reclaimed Quality 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/Eid2SfSSinhOsfQXY5CXGEoBe5IIf5IQO01hBO43ZROgpg[2].

The extents of sampling are shown on Figure 1 which includes proposed alterations to the expand the sampling boundary. Field sampling within the existing boundary will be performed per the 2022 IR QAPP to determine whether contaminants are present, if growth media is adequate, and if 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* (referred to as the Unreclaimed Sites QAPP) which also is a component of the BPSOU Solid Media Management Project Plan and 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. 50 – Zelia. 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 BHRS criteria, if any, are not met. The site will be evaluated following the Recreational Land Use for IR Samples and Residential Land Use for UR Samples to evaluate Waste Identification and Action Level Criteria provided in the Insufficiently Reclaimed and Unreclaimed Sites QAPPs. A remedial action work plan (RAWP) describing actions that will be implemented at the site will be provided for Agency review and approval.

[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.

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.

	Reference Location		
Element	**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.		Section3.2.5, Appendix C	Section 3.2.5, Appendix C

	Reference Location		
Element	**FSP**	**IR Sites QAPP**	**Unreclaimed Sites QAPP**
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 Zelia site (BRES No. 50) is a 0.05-acre plot owned by Butte-Silver Bow, located at the west end of Mullin Street. Reclamation was performed by ARCO in 1990 to 1991. Most of the mine waste was removed, and the area was sloped to match the surrounding topography. Lime rock from the Anaconda Quarry was applied at a rate of 350 tons per acre. Clean fill from the Minnie Irvine (BRES No. 1) borrow area was applied to a depth of 18 inches. A granular 11-52-0 fertilizer mix was dispersed at a rate of 300 pounds per acre. Following the application of the fertilizer, the area was chisel plowed, and a double disc drill seeder was used to plant the Walkerville EPA seed mixture at a rate of 20 pounds per acre. Straw was then spread at a rate of 2 tons per acre.

Previous Evaluation Findings

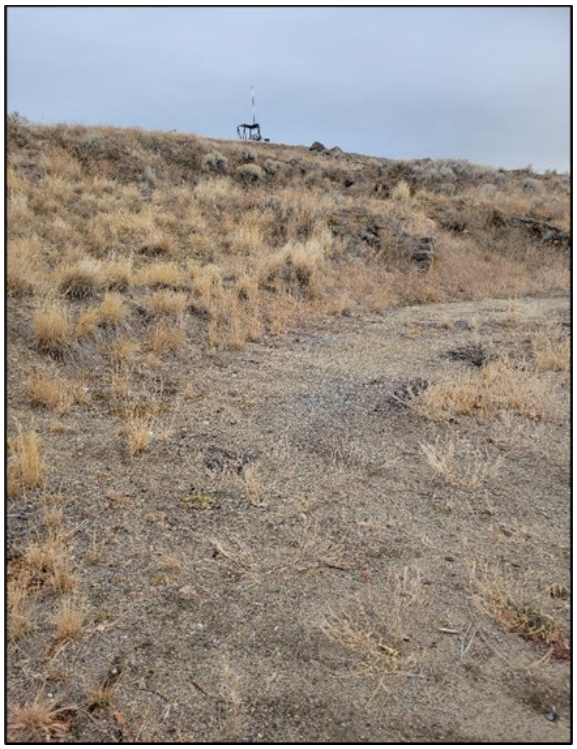
The site was evaluated in 2017 during the recurring BRES site evaluation process. A review of previous site evaluations will be incorporated into the current site evaluation, sampling, and future remedial action. A preliminary review of the 2017 evaluation indicates issues with site edges. Site edges contained mostly knapweed and toadflax. Flow patterns, soil movement, plant pedestals, and litter were also observed along the sloped faces of the site.

