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## **Draft Final 2023 RMAP Baptist Student Union (former McKinley School) Soil Remedial Action Work Plan (RAWP)**

Pioneer Technical Services, Inc.

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# Atlantic Richfield Company

**Mike Mc Anulty**

Liability Manager

317 Anaconda Road

Butte MT 59701

Direct (406) 782-9964

Fax (406) 782-9980

August 8, 2023

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: Draft Final 2023 RMAP Baptist Student Union (former McKinley School) Soil Remedial Action Work Plan (RAWP)**

Agency Representatives:

I am writing to you on behalf of Atlantic Richfield Company and Butte-Silver Bow to submit the Draft Final 2023 Residential Metals Abatement Program (RMAP) Baptist Student Union (former McKinley School) Soil Remedial Action Work Plan (RAWP). The report and appendices may be downloaded at the following link:

<https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/EI WV22u9ce1n7UiAeDHCYcBhST6ZZSCjhb2FVBJi9Czw>.

If you have any questions or comments, please call me at (907) 355-3914 or Eric Hassler at (406) 497-5042.

Sincerely,



---

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

---

Eric Hassler, Director  
Department of Reclamation  
and Environmental Services  
Butte-Silver Bow



# Atlantic Richfield Company

## Mike Mc Anulty

Liability Manager

317 Anaconda Road

Butte MT 59701

Direct (406) 782-9964

Fax (406) 782-9980

Cc: 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  
Adam Cohen / DGS – email  
Brianne McClafferty / Holland & Hart – email  
David Shanight / CDM – email  
Curt Coover / CDM – email  
James Freeman / DOJ – email  
Amy Steinmetz / DEQ – email  
Dave Bowers / DEQ – email  
Carolina Balliew / DEQ – email  
Katie Garcin-Forba / DEQ – email  
Jim Ford / NRDP – email  
Pat Cunneen / NRDP – email  
Katherine Hausrath / NRDP – email  
Ted Duaine / MBMG – email  
Gary Icopini / MBMG – email  
Becky Summerville / MR – email  
John DeJong / 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  
Doug Brannan / Kennedy Jenks – email  
Matthew Mavrinac / RARUS – email  
Harrison Roughton / RARUS – email  
Brad Gordon / RARUS – email  
Mark Neary / BSB – email  
Julia Crain / BSB – email  
Brandon Warner / BSB – email  
Abigail Peltomaa / BSB – email  
Eileen Joyce / BSB – email  
Sean Peterson/BSB – email  
Josh Vincent / WET – email  
Scott Bradshaw / W&C – email  
Emily Stoick / W&C – email

# Atlantic Richfield Company

## Mike Mc Anulty

Liability Manager

317 Anaconda Road

Butte MT 59701

Direct (406) 782-9964

Fax (406) 782-9980

Pat Sampson / Pioneer – email

Andy Dare / Pioneer – email

Karen Helfrich / 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

---

**SILVER BOW CREEK/BUTTE AREA NPL SITE  
BUTTE PRIORITY SOILS OPERABLE UNIT**

---

*Draft Final*

*2023 Residential Metals Abatement Program (RMAP)  
Baptist Student Union (former McKinley School)  
Soil Remedial Action Work Plan (RAWP)*

*Butte-Silver Bow County*

and

*Atlantic Richfield Company*

August 8, 2023

---

**SILVER BOW CREEK/BUTTE AREA NPL SITE  
BUTTE PRIORITY SOILS OPERABLE UNIT**

---

*Draft Final*

***2023 Residential Metals Abatement Program (RMAP)  
Baptist Student Union (former McKinley School)  
Soil Remedial Action Work Plan (RAWP)***

Prepared for:

***Butte-Silver Bow County***  
Superfund Division  
155 W. Granite Street  
Butte, Montana 59701

and

***Atlantic Richfield Company***  
317 Anaconda Road  
Butte, Montana 59701

Prepared by:

***Pioneer Technical Services, Inc.***  
1101 S. Montana Street  
Butte, Montana 59701

**August 8, 2023**

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- Attachment C Fabric Specification Sheet
- Attachment D Type B Borrow Stockpile Data
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- Attachment E Agency Approved Kaw Avenue Borrow Stockpile Data
  - Attachment E-1 Energy Laboratories, Inc. Data Report
  - Attachment E-2 Pace Analytical Services, LLC Data Report

## DOCUMENT MODIFICATION SUMMARY

Modification	Author	Version	Description	Date
0	Jesse Schwarzrock	Draft	Issued for Internal Review	08/07/23
0	Jesse Schwarzrock	Draft Final	Issued for Agency Review	08/08/23



## **1.0 INTRODUCTION**

This Remedial Action Work Plan (RAWP) outlines a portion of the remedial action (RA) work resulting from the 2023 Residential Metals Abatement Program (RMAP) park soil sampling event that began in June 2023 and is currently ongoing. The sampling event was conducted according to the *Final 2023 Residential Metals Abatement Program (RMAP) Quality Assurance Project Plan (QAPP) Annual Update (Non-Residential Parcels)* (Butte-Silver Bow County and Atlantic Richfield Company, 2023) and the *Final 2022 Residential Metals Abatement Program (RMAP) Park Soil Sampling Field Sampling Plan (FSP) Submittal #6 [Covering Stodden Park, Baptist Student Union, Minor Park, Blacktail Lane, Earth Lane, Fleecer Drive, Boulevard (Josette), Boulevard (Lasalle), and Sesame-Sage]* (Butte-Silver Bow County and Atlantic Richfield Company, 2022).

## **2.0 SOIL REMEDIATION SCOPE**

The scope of work covered by this RAWP includes the following site(s):

- Baptist Student Union (former McKinley School) (see Table 1).

## **3.0 SOIL REMEDIATION SCHEDULE**

Remedial activities will be completed during the 2023 construction season. Relevant stakeholders will review all scheduling decisions to ensure minimal disturbance to the public.

## **4.0 BAPTIST STUDENT UNION REMEDIAL ACTION WORK PLAN**

Remediation at the Baptist Student Union site (Figure 1) consists of two polygons totaling approximately 0.04 acre. The remedial polygons represent a play area (HA1) immediately west of the church and two small flower garden areas (G1) just south of the play area:

- Polygon HA1 (1,528 square feet).
- Polygon G1 (96 square feet).

The remedial polygon HA1 has a thin wood bark cover present over the soil that was tested. The Individual Site Work Plan (ISWP) is provided in Attachment A.

### **4.1 Excavation**

The HA1 polygon has lead exceedances to a depth of 12 inches. The G1 polygon has lead exceedances to a depth of 24 inches. Based on this information, the removal area will be dictated by the original sampling polygon areas with the RMAP maximum removal depth for each polygon (14 inches below the existing surface for HA1 and 26 inches below the existing surface for G1) (see Figure 2 and Figure 3).

A 1-foot mandatory buffer will be maintained around all existing utilities. If achieving the removal depth means encroaching within the 1-foot mandatory utility buffer, excavation work

will stop at the 1-foot-from-utility mark. No removal work will take place within 1 foot of existing utilities. As mandated by Atlantic Richfield Company's (Atlantic Richfield's) *Remediation Management – Control of Work Defined Practices*<sup>1</sup>, mechanical excavation is not allowed within 2 feet of existing utilities. Therefore, any excavation work within 2 feet of the utility will be excavated by hand. The excavation depth will be measured from below the existing sod mat, where applicable.

All excavated material will be disposed of within the Butte Mine Waste Repository (see Figure 4). Crews will verify the depth of the excavation area using a hand tape for measurement and using existing perimeter features (i.e., the elevation of the concrete curbing/tree areas/native soil around the excavation perimeter).

Care will be taken to protect existing asphalt paving and concrete sidewalks and curbing in and around the work area. If any of this existing infrastructure is damaged, it will be replaced/repared.

If excavations are not able to be backfilled during the same shift that they were developed, Site control measures will be implemented during non-working hours. This may include perimeter control via safety cones and caution tape, construction fencing, or other approved methods.

#### **4.2 Backfill**

Once the on-Site Environmental Protection Agency (EPA) representative approves the excavation area, backfill work will begin (see Details 1 and 2 on Figure 2). A 2-inch-thick layer of sugar beet lime (see Section 5.1, Attachment B, and Attachment B-1) will be placed at the bottom of the excavation in case there are pH issues in underlying native soil.

Once the lime layer is in place, a separation fabric (see Section 5.2 and Attachment C) will be placed, consistent with current RMAP practices. The separation fabric will indicate the boundary between remediated and native soil for any future excavation work in this area.

