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### **Butte Priority Soils Operable Unit (BPSOU) Draft Final Insufficiently Reclaimed Sites - Field Sampling Plan (FSP) BRES No. 16 - Curry**

Mike McAnulty

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**January 12, 2022**

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**Re: Butte Priority Soils Operable Unit (BPSOU) Draft Final Insufficiently Reclaimed Sites - Field Sampling Plan (FSP) BRES No. 16 - Curry.**

Dear Agency Representatives:

I am writing to you on behalf of Atlantic Richfield Company to submit the Butte Priority Soils Operable Unit (BPSOU) Draft Final Insufficiently Reclaimed Sites - Field Sampling and Investigation Plan (FSP) BRES No. 16 – Curry.

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 Insufficiently Reclaimed 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 Butte Reclamation Evaluation System (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 *2021-2022 Final Reclaimed Areas Maintenance and Monitoring (M&M) Quality Assurance Project Plan (QAPP)* (referred to as Reclaimed Areas M&M QAPP), which is a component of the BPSOU Solid Media Management Project Plan. The Reclaimed Areas M&M QAPP is available at the following link:



[https://pioneertechnicalservices.sharepoint.com/:b:/s/submitted/Ebj\\_4MWC5ENErHdG89yMF6QBIVjK5T1dpsi483fuVSAQWg](https://pioneertechnicalservices.sharepoint.com/:b:/s/submitted/Ebj_4MWC5ENErHdG89yMF6QBIVjK5T1dpsi483fuVSAQWg)<sup>1</sup>.

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 available at the following link:

<https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/EjBNYNYtQgpMv3YyC7R1-ZkBvRWHYn7u2JNU41VnChLuEA>.<sup>2</sup>

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 Insufficiently Reclaimed Site BRES No. 16 – Curry. Proposed soil sampling locations and areas of known deficiencies are shown on Figure 1.

The site evaluation is anticipated to be completed in spring 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. 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.

<b>Submittal</b>	<b>Site</b>	<b>Submittal Date</b>	<b>Approval Date</b>
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	
4	BRES No. 16 – Curry	1/12/2022	

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

<sup>2</sup> Please note that this link is active until June 2022.

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

Element	Reference Location		
	FSP	Reclaimed Areas M&M 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 2.6	Section 2.4, Section 3.2
Proposed schedule for field work.	X	Section 2.5.1	
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 3.3	Section 3.2, Table 4
Sample labeling and shipping.		Section 3.4.2	Section 3.2.5, Appendix C
Sample analysis specifying X-ray fluorescence (XRF) vs. laboratory analysis and laboratory name.		Section 2.7	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 Curry (BRES No. 16) is approximately .14 acres located near Knob Hill Road, and 3<sup>rd</sup> Street in Walkerville, Montana. Reclamation completed by ARCO in 1991 consisted of removing about 500 cubic yards of waste. Grading was performed on the south and west sides to a 4 Horizontal:1 Vertical (H:V) slope. The site was then capped by applying 350 tons per acre of lime rock, followed by 18 inches of cover material. Compacted areas were ripped with a chisel plow, and 11-52-0 (%nitrogen-%phosphorous-%potassium)-mixture of fertilizer applied at a rate of 300 pounds per acre. The site was then revegetated with the Walkerville EPA (WEPA) seed mixture applied at 20 pounds per acre with a double-disc drill seeder and straw 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 site evaluation, sampling, and future remedial action. A preliminary review of the 2017 evaluation findings indicates issues with vegetation, weeds, and site edges. Active erosion rills were developing across barren areas that may

have consisted of mining waste. The site was dominated by cheatgrass, spotted knapweed, white top, and salsify.

## 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 16 Curry. The approximate sample locations are included on Figure 1 with results provided in Table 1 below. Sample results do not exceed ROD Solid Media soil screening criteria. The BPSOU action levels are listed in Table 3 of the Reclaimed Areas M&M QAPP Section 2.6.1.

**Table 1: Previous Sampling Results from BPSOU Soil Sampling**

COCs	Sample ID: <b>TB-SO-05</b>
Arsenic	73 mg/kg
Cadmium	4 mg/kg
Copper	137 mg/kg
Lead	1190 mg/kg
Zinc	815 mg/kg
pH	4.6 S.U.