Previous Sampling Efforts

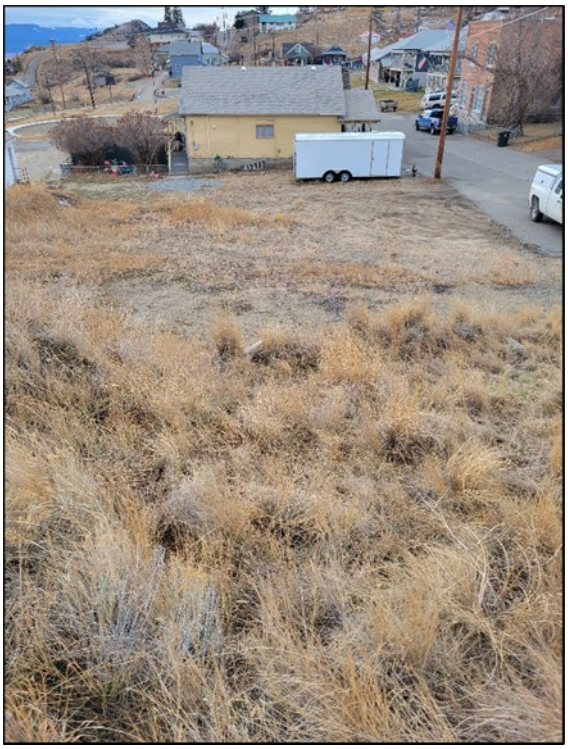
Previous sampling has been conducted per the Residential Metals Abatement Program in the surrounding area. Residential sampling results may be available upon request.

Preliminary Site Evaluation

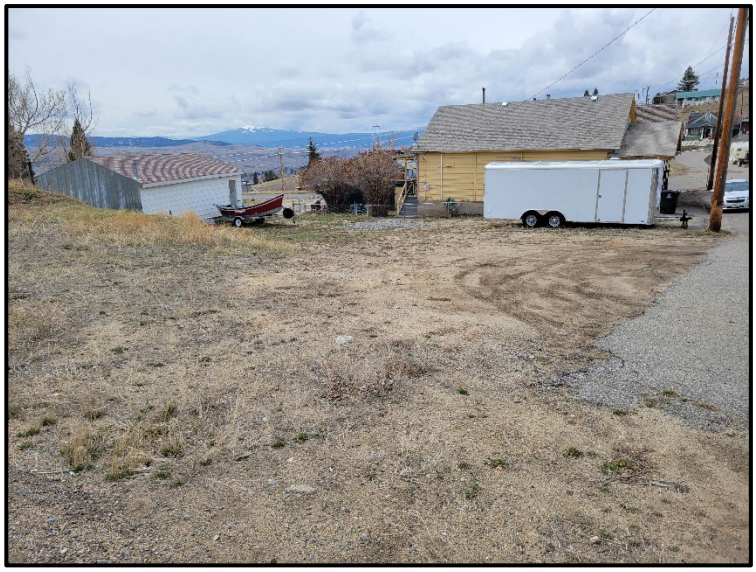
A preliminary site visit was conducted to qualify current site conditions and identify the focus areas for additional evaluation. Site photographs were taken during the preliminary site evaluation to capture site conditions. The photographs are included in this section for reference. The site consists of a barren parking area with gravel and fine material. Steep slopes appear to have bedrock outcropping throughout the slope. The site appears to exhibit weeds and undesirable species among native grasses throughout the barren areas and along the slopes' benches. Small barren areas are located throughout the hillside, consistent with a rock outcropping.



