Summer 8-17-2022

Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed Sites - Field Sampling Plan (FSP) BRES No. 96 – Washoe Dump

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August 17, 2022

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Re: Butte Priority Soils Operable Unit (BPSOU) Final Insufficiently Reclaimed Sites - Field Sampling Plan (FSP) BRES No. 96 – Washoe Dump.

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 Reclamation Evaluation System (BRES) No. 96 – Washoe Dump per the Agency approval letter dated July 11, 2022.

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

https://pioneertechnicalservices.sharepoint.com/:b:/s/submitted/EZ7ePSa7OmhGqq2mv3NzPlcB5g0YFtedq9BLMgP603BPzA[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

[1] Please note that 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 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/Eid2SfSSinhOsfQXY5CXGEoBe5IIf5IQO01hBO43ZROgpg[2].

Field sampling within the existing boundary, shown on Figure 1, 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. 96 – Washoe Dump. Proposed soil sampling stations and areas of known deficiencies are shown on Figure 1. The site will be evaluated following the Commercial Land Use Waste Identification and Action Level Criteria provided in the IR QAPP. The site evaluation is anticipated to be completed in 2022.

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	8/2/2022

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.

	Reference Location	
Element	**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.		Section3.2.5, 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 Washoe Dump (BRES No. 96) is approximately 0.60 acres located along the intersection of Copper Street and Arizona Street. Reclamation was performed by ARCO in 1985. Waste dump material was removed, and a uniform slope was created using the cover soil for fill. About 500 cubic yards of cover material from stockpiles at the Hillcrest Dump area were placed on the site, followed by about 10 cubic yards of lime rock. A granular 20-20-10 fertilizer mix was broadcast at a rate of 300 pounds per acre. A double disc drill seeder was used to plant the ATP185 seed mixture at a rate of 30 pounds per acre. Wood fiber mulch was applied with a hydro seeder at a rate of 1 ton per acre.

In 1998, a 4-foot-wide trail consisting of road mix (Engineered Cover) was constructed along the north and west edges of the site. This trail section extends the site edge to the curb along Copper Street. Six inches of cover soil were placed in the small areas with little or no cover between the street and the Capri Motel. Dillon Manure was incorporated into the Landfill soil at a ratio of 6 to 1. Dillon Manure was spread over the cover soil at 30 dry tons per acre. The site was fertilized on July 20, 1998, with 60 pounds per acre of nitrogen, 80 pounds per acre of phosphorus pentoxide (P_2O_5) and 150 pounds per acre of potassium oxide (K_2O). Manure and fertilizer were chisel plowed to a 6-inch depth. Straw mulch was spread at the rate of 2 tons per acre and crimped into the cover soil on July 29, 1998. The site was then drill seeded on October 23, 1998, with 19 pounds per acre of the Primary Seed Mixture.

Previous Evaluation Findings

The Washoe Dump site was excluded from the 2018 BRES Evaluations. Vegetative improvement was recorded by Butte-Silver Bow (BSB) stating: BSB will scrape off two 3 x 10-meter stripes and seed with 2015 EPA approved Pal seed mix. The evaluation suggests that the Montana Tech Native Plant Program will plant 300 forbs and 20 shrubs on the site.

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 the BRES No. 96 – Washoe Dump. The approximate sample stations are shown 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.