Once the separation fabric is installed, HA1 is anticipated to receive 12 inches of Type B fill material (see Section 5.4, Attachment D, and Attachment D-1), and G1 will receive 24 inches of Type A growth medium material (see Section 5.4, Attachment E, Attachment E-1, and Attachment E-2). Backfill materials will not be compacted to attain a specific density and moisture content but will be slightly compacted to impede future settling of the backfill material. Backfill materials may change pending forthcoming discussions with church officials.

#### **4.3 Revegetation**

Revegetation is not anticipated for this site, pending discussions with church officials. It is anticipated that HA1 will receive a wood chip cover, or equivalent. G1 is a garden and therefore will not require any surface materials.

---

<sup>1</sup> This document is an Atlantic Richfield Company internal document.

#### **4.4 Dust Control**

This work will be performed within a residential area; consequently, controlling fugitive dust emissions is a high priority. If fugitive dust emissions become significant during the work, all work will be shut down until alternative and satisfactory dust control methods are determined. The contractor will be responsible for acquiring water for dust control from a source of the contractor's choice.

#### **4.5 Best Management Practices**

Best management practices (BMPs) will be installed, as necessary, to ensure sediment does not leave the work area.

### **5.0 MATERIALS**

The following sections describe the materials that will be used in completion of the above described RA, including lime, geotextile fabric, growth medium, and sod.

#### **5.1 Sugar Beet Lime Source**

Western Sugar Cooperative in Billings, Montana, is providing the sugar beet lime. This material was hauled from Billings to Atlantic Richfield property in Butte in August and September 2022 (see stockpile location on Figure 5) in case RA construction activities started late in 2022. Trucks were diverted to Butte from an existing haul to the Anaconda Smelter National Priorities List Site. Internal quality assurance data from the two months preceding delivery to Butte are provided in Attachment B. The corresponding laboratory reports are in Attachment B-1.

#### **5.2 Fabric Materials**

Geotex 801 will be used for the separation fabric to provide a barrier between the imported backfill materials and native soil. The material specifications are in Attachment C.

#### **5.3 Type B Backfill Borrow Source**

Type B fill material is anticipated to be used for all required backfill material within HA1 (pending discussions with church officials). Atlantic Richfield Company developed this fill material within the South Borrow Area of Remedial Design Unit (RDU) 8 of the Anaconda Smelter National Priorities List Site in November 2020 (the location is shown on Figure 6) and screened it to a 6-inch minus product. The quality assurance data are provided in Attachment D, and the corresponding laboratory reports are in Attachment D-1. Because this material is fill material (not growth medium), only metals data are provided consistent with past EPA requests in Anaconda.

#### **5.4 Type A Growth Medium Borrow Source**

The Kaw Avenue Type A growth medium borrow stockpile will be used for all required backfill material within G1 (the stockpile location is shown on Figure 7). The Agency-approved quality assurance data are provided in Attachment D, and the corresponding laboratory reports are located in Attachment D-1 and Attachment E-2.

#### **5.5 Sod**

Sod is not anticipated to be needed for this site, pending discussions with church officials. If needed, Kentucky bluegrass sod will be procured from Summit Valley Turf in Whitehall, Montana.

## **6.0 REFERENCES**

Butte-Silver Bow County and Atlantic Richfield Company, 2023. Final 2023 Residential Metals Abatement Program (RMAP) Quality Assurance Project Plan (QAPP) Annual Update (Non-Residential Parcels). Silver Bow Creek/Butte Area NPL Site Butte Priority Soils Operable Unit. June 22, 2023.

Butte-Silver Bow County and Atlantic Richfield Company, 2022. Final 2022 Residential Metals Abatement Program (RMAP) Park Soil Sampling Field Sampling Plan (FSP) Submittal #6 [Covering Stodden Park, Baptist Student Union, Minor Park, Blacktail Lane, Earth Lane, Fleecer Drive, Boulevard (Josette), Boulevard (Lasalle), and Sesame-Sage]. Silver Bow Creek/Butte Area NPL Site Butte Priority Soils Operable Unit. June 27, 2022.

## **Figures**

**Figure 1. P-0032 Baptist Student Union Site Overview**

**Figure 2. Removal Cross Sections**

**Figure 3. Removal Details**

**Figure 4. Mine Waste Repository Location**

**Figure 5. Sugar Beet Lime Stockpile Location**

**Figure 6. Type B Borrow Stockpile Location**

**Figure 7. Kaw Avenue Borrow Stockpile Location**



**NOTES:**

1. HA1 WILL BE REMEDIATED PER DETAIL 1 ON FIGURE 2.
2. G1 WILL BE REMEDIATED PER DETAIL 2 ON FIGURE 2.
3. WORK AROUND UTILITIES/UTILITY CORRIDORS WILL BE IN ACCORDANCE WITH BP'S CURRENT GROUND DISTURBANCE POLICY.



**LEGEND**

- No Action Required
- 14" Removal
- 26" Removal
- Non-Samplable Area



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 SOURCE: PIONEER  
  
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 Feet

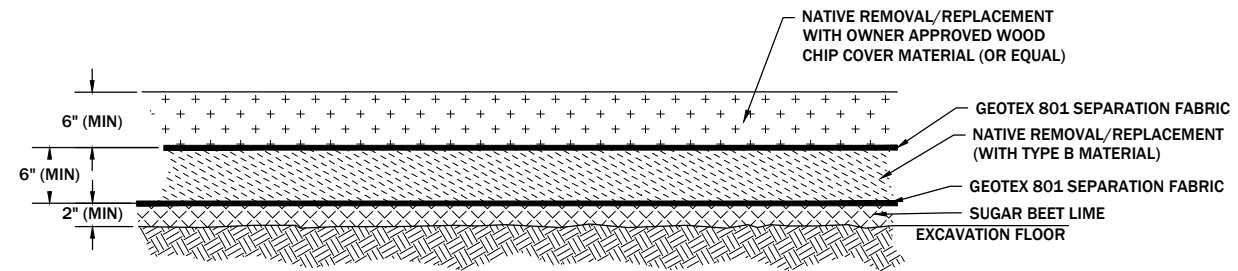
**FIGURE 1**



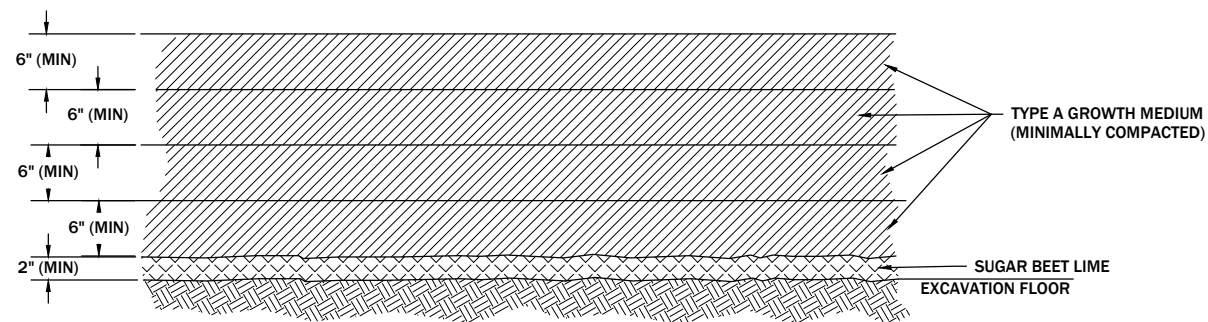
P-0032  
**BAPTIST STUDENT UNION  
 SITE OVERVIEW**

DATE: 8/7/2023





**HA1 REMOVAL/REPLACEMENT DETAIL** (1)



**G1 REMOVAL/REPLACEMENT DETAIL** (2)

DISPLAYED AS: \_\_\_\_\_  
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 DATUM: \_\_\_\_\_  
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 SOURCE: \_\_\_\_\_