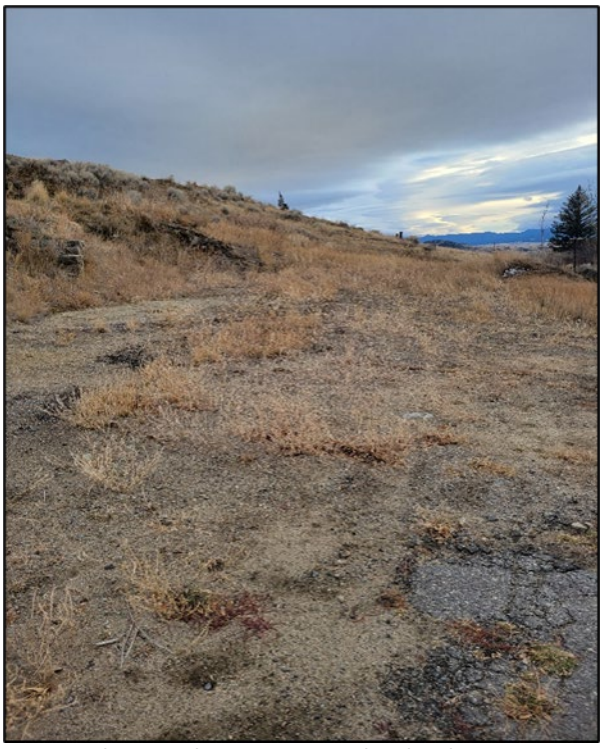
Photograph 1: Steep Slopes and Parking Area



Photograph 2: Parking Area with Vehicle Traffic



Photograph 3: Barren Area near Residential lot



Photograph 4: Fine Material and Sediment throughout Barren Area

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 mining related 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.

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 to consider. Additional items may be identified during the remedial design process.

- Investigate controlled site access requirements.
- Evaluate plant species cover to BHRS seed mix specifications.
    - Coordinate and confirm plant species with biology/plant ecologist or related subject matter expert.
- Evaluate potential site storm water controls to mitigate run-on/runoff.
- Identify remedial improvements to mitigate site erosion and vegetative areas to meet the BHRS.
- Identify maintenance items for successful long-term operation.

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 from the sample stations listed below will follow the IR Sites QAPP. 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-50-SS01	(1) 0-6, (2) 6-18
IR-50-SS02	(1) 0-6, (2) 6-18
IR-50-SS03	(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-50-SS04	(3) 0-2, (4) 2-6, and (5) 6-12
IR-50-SS05	(3) 0-2, (4) 2-6, and (5) 6-12
IR-50-SS06	(3) 0-2, (4) 2-6, and (5) 6-12

Fieldwork is anticipated to begin 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 McAnulty

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

Attachments:

Figure 1 – Insufficiently Reclaimed Sites BRES No. 50 Zelia Proposed Sample Stations
Attachment 1: Document Links