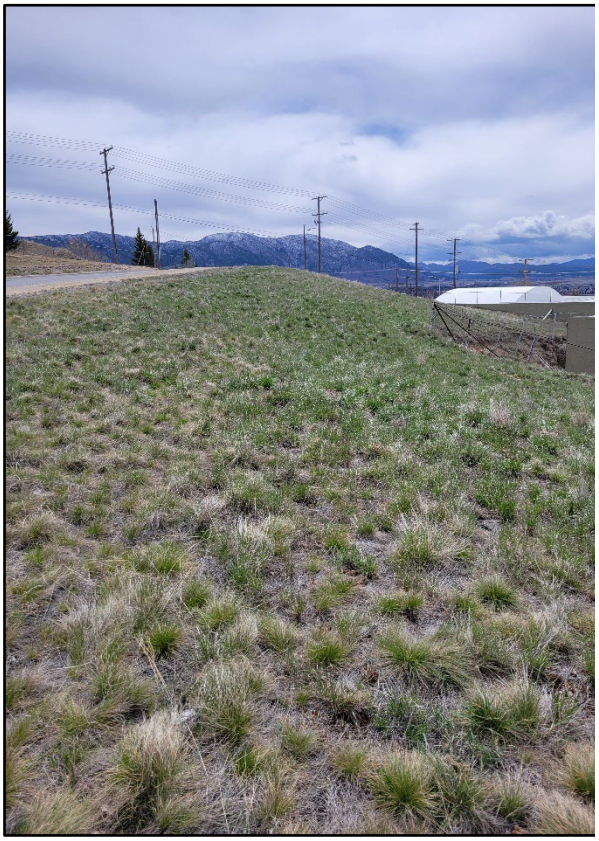
Table 1. Previous Sampling Results from BPSOU Soil Sampling

COCs	Sample ID: FSUA-21
Arsenic	68 mg/kg
Cadmium	0 mg/kg
Copper	870 mg/kg
Lead	740 mg/kg
Zinc	4,760 mg/kg
pH	3.80 S.U.-

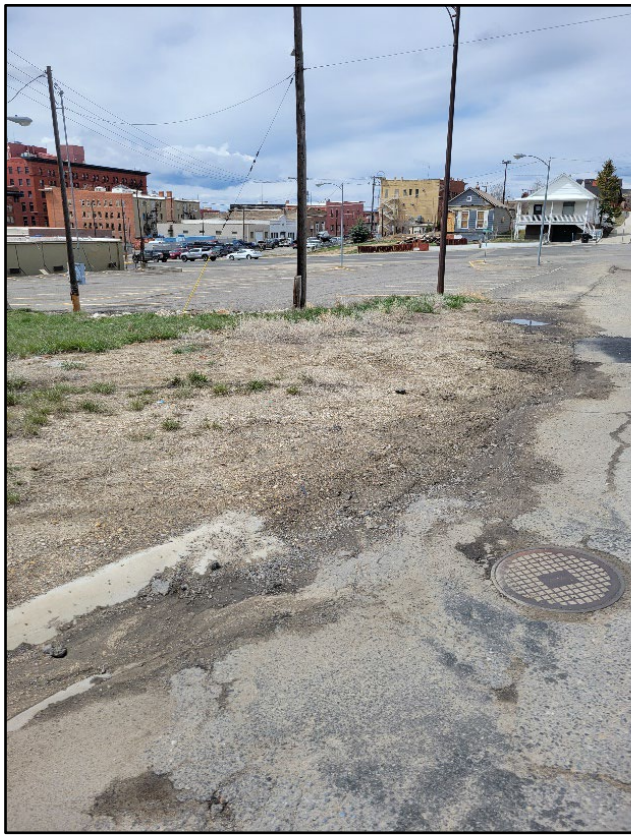
COC: Contaminant of concern. mg/kg: milligrams per kilogram. S.U.: standard unit.