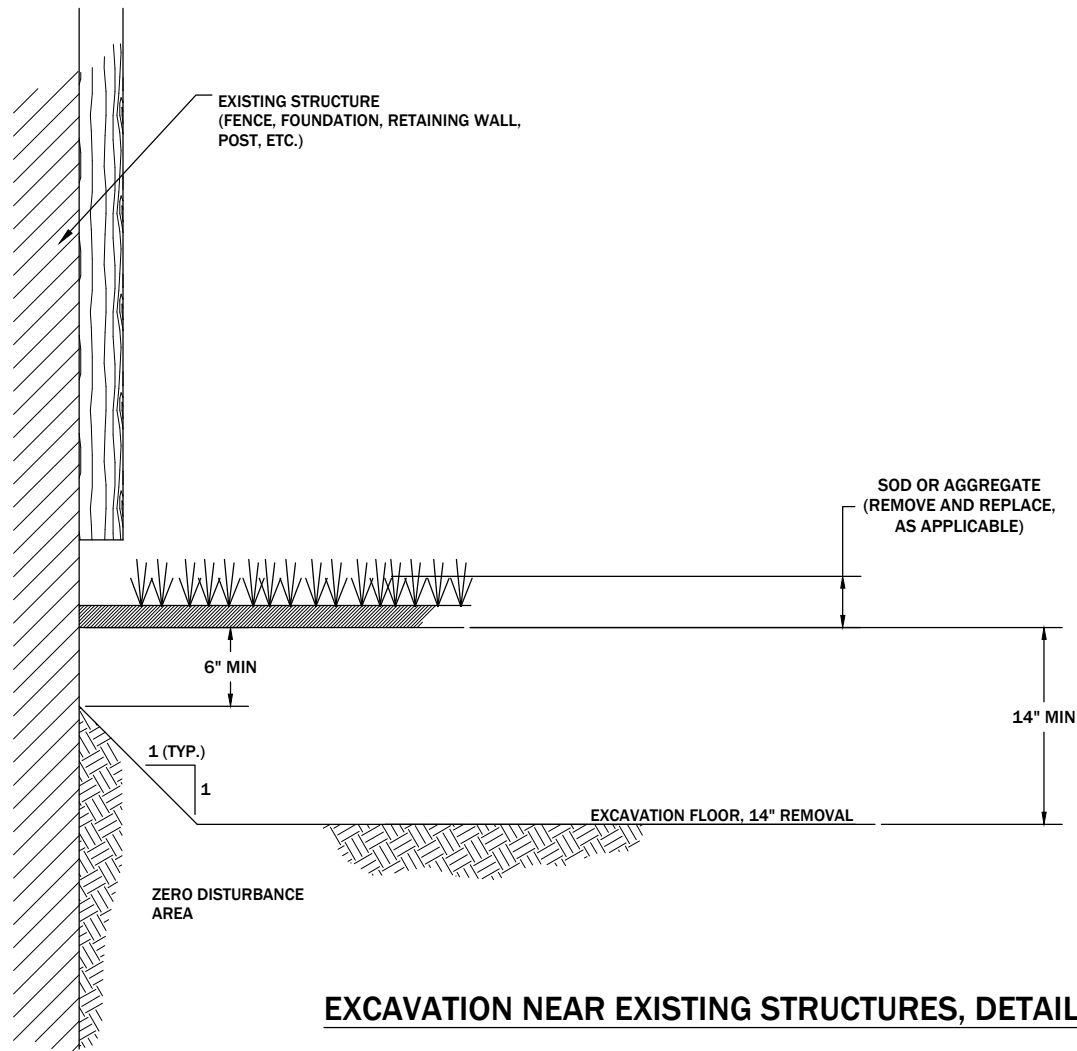
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**FIGURE 2**