COC: contaminants 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 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 around the base of grasses. Although weed identification is difficult in winter months, it appears the site has limited weed establishment.





**Photograph 1: North Portion of Site is Well Vegetated**



**Photograph 2: Southwest Portion of Site is Well Vegetated**





Photograph 3: East Portion of Site Contains Minor Barren Areas

## Site Characterization Plan

Per the Reclaimed Areas M&M 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 locations. 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 Reclaimed Areas M&M 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 stormwater 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 site storm water controls to mitigate run-on/runoff.
- Identify remedial improvements to mitigate site erosion and vegetative areas to meet 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 Reclaimed Areas M&M QAPP. The Reclaimed Areas M&M QAPP also describes the quality assurance/quality control policies and procedures that will be used during sample collection and analysis.

<b>Sample Station</b>	<b>2 Depth Intervals (inches)</b>
IR-16-SS01	(1) 0-6, (2) 6-18
IR-16-SS02	(1) 0-6, (2) 6-18
IR-16-SS03	(1) 0-6, (2) 6-18
IR-16-SS04	(1) 0-6, (2) 6-18
IR-16-SS05	(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.



<b>Sample Station</b>	<b>3 Depth Intervals (inches)</b>
IR-16-SS06	(3) 0-2, (4) 2-6, and (5) 6-12
IR-16-SS07	(3) 0-2, (4) 2-6, and (5) 6-12
IR-16-SS08	(3) 0-2, (4) 2-6, and (5) 6-12

Fieldwork is anticipated to begin in spring of 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 McNulty*

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

### Attachments:

Figure 1 – IR Sites BRES – 16 Curry Proposed Sample Locations  
Attachment 1: Document Links

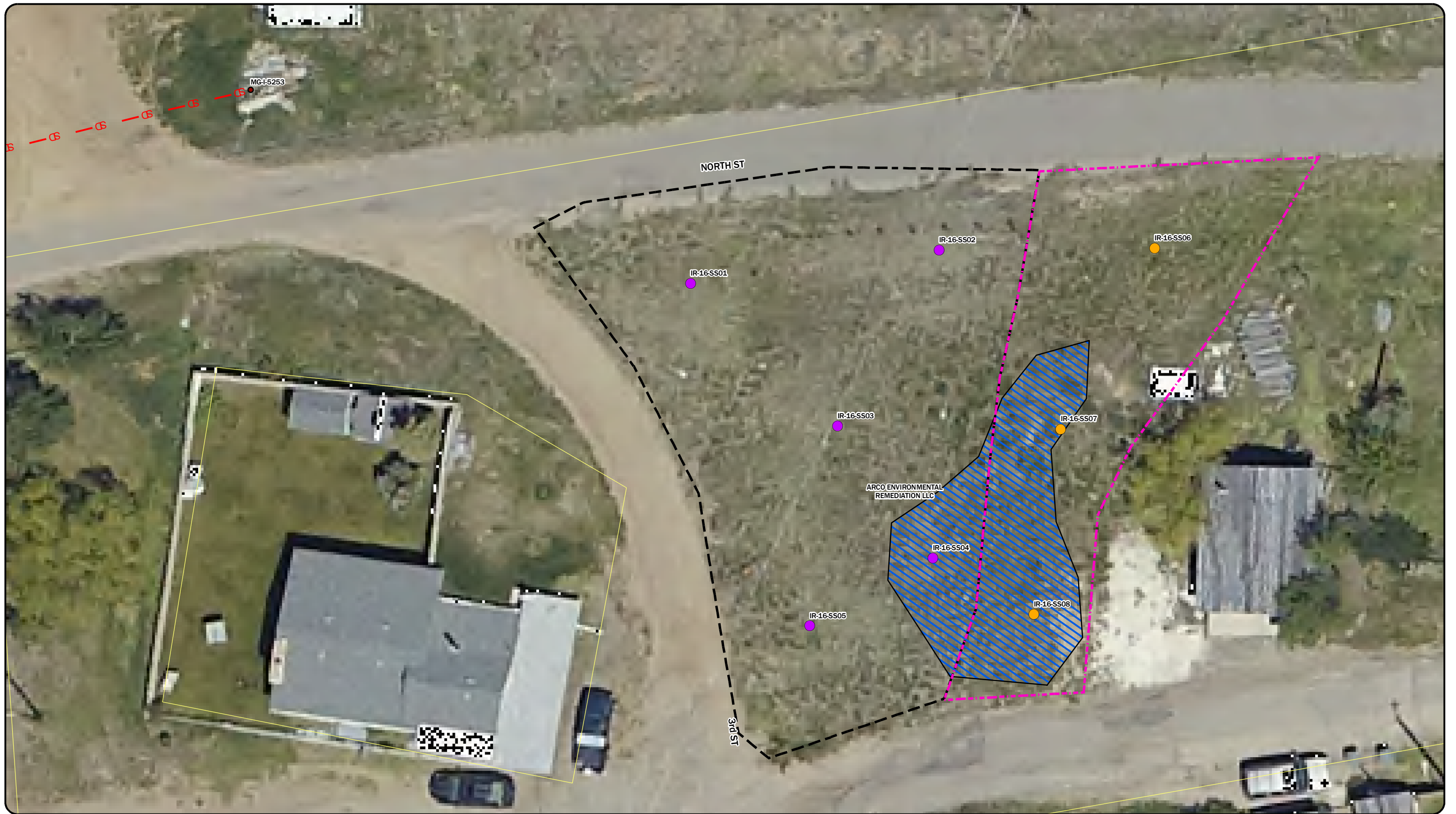
Cc: Patricia Gallery / Atlantic Richfield - email  
Chris Greco / Atlantic Richfield – email  
Josh Bryson / Atlantic Richfield – email  
Mike Mc Anulty / Atlantic Richfield - email  
Loren Burmeister / Atlantic Richfield – email  
Dave Griffis / Atlantic Richfield - email  
Jean Martin / Atlantic Richfield - email  
Irene Montero / Atlantic Richfield - email  
David A. Gratson / CEAC / 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