Preliminary Site Evaluation

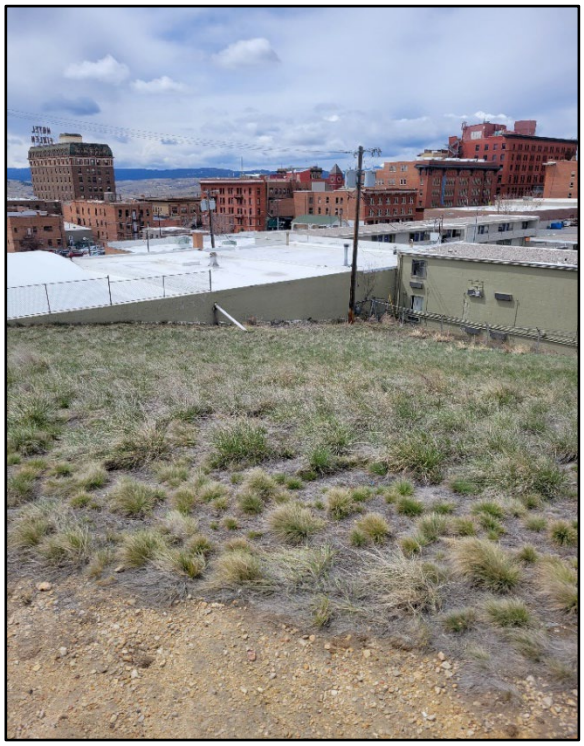
A preliminary site visit was conducted to better qualify existing site conditions and identify areas of focus for additional evaluation. Site photographs from the site investigation in the spring of 2022 are included in this section for reference. The site has a good vegetative cover with strong establishment throughout the entire area. Storm water run-on from nearby building rooftops and sediment moving along the east boundary to the north can be seen on Photograph 2 and Photograph 3. The east boundary along Copper Street has gravel material with one area containing different colored material, maybe iron staining (Photograph 4). The previous evaluation findings suggested that Montana Tech was going to plant forbs and shrubs on site, however, there was no evidence that the work has been conducted.



Photograph 1: Good Vegetation on North Boundary.



Photograph 2: Sediment Transporting along North Boundary.



Photograph 3: Storm Water may be Running onto Site from Roof Top.

Photograph 4: Staining Along the Walking Pathway.

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.
- Evaluate existing storm water controls designed for a 25-year, 24-hour Soil Conservation Service Type I storm event.
- Evaluate 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.

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 completed in 2022.

Sample Station	2 Depth Intervals (inches)
IR-96-SS01	(1) 0-6, (2) 6-18
IR-96-SS02	(1) 0-6, (2) 6-18
IR-96-SS03	(1) 0-6, (2) 6-18
IR-96-SS04	(1) 0-6, (2) 6-18
IR-96-SS05	(1) 0-6, (2) 6-18
IR-96-SS06	(1) 0-6, (2) 6-18
IR-96-SS07	(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.

A remedial action work plan describing actions to be implemented at the site will be developed separately, as needed, and provided for Agency review and approval.

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. 96 Washoe Dump 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