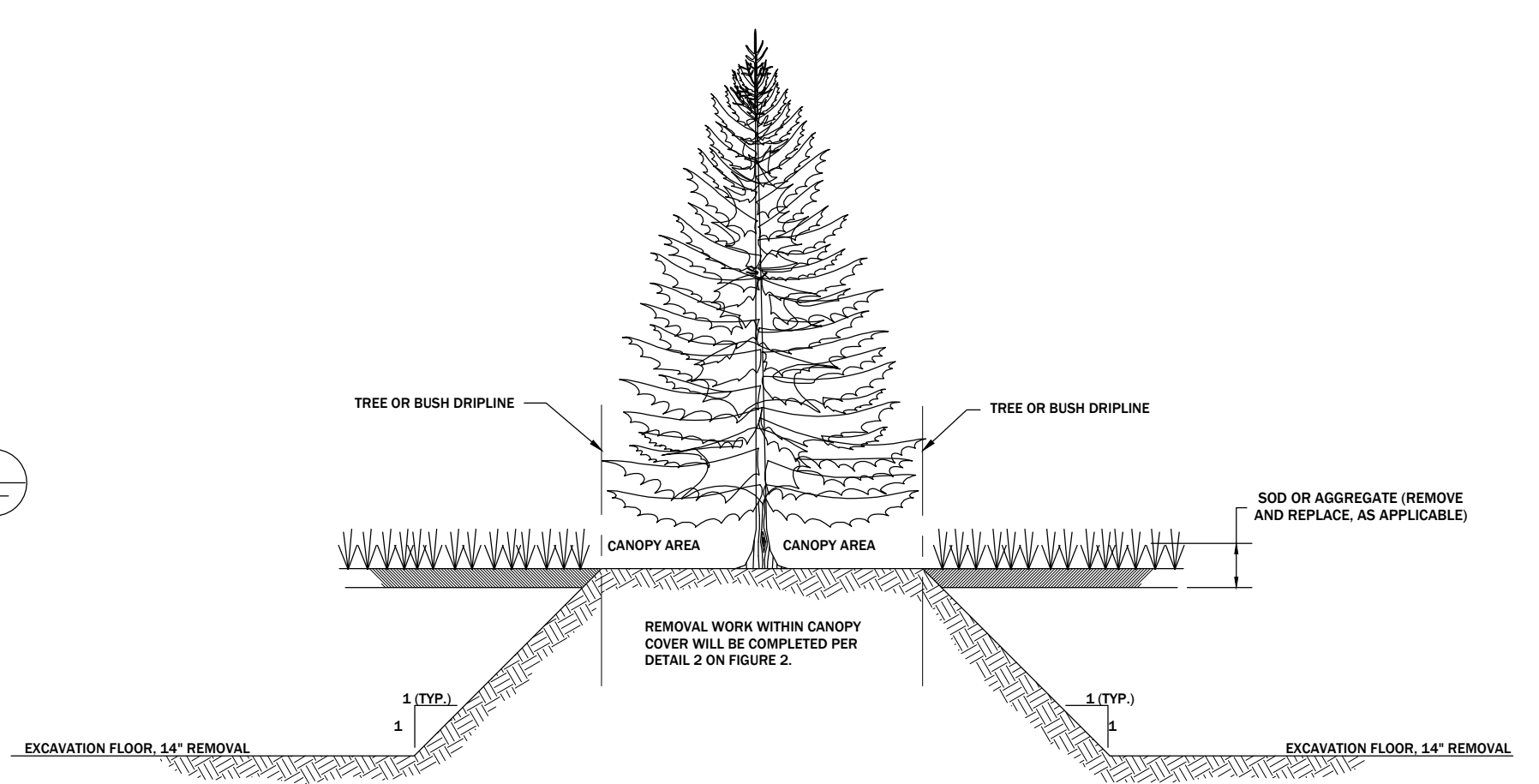
**REMOVAL CROSS SECTIONS**

DATE: 8/7/2023





**EXCAVATION NEAR EXISTING STRUCTURES, DETAIL** 3



**EXCAVATION NEAR EXISTING TREES, BUSHES, AND SHRUBS, DETAIL** 4

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**FIGURE 3**

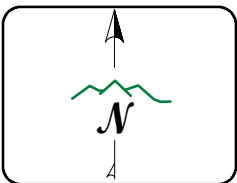
**REMOVAL  
DETAILS**

DATE: 8/7/2023





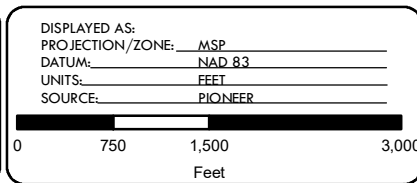
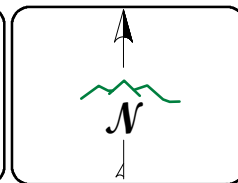
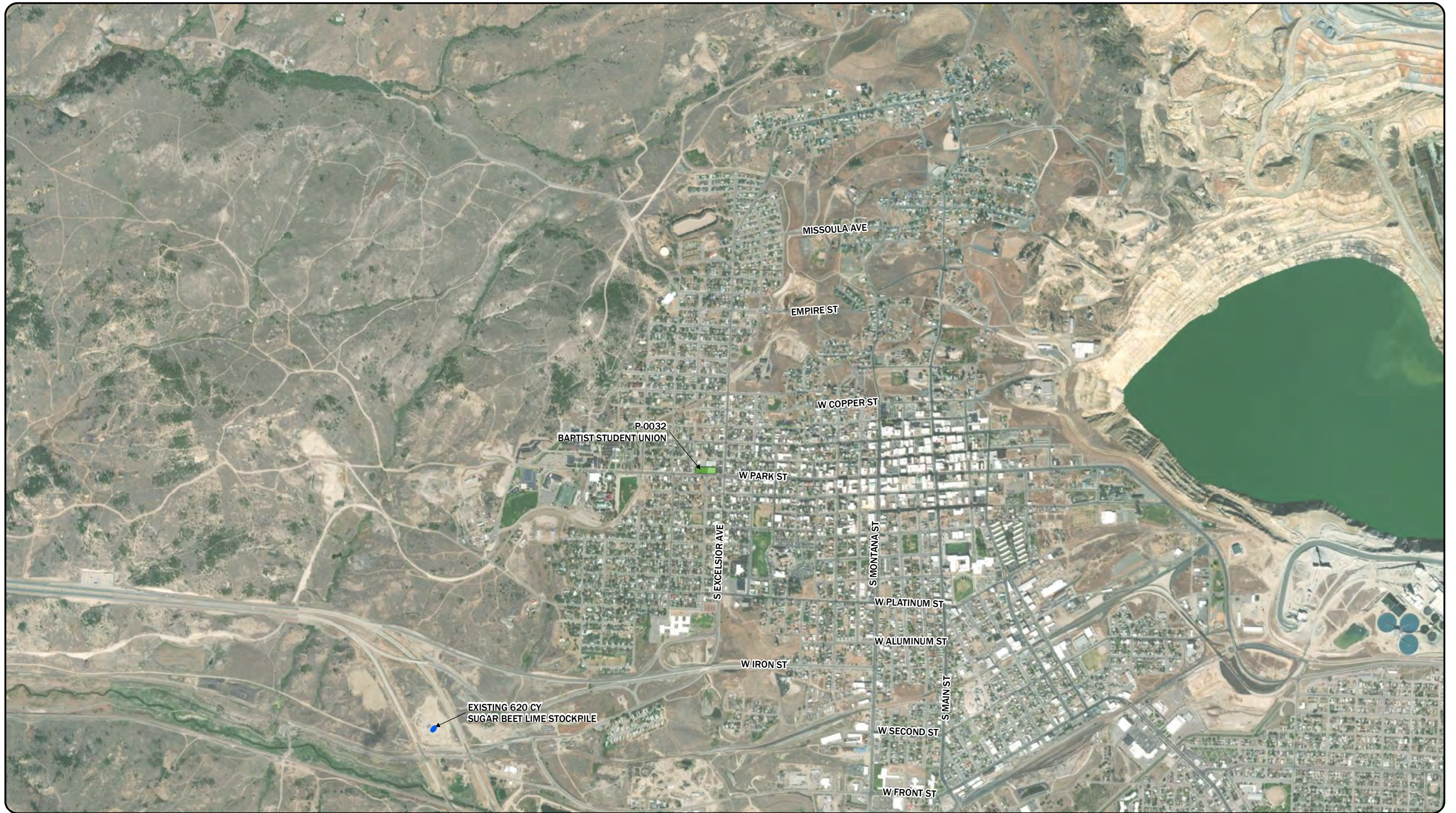
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 Feet

**FIGURE 4**  
  
**MINE WASTE REPOSITORY LOCATION**  
 DATE: 8/7/2023



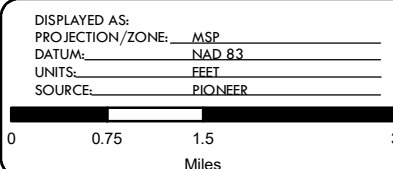
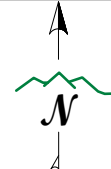
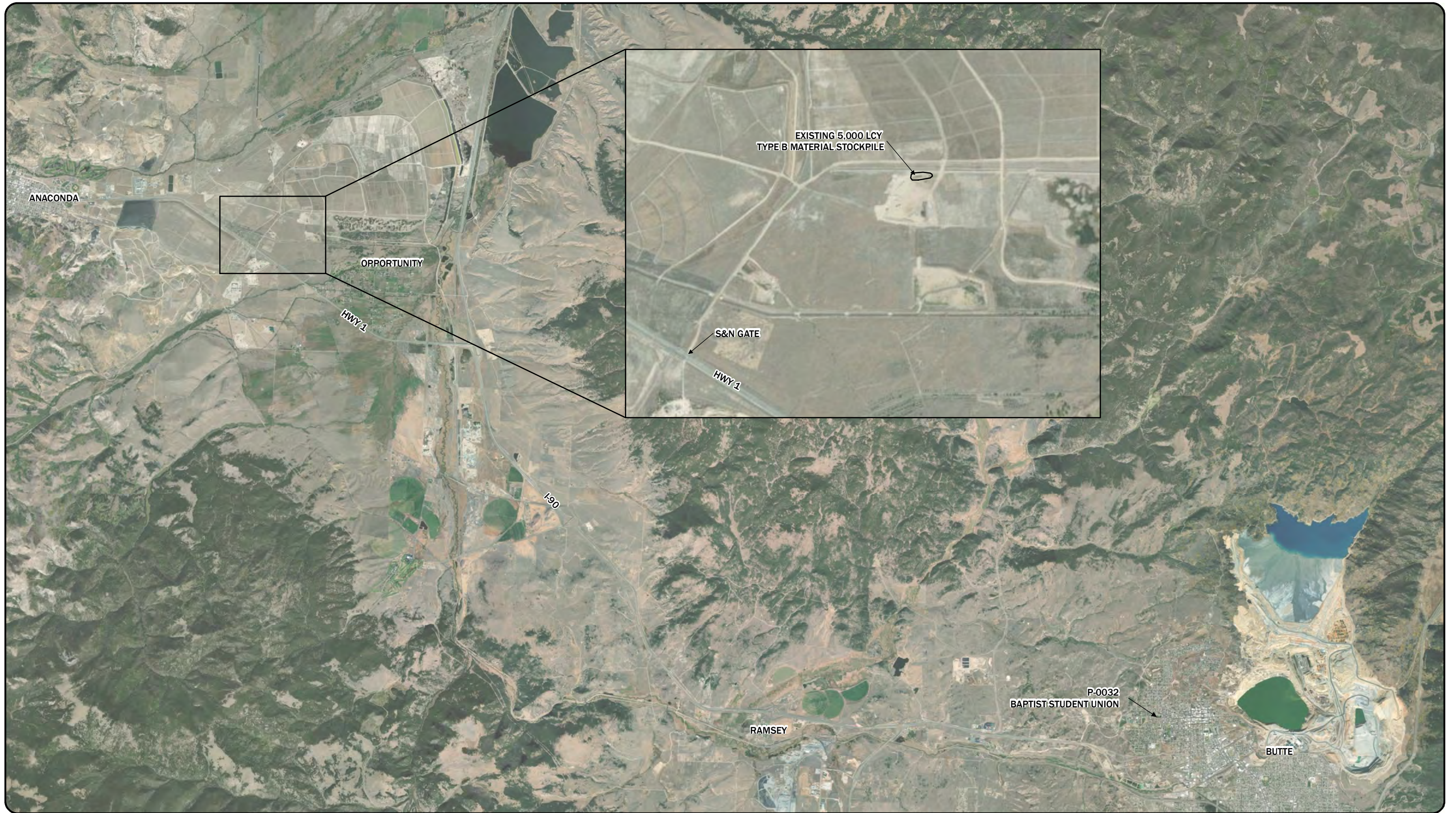