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 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  
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  
Karen Maloughney / 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

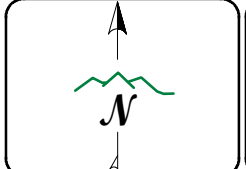
File: MiningSharePoint@bp.com - email  
BPSOU SharePoint – upload

**Figure 1**  
Insufficiently Reclaimed Sites BRES-16 Curry  
Proposed Sample Locations



**LEGEND**

<b>Proposed Sample Locations</b>	INSUFFICIENTLY RECLAIMED AREA	BRES EVALUATION VEGETATIVE IMPROVEMENT
<b>QAPP_Program</b>	PROPOSED IR SAMPLE BOUNDARY	STORM WATER INLET
Sample Under IR QAPP	PROPERTY OWNERSHIP	STORM WATER LINE
Sample Under UR QAPP		
Historic Sample Location		



DISPLAYED AS:  
 PROJECTION/ZONE: MSP  
 DATUM: NA  
 UNITS: INTL FT  
 SOURCE: PIONEER/QSI2020

0 5 10 20  
Feet

**FIGURE 1**

**INSUFFICIENTLY RECLAIMED SITES**  
 BRES-16  
 CURRY  
 PROPOSED SAMPLE LOCATIONS

DATE: 12/2/2021



**Attachment 1**  
Document Links

## Document Links

### Reclaimed Areas M&M QAPP:

[https://pioneertechnicalservices.sharepoint.com/:b:/s/submitted/Ebj\\_4MWC5ENErHdG89yMF6QBIvjK5T1dpsi483fuVSAQWg](https://pioneertechnicalservices.sharepoint.com/:b:/s/submitted/Ebj_4MWC5ENErHdG89yMF6QBIvjK5T1dpsi483fuVSAQWg)<sup>3</sup>.

### Unreclaimed Sites QAPP:

<https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/EjBNYNYtQgpMv3YyC7R1-ZkBvRWHYn7u2JNU41VnChLuEA>.<sup>4</sup>

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

<sup>4</sup> Please note that this link is active until June 2022.