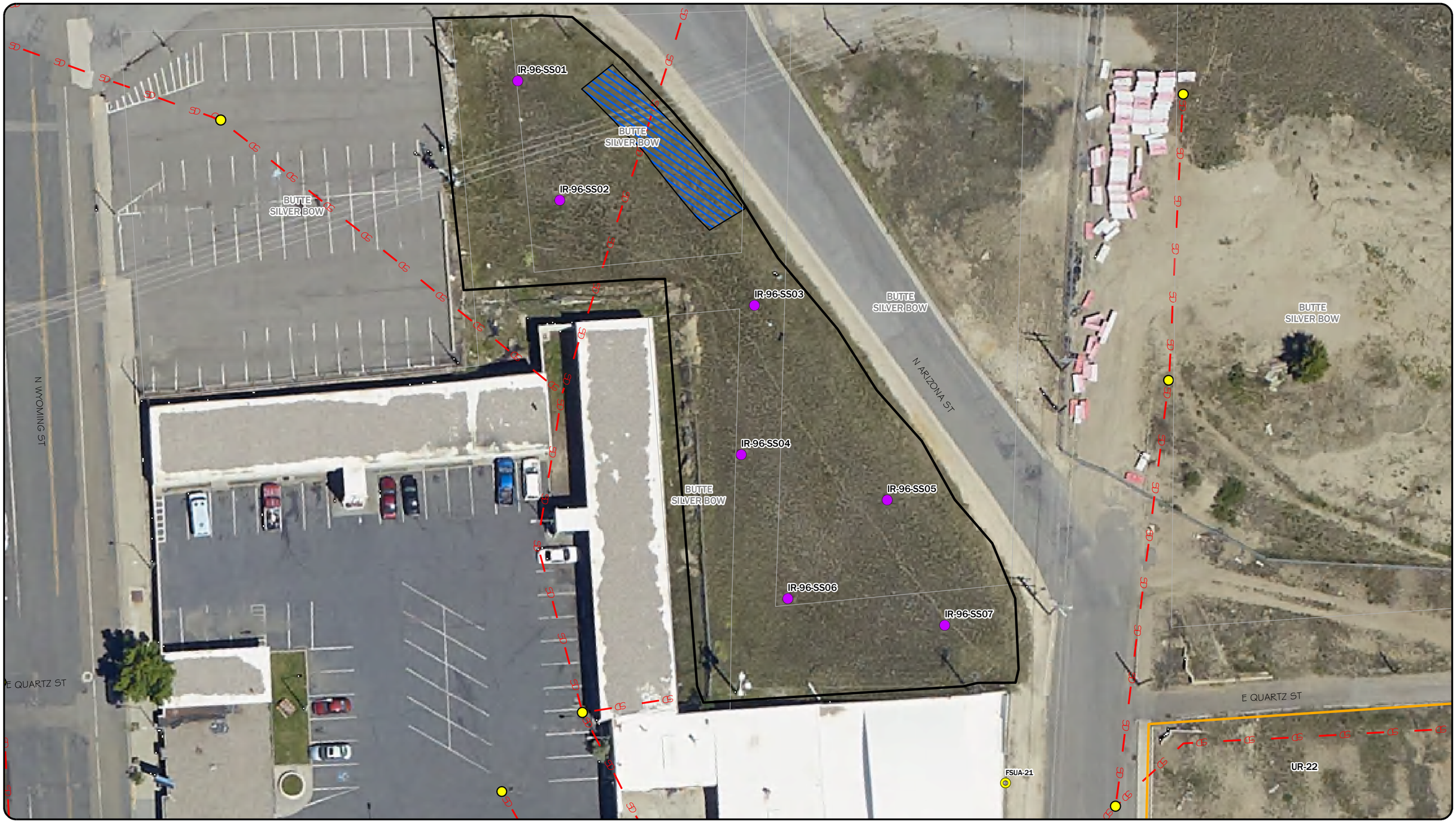
Joe Vranka / EPA - email
David Shanight / CDM - email
Curt Coover / CDM - email
James Freeman / DOJ - email
John Sither / DOJ - email
Dave Bowers / DEQ - email
Carolina Balliew / DEQ - email
Matthew Dorrington / DEQ – email
Wil George / DEQ – email
Jim Ford / NRDP - email
Pat Cunneen / NRDP - email
Harley 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 BRES No. 96 Washoe Dump Proposed Sample



LEGEND

- SAMPLE UNDER IR QAPP
- HISTORIC SAMPLE STATIONS
- INSUFFICIENTLY RECLAIMED AREA
- UNRECLAIMED SITES
- PROPERTY OWNERSHIP
- BRES EVALUATION VEGETATIVE IMPROVEMENT
- SD STORM WATER LINE
- STORM WATER INLET

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/AR/BSB/QSI 2020

0 17.5 35 70
Feet

FIGURE 1

INSUFFICIENTLY RECLAIMED SITES BRES No. 96 WASHOE DUMP PROPOSED SAMPLE STATIONS

PIONEER TECHNICAL SERVICES, INC.

DATE: 3/4/2022

Path: Z:\Shared\Active Projects\ARCO\BPSOU\LandSupport\SolidMedia\Insufficiently_Unreclaimed\IR_Sampling\IR96_Fig_001_22.mxd

Attachment 1
Document Links

Document Links

Insufficiently Reclaimed Sites QAPP:

https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/Eid2SfSSinhOsfQXY5CXGEoBe5IIf5IQO01hBO43ZROgpg[3].

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