**FIGURE 5**

**SUGAR BEET LIME STOCKPILE LOCATION**

DATE: 8/7/2023

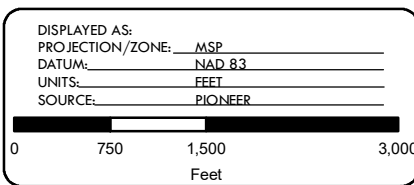




**TYPE B BORROW  
STOCKPILE  
LOCATION**

DATE: 8/7/2023





**FIGURE 7**

**KAW AVENUE BORROW STOCKPILE LOCATION**

DATE: 8/7/2023



## **Tables**

**Table 1. Baptist Student Union Property Information**

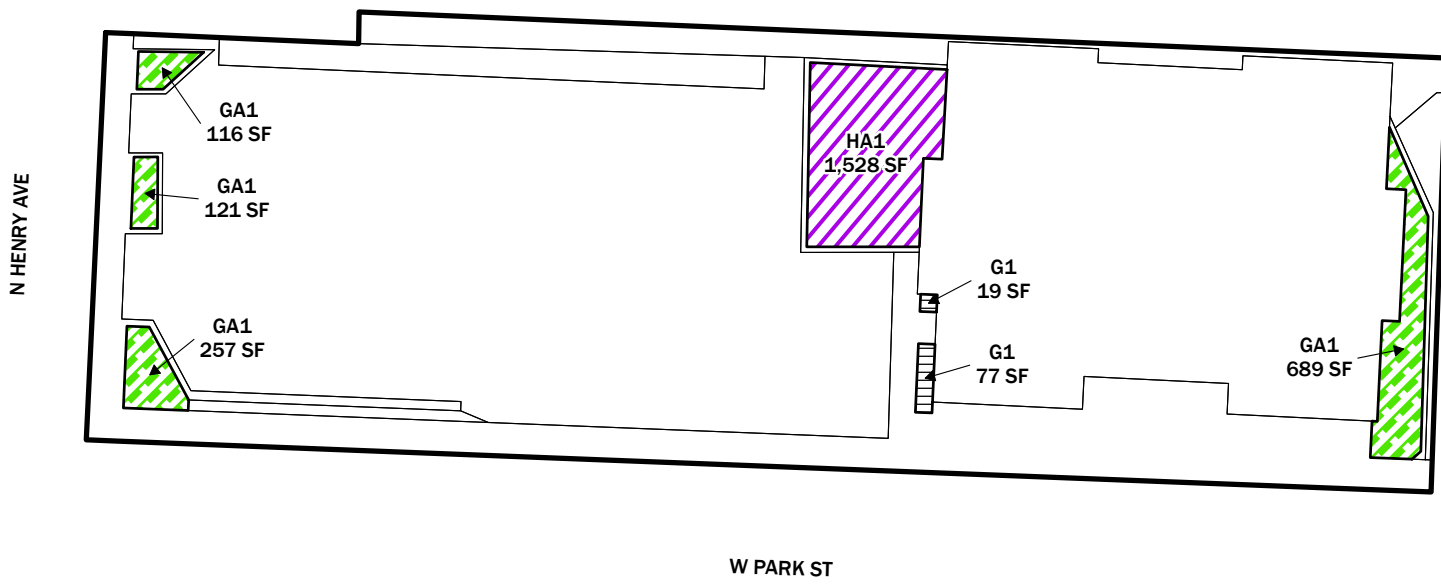
**TABLE 1: BAPTIST STUDENT UNION PROPERTY INFORMATION**

Count	Res-ID	Geocode	Name	Owner
1	P-0032	01119714112010000	Baptist Student Union (former McKinley School)	Park Street Baptist Church

**Attachment A**  
**Draft Baptist Student Union**  
**Individual Site Work Plan**







GEOCODE: 01-1197-14-1-12-23-0000  
PROPERTY ID: P-0032



P-0032

**LEGEND**

-  No Action Required
-  14" Removal
-  26" Removal
-  Un-Samplable Area

**NOTES:**

1. LOOK ON BACK OF SHEET FOR DATA TABLE.

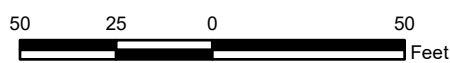
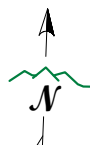
**BAPTIST STUDENT UNION  
(FORMER MCKINLEY SCHOOL)  
INDIVIDUAL SITE WORK PLAN**

**RESIDENTIAL METALS  
ABATEMENT PROGRAM (RMAP)**

**BUTTE, MONTANA  
SHEET 1 OF 2**

**DRAFT**  
DATA VALIDATION  
NOT YET COMPLETE

*Boundaries on this site work plan DO NOT represent a legal survey. These boundaries are to be used for general reference only. No liability is assumed by Atlantic Richfield Company or Pioneer Technical Services for the accuracy of these.*



BY:

**REMEDIAL ACTION SUMMARY TABLE**

**COMPOSITE SAMPLING DATA SUMMARY**

Resident ID	SAMPLING COMPONENTS	COMPONENT SURFACE AREA	COMPOSITE ARSENIC					COMPOSITE LEAD					COMPOSITE MERCURY				
			0-2"	2-6"	6-12"	12-18"	18-24"	0-2"	2-6"	6-12"	12-18"	18-24"	0-2"	2-6"	6-12"	12-18"	18-24"
P-0032		1,528	120	126	110	N/A	N/A	1,830	1,270	1,890	N/A	N/A	0.37	0.36	0.21	N/A	N/A
P-0032-HA1	High Access Area 1 (HA1)		49	81	77	N/A	N/A	206	508	187	N/A	N/A	0.06	0.09	0.06	N/A	N/A
P-0032-GA1	Grass Area 1 (GA1)	1,183	23	25	21	85	92	51	37	44	1,280	1,450	0.06	0.06	0.05	0.50	1.50
P-0032-G1	Garden Area 1 (G1)	96	N/A	N/A	N/A	N/A	90	N/A	N/A	N/A	N/A	1,870	N/A	N/A	N/A	N/A	0.92
P-0032-G1-D-5	Garden Area 1 (G1) Duplicate	-	N/A	N/A	N/A	N/A	90	N/A	N/A	N/A	N/A	1,870	N/A	N/A	N/A	N/A	0.92
		<b>Max:</b>	120	126	110	85	92	1,830	1,270	1,890	1,280	1,870	0.37	0.36	0.21	0.50	1.50

Composite Arsenic Concentration is  $\geq 250$  mg/kg.  
 Composite Lead Concentration is  $\geq 1,200$  mg/kg.  
 Composite Mercury Concentration is  $\geq 147$  mg/kg.  
 N/A = Not applicable per 2022 RMAP Quality Assurance Project Plan.

**REMEDIAL ACTION SUMMARY**

Resident ID	SAMPLING COMPONENTS	COMPONENT SURFACE AREA (Square Feet)	ESTIMATED QUANTITIES			
			Excavation (Cubic Yards)	Lime (Cubic Yards)	General Backfill (Cubic Yards)	Cover Material (Square Feet)
P-0032						
P-0032-HA1	High Access Area 1 (HA1)	1,528	66	9	57	1,528
P-0032-GA1	Grass Area 1 (GA1)	1,183	0	0	0	0
P-0032-G1	Garden Area 1 (G1)	96	8	1	7	96
		<b>2,807</b>	<b>74</b>	<b>10</b>	<b>64</b>	<b>1,624</b>

**BAPTIST STUDENT UNION  
 (FORMER MCKINLEY SCHOOL)  
 INDIVIDUAL SITE WORK PLAN**

**RESIDENTIAL METALS  
 ABATEMENT PROGRAM (RMAP)**

**BUTTE, MONTANA  
 SHEET 2 OF 2**

**DRAFT**  
 DATA VALIDATION  
 NOT YET COMPLETE

**Atlantic Richfield Company**  
 A BP affiliated company

BY:



**Attachment B**  
**Sugar Beet Lime Quality Assurance Data**

**Attachment B-1 Energy Laboratories, Inc. Data Reports**

**APPENDIX B - SUGAR BEET LIME QA DATA  
(From ARWW&S, RDU 3)**

Sample ID	Date Collected	Butte Hill Reveg Spec:	Lime % as CaCO <sub>3</sub>	% Passing No. 60 Screen (dry)	
			Min of 65%	Min of 50%	
1	22RDU3_SBL_011	06/13/22	Volume Tested: Approximatley 4,500 cy	78.4%	93.9%
2	22RDU3_SBL_012	06/13/22		77.4%	94.3%
3	22RDU3_SBL_013	06/13/22		76.9%	92.8%
4	22RDU3_SBL_014	06/29/22		77.9%	95.7%
5	22RDU3_SBL_015	06/29/22		78.4%	95.9%
6	22RDU3_SBL_016	07/07/22		76.4%	99.3%
7	22RDU3_SBL_017	07/07/22		78.8%	98.5%
8	22RDU3_SBL_018	07/12/22		77.9%	97.0%
9	22RDU3_SBL_019	07/12/22		77.4%	96.3%
			MAX:	78.8%	99.3%
			MIN:	76.4%	92.8%
			AVE:	77.7%	96.0%

**Attachment B-1**  
**Energy Laboratories, Inc. Data Reports**



# ANALYTICAL SUMMARY REPORT

June 28, 2022

Woodard and Curran  
1015 S Montana St  
Butte, MT 59701-2805

Work Order: B22061398                      Quote ID: B5361

Project Name: ARWW&S, RDU3, 0232257.03

Energy Laboratories Inc Billings MT received the following 3 samples for Woodard and Curran on 6/15/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B22061398-001	22RDU_3_SBL_011	06/13/22 14:45	06/15/22	Solid	Lime as CaCO3, % Moisture Sieve Analysis, Dry Sieve Analysis, Wet
B22061398-002	22RDU_3_SBL_012	06/13/22 14:50	06/15/22	Solid	Same As Above
B22061398-003	22RDU_3_SBL_013	06/13/22 14:55	06/15/22	Solid	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Woodard and Curran  
**Project:** ARWW&S, RDU3, 0232257.03