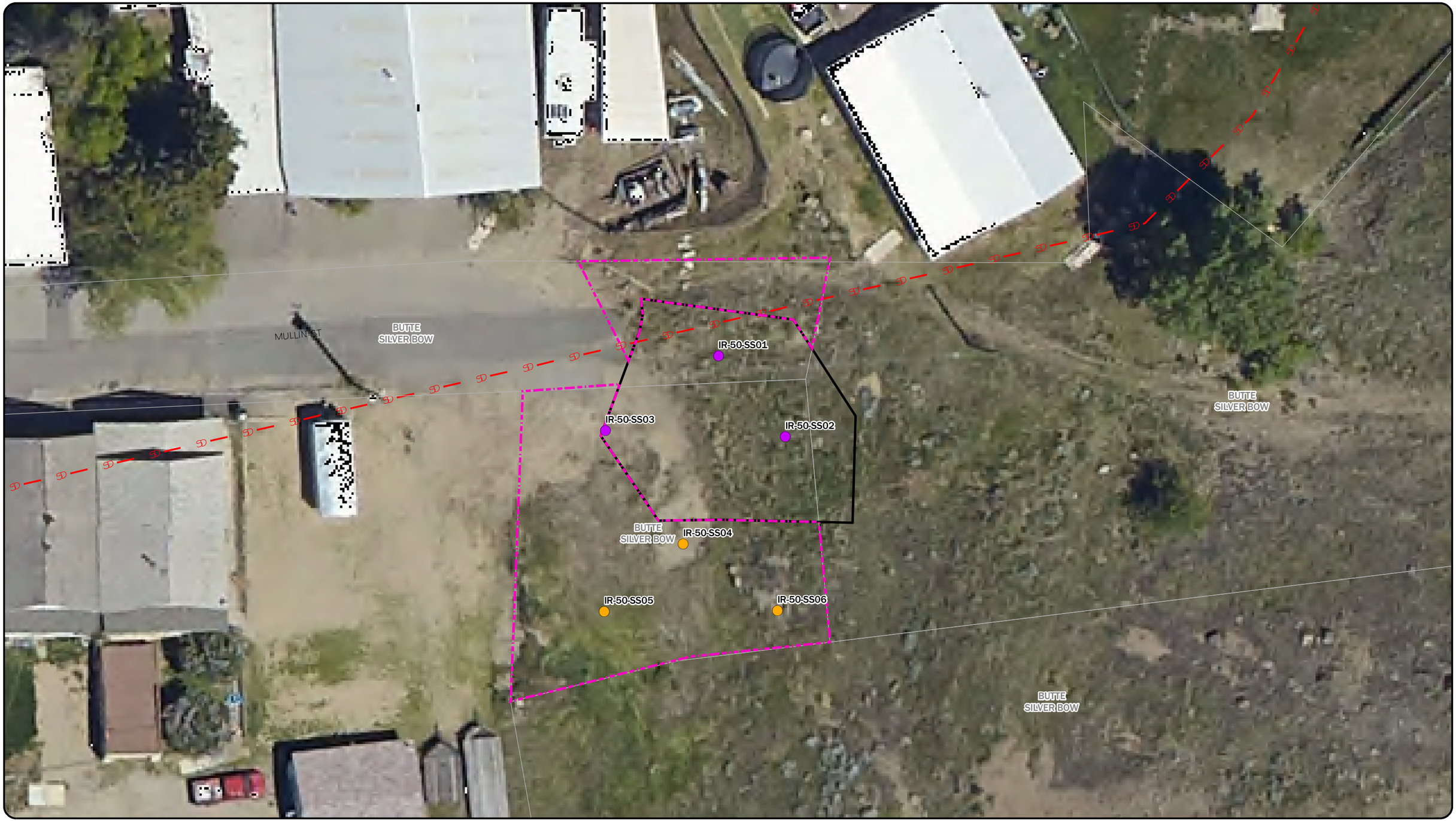
Cc: Patricia Gallery / Atlantic Richfield - email
Chris Greco / Atlantic Richfield – email
Josh Bryson / Atlantic Richfield - email
Loren Burmeister / Atlantic Richfield – email
Dave Griffis / Atlantic Richfield - email
Jean Martin / Atlantic Richfield - email
Irene Montero / Atlantic Richfield - email
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 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
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 IR-50 Zelia Proposed Sample Stations



LEGEND

- SAMPLE UNDER IR QAPP
- SAMPLE UNDER UR QAPP
- INSUFFICIENTLY RECLAIMED AREA
- PROPOSED IR BOUNDARY CHANGES
- PROPERTY OWNERSHIP
- SD — STORM WATER LINE

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

N

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

0 10 20 40
Feet

FIGURE 1

INSUFFICIENTLY RECLAIMED SITES BRES No. 50 ZELIA PROPOSED SAMPLE STATIONS

PIONEER TECHNICAL SERVICES, INC.

DATE: 3/4/2022

Path: Z:\Shared\Active Projects\ARCO\BPSOU\LandSupport\SolidMedia\Insufficiently_Unreclaimed\IR_Sampling\IR50_Fig_001_22.mxd

Attachment 1
Document Links

Document Links

Insufficiently Reclaimed Sites QAPP:

https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/Eid2SfSSinhOsfQXY5CXGEoBe5IIf5IQO01hBO43ZROgpg[4].

Unreclaimed Sites QAPP:

https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/Ev1dhUeMuUdLjU8tnuV5RioBvJZRYc2HpgEjM9KzT-PpjQ[5].

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