**Report Date:** 06/28/22

**Lab ID:** B22061398-001  
**Client Sample ID:** 22RDU\_3\_SBL\_011

**Collection Date:** 06/13/22 14:45  
**DateReceived:** 06/15/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	28.6	wt%		0.2		D2974	06/21/22 10:09 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	78.4	%		0.1		USDA23c	06/28/22 07:52 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	84.4	wt%-wet		0.1		SSSA 15-2	06/28/22 07:42 / srm
No. 60 (250um), Passed	93.9	wt%-dry		0.1		SSSA 15-2	06/22/22 14:51 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	06/22/22 14:51 / srm
Pan	15.6	wt%-wet		0.1		SSSA 15-2	06/28/22 07:42 / srm

**Lab ID:** B22061398-002  
**Client Sample ID:** 22RDU\_3\_SBL\_012

**Collection Date:** 06/13/22 14:50  
**DateReceived:** 06/15/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	28.8	wt%		0.2		D2974	06/21/22 10:09 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	77.4	%		0.1		USDA23c	06/28/22 07:52 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	90.9	wt%-wet		0.1		SSSA 15-2	06/28/22 07:42 / srm
No. 60 (250um), Passed	94.3	wt%-dry		0.1		SSSA 15-2	06/22/22 14:51 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	06/22/22 14:51 / srm
Pan	9.1	wt%-wet		0.1		SSSA 15-2	06/28/22 07:42 / srm

**Report** RL - Analyte Reporting Limit  
**Definitions:** QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Woodard and Curran  
**Project:** ARWW&S, RDU3, 0232257.03

**Report Date:** 06/28/22

**Lab ID:** B22061398-003  
**Client Sample ID:** 22RDU\_3\_SBL\_013

**Collection Date:** 06/13/22 14:55  
**Date Received:** 06/15/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	27.5	wt%		0.2		D2974	06/21/22 10:09 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	76.9	%		0.1		USDA23c	06/28/22 07:52 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	78.8	wt%-wet		0.1		SSSA 15-2	06/28/22 07:42 / srm
No. 60 (250um), Passed	92.8	wt%-dry		0.1		SSSA 15-2	06/22/22 14:51 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	06/22/22 14:51 / srm
Pan	21.2	wt%-wet		0.1		SSSA 15-2	06/28/22 07:42 / srm

**Report** RL - Analyte Reporting Limit  
**Definitions:** QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)





# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Woodard and Curran

**Work Order:** B22061398

**Report Date:** 06/28/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: USDA23c</b>									
Batch: R383791									
<b>Lab ID:</b> B22061398-001A DUP	Sample Duplicate					Run: MISC-SOIL_220628A			06/28/22 07:52
Lime as CaCO3	78.4	%	0.10				0.0	30	
<b>Lab ID:</b> LCS-2206280752	Laboratory Control Sample					Run: MISC-SOIL_220628A			06/28/22 07:52
Lime as CaCO3	9.40	%	0.10	88	70	130			

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



# Work Order Receipt Checklist

Woodard and Curran

B22061398

Login completed by: Yvonna E. Smith

Date Received: 6/15/2022

Reviewed by: BL2000\lcardreau

Received by: srg

Reviewed Date: 6/19/2022

Carrier name: Return-FedEx Ground

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	14.3°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

## Contact and Corrective Action Comments:

None



# Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

<b>Company Name:</b> Woodard & Curran		<b>Project Name, PWS, Permit, Etc.</b> ARWW&S, RDU3, 0232257.03		<b>EPA/State Compliance:</b> Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>Report Mail Address (Required):</b> 1015 S Montana St Suite C, Butte MT, 59701		<b>Contact Name:</b> Garrett Craig		<b>Sampler: (Please Print)</b> Kristopher Bosch	
<input checked="" type="checkbox"/> No Hard Copy Email: gcrraig@woodardcurran.com		<b>Phone/Fax:</b> (406)291-2617		<b>Quote/Bottle Order:</b>	
<b>Invoice Address (Required):</b> 1800 Koch Suite A, Bozeman MT, 59715		<b>Invoice Contact &amp; Phone:</b> Kevin Bethke (406)586-8364		<b>Purchase Order:</b>	
<input type="checkbox"/> No Hard Copy Email: kbethke@woodardcurran.com		<b>Special Report/Formats:</b> <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POT/WWTP <b>Format:</b> _____ <input type="checkbox"/> State: _____ <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: _____ <input type="checkbox"/> NELAC		<b>Standard Turnaround (TAT)</b> <div style="border: 2px solid black; padding: 5px; display: inline-block;">         ↑ R U S H       </div>	
<b>Special Report/Formats:</b>		<b>Comments:</b>		<b>Shipped by:</b>	
<b>Matrix:</b>		<b>Receipt Temp</b> _____ °C		<b>Cooler ID(s):</b>	
<b>Number of Containers</b>		<b>On Ice:</b> Y N		<b>Custody Seal</b>	
<b>Sample Type: A W S V B O DW</b>		<b>On Bottle</b> Y N		<b>On Cooler</b> Y N	
<b>Vegetation Bioassay Other</b>		<b>Intact</b> Y N		<b>Signature Match</b> Y N	
<b>DW - Drinking Water</b>		<b>B5361 - Lime Quality</b>		<b>LABORATORY USE ONLY</b> 622061398	

ANALYSIS REQUESTED	Matrix	Collection Date	Collection Time	Signature	Date/Time
SEE ATTACHED	S	06/13/2022	14:45	<i>[Signature]</i>	17:30
	S	06/13/2022	14:50		
	S	06/13/2022	14:55		

<b>Relinquished by (print):</b> Kristopher Bosch	<b>Signature:</b> <i>[Signature]</i>	<b>Date/Time:</b> 06/13/2022 17:30
<b>Relinquished by (print):</b>	<b>Signature:</b>	<b>Date/Time:</b>
<b>Sample Disposal:</b>	<b>Return to Client:</b>	<b>Lab Disposal:</b> <input checked="" type="checkbox"/>
<b>Received by (print):</b>	<b>Signature:</b> <i>[Signature]</i>	<b>Date/Time:</b>
<b>Received by (print):</b>	<b>Signature:</b>	<b>Date/Time:</b>
<b>Received by Laboratory:</b>	<b>Signature:</b> <i>[Signature]</i>	<b>Date/Time:</b>

**Custody Record MUST be Signed**

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information, downloadable fee schedule, forms, and links.



# ANALYTICAL SUMMARY REPORT

July 13, 2022

Woodard and Curran  
1015 S Montana St  
Butte, MT 59701-2805

Work Order: B22070163                      Quote ID: B5361

Project Name: ARWW&S 0232257.04

Energy Laboratories Inc Billings MT received the following 2 samples for Woodard and Curran on 7/5/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B22070163-001	22RDU3_SBL_014	06/29/22 17:00	07/05/22	Solid	Lime as CaCO3, % Moisture Sieve Analysis, Dry Sieve Analysis, Wet
B22070163-002	22RDU3_SBL_015	06/29/22 17:10	07/05/22	Solid	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:





**LABORATORY ANALYTICAL REPORT**

Prepared by Billings, MT Branch

**Client:** Woodard and Curran  
**Project:** ARWW&S 0232257.04

**Report Date:** 07/13/22

**Lab ID:** B22070163-001  
**Client Sample ID:** 22RDU3\_SBL\_014

**Collection Date:** 06/29/22 17:00  
**DateReceived:** 07/05/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	23.8	wt%		0.2		D2974	07/08/22 10:15 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	77.9	%		0.1		USDA23c	07/13/22 15:11 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	93.5	wt%-wet		0.1		SSSA 15-2	07/12/22 11:37 / srm
No. 60 (250um), Passed	95.7	wt%-dry		0.1		SSSA 15-2	07/08/22 11:26 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	07/08/22 11:26 / srm
Pan	6.5	wt%-wet		0.1		SSSA 15-2	07/12/22 11:37 / srm

**Lab ID:** B22070163-002  
**Client Sample ID:** 22RDU3\_SBL\_015

**Collection Date:** 06/29/22 17:10  
**DateReceived:** 07/05/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	22.3	wt%		0.2		D2974	07/08/22 10:15 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	78.4	%		0.1		USDA23c	07/13/22 15:11 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	88.1	wt%-wet		0.1		SSSA 15-2	07/12/22 11:37 / srm
No. 60 (250um), Passed	95.9	wt%-dry		0.1		SSSA 15-2	07/08/22 11:26 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	07/08/22 11:26 / srm
Pan	11.9	wt%-wet		0.1		SSSA 15-2	07/12/22 11:37 / srm

**Report** RL - Analyte Reporting Limit  
**Definitions:** QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Woodard and Curran

**Work Order:** B22070163

**Report Date:** 07/13/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: USDA23c</b> <span style="float: right;">Batch: R384614</span>									
<b>Lab ID: B22070163-001A DUP</b>	Sample Duplicate								07/13/22 15:11
Lime as CaCO3	78.4	%	0.10				0.6	30	
<b>Lab ID: LCS-2207131511</b>	Laboratory Control Sample								07/13/22 15:11
Lime as CaCO3	9.80	%	0.10	92	70	130			

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



# Work Order Receipt Checklist

Woodard and Curran

B22070163

Login completed by: Dylan A. Chirrick

Date Received: 7/5/2022

Reviewed by: gmccartney

Received by: dac

Reviewed Date: 7/9/2022

Carrier name: Return-FedEx Ground

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	25.3°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

## Contact and Corrective Action Comments:

The sample identification indicated on the container label for sample 22RDU3\_SBL\_015 is 22RDU3\_SBL\_015 and on the Chain of Custody it is 22RDU3\_SBL\_15. Proceeded with the sample identification as indicated on the sample container.



# Chain of Custody and Analytical Request Record

**PLEASE PRINT (Provide as much information as possible.)**

Company Name: Woodard & Curran  Report Mail Address (Required): 1015 S Montana St Suite C, Butte MT, 59701  <input checked="" type="checkbox"/> No Hard Copy Email: <a href="mailto:gcraig@woodardcurran.com">gcraig@woodardcurran.com</a>  Invoice Address (Required): 1800 Koch Suite A, Bozeman MT, 59715  <input type="checkbox"/> No Hard Copy Email: <a href="mailto:kbethke@woodardcurran.com">kbethke@woodardcurran.com</a>	Project Name, PWS, Permit, Etc. ARWW&S 0232257.04  Contact Name: Garrett Craig Phone/Fax: (406)291-2617  Invoice Contact & Phone: Kevin Bethke (406)586-8364	Sample Origin State: MT  Cell: (406)291-2617  Purchase Order:	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>  Sampler: (Please Print) Shyla Wesely  Quote/Bottle Order:
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/WWTP <b>Format:</b> _____ <input type="checkbox"/> State: _____ <input type="checkbox"/> Other: _____	ANALYSIS REQUESTED SEE ATTACHED Standard Turnaround (TAT) <b>↑ R U S H</b> Comments: Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page		
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.) 1 22RDU3_SBL_014    Collection Date: 6/29/22    Collection Time: 1700 2 22RDU3_SBL_15    Collection Date: 6/29/22    Collection Time: 1710 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10 _____	Shipped by: Cooler ID(s): Receipt Temp _____ °C On Ice: Y N Custody Seal On Bottle Y N On Cooler Y N Intact Y N Signature Match Y N <b>8/20/2023</b> <b>LABORATORY USE ONLY</b>		
<b>Custody Record MUST be Signed</b> Relinquished by (print): Shyla Wesely    Date/Time: 6/29/22 Relinquished by (print): _____    Date/Time: _____	Received by (print): <i>[Signature]</i> Date/Time: _____ Received by (print): <i>[Signature]</i> Date/Time: _____ Received by Laboratory: <i>[Signature]</i> Date/Time: 11/5/22		
Sample Disposal: _____    Return to Client: _____    Lab Disposal: _____			

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information, downloadable fee schedule, forms, and links.





# ANALYTICAL SUMMARY REPORT

July 20, 2022

Woodard and Curran  
1015 S Montana St  
Butte, MT 59701-2805

Work Order: B22070686                      Quote ID: B5361

Project Name: ARWW&S, RDU3, 0232257.03

Energy Laboratories Inc Billings MT received the following 2 samples for Woodard and Curran on 7/11/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B22070686-001	22RDU3_SBL_016	07/07/22 11:20	07/11/22	Solid	Lime as CaCO3, % Moisture Sieve Analysis, Dry Sieve Analysis, Wet
B22070686-002	22RDU3_SBL_017	07/07/22 11:25	07/11/22	Solid	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



**LABORATORY ANALYTICAL REPORT**

Prepared by Billings, MT Branch

**Client:** Woodard and Curran  
**Project:** ARWW&S, RDU3, 0232257.03

**Report Date:** 07/20/22

**Lab ID:** B22070686-001  
**Client Sample ID:** 22RDU3\_SBL\_016

**Collection Date:** 07/07/22 11:20  
**DateReceived:** 07/11/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	25.7	wt%		0.2		D2974	07/19/22 09:43 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	76.4	%		0.1		USDA23c	07/20/22 15:36 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	76.9	wt%-wet		0.1		SSSA 15-2	07/20/22 11:27 / srm
No. 60 (250um), Passed	99.3	wt%-dry		0.1		SSSA 15-2	07/19/22 10:34 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	07/19/22 10:34 / srm
Pan	23.1	wt%-wet		0.1		SSSA 15-2	07/20/22 11:27 / srm

**Lab ID:** B22070686-002  
**Client Sample ID:** 22RDU3\_SBL\_017

**Collection Date:** 07/07/22 11:25  
**DateReceived:** 07/11/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	25.9	wt%		0.2		D2974	07/19/22 09:43 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	78.8	%		0.1		USDA23c	07/20/22 15:36 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	26.8	wt%-wet		0.1		SSSA 15-2	07/20/22 11:27 / srm
No. 60 (250um), Passed	98.5	wt%-dry		0.1		SSSA 15-2	07/19/22 10:34 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	07/19/22 10:34 / srm
Pan	73.2	wt%-wet		0.1		SSSA 15-2	07/20/22 11:27 / srm

**Report** RL - Analyte Reporting Limit  
**Definitions:** QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Woodard and Curran

**Work Order:** B22070686

**Report Date:** 07/20/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: USDA23c</b>							Batch: R384936		
<b>Lab ID: B22070686-001A DUP</b>	Sample Duplicate					Run: MISC-SOIL_220720B			07/20/22 15:36
Lime as CaCO3	75.9	%	0.10				0.7	30	
<b>Lab ID: LCS-2207201536</b>	Laboratory Control Sample					Run: MISC-SOIL_220720B			07/20/22 15:36
Lime as CaCO3	9.50	%	0.10	89	70	130			

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



# Work Order Receipt Checklist

Woodard and Curran

B22070686

Login completed by: Dylan A. Chirrick

Date Received: 7/11/2022

Reviewed by: BL2000\lcardreau

Received by: dac

Reviewed Date: 7/12/2022

Carrier name: Return-FedEx Ground

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	24.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

---

---

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

---

## Contact and Corrective Action Comments:

None



# Chain of Custody and Analytical Request Record

**PLEASE PRINT (Provide as much information as possible.)**

<b>Company Name:</b> Woodard & Curran  <b>Report Mail Address (Required):</b> 1015 S Montana St Suite C, Butte MT, 59701  <input checked="" type="checkbox"/> No Hard Copy Email: <a href="mailto:gcraig@woodardcurran.com">gcraig@woodardcurran.com</a> <b>Invoice Address (Required):</b> 1800 Koch Suite A, Bozeman MT, 59715  <input type="checkbox"/> No Hard Copy Email: <a href="mailto:kbethke@woodardcurran.com">kbethke@woodardcurran.com</a>	<b>Project Name, PWS, Permit, Etc.:</b> ARWW&S, RDU3, 0232257.03  <b>Contact Name:</b> Garrett Craig <b>Phone/Fax:</b> (406)291-2617  <b>Invoice Contact &amp; Phone:</b> Kevin Bethke (406)586-8364	<b>Sample Origin State:</b> MT  <b>Cell:</b> (406)291-2617  <b>Purchase Order:</b>	<b>EPA/State Compliance:</b> Yes <input type="checkbox"/> No <input type="checkbox"/>  <b>Sampler: (Please Print)</b> Kristopher Bosch  <b>Quote/Bottle Order:</b>
<b>Special Report/Formats:</b> <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/WWTP <b>Format:</b> _____ <input type="checkbox"/> State: _____ <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: _____ <input type="checkbox"/> NELAC		<b>Standard Turnaround (TAT)</b> <div style="border: 2px solid black; padding: 5px; display: inline-block; font-weight: bold; font-size: 1.2em;">         R U S H       </div> <b>Comments:</b> Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	
<b>Number of Containers</b> Sample Type: A W S V B O DW Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water B5361 - Lime Quality	<b>MATRIX</b> S ✓ S ✓	<b>Shipped by:</b> Cooler ID(s): Receipt Temp _____ °C On Ice: Y N Custody Seal On Bottle Y N On Cooler Y N Intact Y N Signature Y N Match Y N <div style="text-align: right; font-weight: bold; font-size: 1.2em;">         B22070686       </div>	
<b>Received by Laboratory:</b> Signature: <i>Hannah Foster</i> Date/Time: 07/08/22 12:00 Received by (print): Hannah Foster Date/Time: 12-00PM		<b>Received by Laboratory:</b> Signature: <i>Taylor Chinn</i> Date/Time: 7/11/22 11:15 AM Received by (print): Taylor Chinn Date/Time: 7/11/22 11:15 AM	
<b>Relinquished by (print):</b> Hannah Foster <b>Relinquished by (print):</b>		<b>Relinquished by (print):</b> <b>Signature:</b>	
<b>Sample Disposal:</b> Return to Client: <input checked="" type="checkbox"/> Lab Disposal: <input type="checkbox"/>		<b>Signature:</b>	

**Custody Record MUST be Signed**

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information, downloadable fee schedule, forms, and links.





# ANALYTICAL SUMMARY REPORT

July 20, 2022

Woodard and Curran  
1015 S Montana St  
Butte, MT 59701-2805

Work Order: B22071162                      Quote ID: B5361

Project Name: ARWW&S, RDU3, 0232257.03

Energy Laboratories Inc Billings MT received the following 2 samples for Woodard and Curran on 7/14/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B22071162-001	22RDU3_SBL_018	07/12/22 15:00	07/14/22	Solid	Lime as CaCO3, % Moisture Sieve Analysis, Dry Sieve Analysis, Wet
B22071162-002	22RDU3_SBL_019	07/12/22 15:05	07/14/22	Solid	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



**LABORATORY ANALYTICAL REPORT**

Prepared by Billings, MT Branch

**Client:** Woodard and Curran  
**Project:** ARWW&S, RDU3, 0232257.03

**Report Date:** 07/20/22

**Lab ID:** B22071162-001  
**Client Sample ID:** 22RDU3\_SBL\_018

**Collection Date:** 07/12/22 15:00  
**DateReceived:** 07/14/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	23.4	wt%		0.2		D2974	07/19/22 09:43 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	77.9	%		0.1		USDA23c	07/20/22 15:36 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	60.8	wt%-wet		0.1		SSSA 15-2	07/20/22 11:27 / srm
No. 60 (250um), Passed	97.0	wt%-dry		0.1		SSSA 15-2	07/19/22 10:36 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	07/19/22 10:36 / srm
Pan	39.2	wt%-wet		0.1		SSSA 15-2	07/20/22 11:27 / srm

**Lab ID:** B22071162-002  
**Client Sample ID:** 22RDU3\_SBL\_019

**Collection Date:** 07/12/22 15:05  
**DateReceived:** 07/14/22  
**Matrix:** Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Moisture (As Received)	31.7	wt%		0.2		D2974	07/19/22 09:43 / srm
<b>CHEMICAL CHARACTERISTICS</b>							
Lime as CaCO3	77.4	%		0.1		USDA23c	07/20/22 15:36 / srm
<b>SIEVE ANALYSIS</b>							
No. 60 (250um), Retained	79.7	wt%-wet		0.1		SSSA 15-2	07/20/22 11:27 / srm
No. 60 (250um), Passed	96.3	wt%-dry		0.1		SSSA 15-2	07/19/22 10:36 / srm
Pan	< 0.1	wt%-dry		0.1		SSSA 15-2	07/19/22 10:36 / srm
Pan	20.3	wt%-wet		0.1		SSSA 15-2	07/20/22 11:27 / srm

**Report** RL - Analyte Reporting Limit  
**Definitions:** QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Woodard and Curran

**Work Order:** B22071162

**Report Date:** 07/20/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: USDA23c</b>									
Batch: R384936									
<b>Lab ID:</b> B22070686-001A DUP	Sample Duplicate					Run: MISC-SOIL_220720B			07/20/22 15:36
Lime as CaCO3	75.9	%	0.10				0.7	30	
<b>Lab ID:</b> LCS-2207201536	Laboratory Control Sample					Run: MISC-SOIL_220720B			07/20/22 15:36
Lime as CaCO3	9.50	%	0.10	89	70	130			

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)





# Work Order Receipt Checklist

Woodard and Curran

B22071162

Login completed by: Tyler J. Gasser

Date Received: 7/14/2022

Reviewed by: gmccartney

Received by: tae

Reviewed Date: 7/19/2022

Carrier name: Return-FedEx Ground

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	22.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

## Contact and Corrective Action Comments:

None



# Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: Woodard & Curran  
 Report Mail Address (Required): 1015 S Montana St Suite C, Butte MT, 59701  
 No Hard Copy Email: grcraig@woodardcurran.com  
 Invoice Address (Required): 1800 Koch Suite A, Bozeman MT, 59715  
 No Hard Copy Email: kbethke@woodardcurran.com

Project Name, PWS, Permit, Etc.: ARWW&S, RDU3, 0232257.03  
 Sample Origin: State: MT  
 EPA/State Compliance: Yes  No   
 Sampler: (Please Print) Kristopher Bosch  
 Cell: (406)291-2617  
 Purchase Order: [Blank]  
 Quote/Bottle Order: [Blank]

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	ANALYSIS REQUESTED		Standard Turnaround (TAT)	Comments:	Shipped by:
				Number of Containers	Sample Type: A W S V B O DW			
1 22RDU3_SBL_018	07/12/2022	15:00	S	✓	SEE ATTACHED	↑	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	Receipt Temp: _____ °C On Ice: Y N Custody Seal On Bottle Y N On Cooler Y N Intact Y N Signature Match Y N
2 22RDU3_SBL_019	07/12/2022	15:05	S	✓				
3								
4								
5								
6								
7								
8								
9								
10								

**Custody Record MUST be Signed**

Relinquished by (print): Hannah Foster  
 Relinquished by (print): Hannah Foster  
 Date/Time: 07/13/22 12:00  
 Date/Time: 07/13/22 12:00  
 Signature: Hannah Foster  
 Signature: Hannah Foster  
 Received by (print): [Blank]  
 Received by (print): [Blank]  
 Date/Time: [Blank]  
 Date/Time: [Blank]

Sample Disposal: Return to Client: \_\_\_\_\_  
 Lab Disposal: ✓  
 Received by Laboratory: [Signature]  
 Date/Time: 7-14-22 09:15  
 Signature: [Signature]

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information, downloadable fee schedule, forms, and links.

**Attachment C**  
**Fabric Specification Sheet**



**GEOTEX**<sup>®</sup> 801 is a polypropylene, staple fiber, needlepunched nonwoven geotextile produced by Propex, and will meet the following Minimum Average Roll Values (MARV) when tested in accordance with the methods listed below. The fibers are needed to form a stable network that retains dimensional stability relative to each other. The geotextile is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils.

**GEOTEX 801** conforms to the property values listed below<sup>1</sup>. Propex performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP). This product is NTPEP approved for AASHTO standards.

MARV <sup>2</sup>			
PROPERTY	TEST METHOD	ENGLISH	METRIC
<b>ORIGIN OF MATERIALS</b>			
% U.S. Manufactured Inputs		100%	100%
% U.S. Manufactured		100%	100%
<b>MECHANICAL</b>			
Tensile Strength (Grab)	ASTM D-4632	205 lbs	912 N
Elongation	ASTM D-4632	50%	50%
CBR Puncture	ASTM D-6241	525 lbs	2336 N
Trapezoidal Tear	ASTM D-4533	80 lbs	356 N
<b>ENDURANCE</b>			
UV Resistance % Retained at 500 hrs	ASTM D-4355	70%	70%
<b>HYDRAULIC</b>			
Apparent Opening Size (AOS) <sup>3</sup>	ASTM D-4751	80 US Std. Sieve	0.180 mm
Permittivity	ASTM D-4491	1.5 sec <sup>-1</sup>	1.5 sec <sup>-1</sup>
Water Flow Rate	ASTM D-4491	110 gpm/ft <sup>2</sup>	4482 l/min/m <sup>2</sup>
<b>ROLL SIZES</b>		12.5 ft x 360 ft 15 ft x 300 ft	3.81 m x 109.8 m 4.57 m x 91.5 m

NOTES:

1. The property values listed above are effective 04/2011 and are subject to change without notice.
2. Values shown are in weaker principal direction. Minimum average roll values (MARV) are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.
3. Maximum average roll value.



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**Propex Operating Company, LLC** · 6025 Lee Highway, Suite 425 · PO Box 22788 · Chattanooga, TN 37422

ph 423 899 0444 · ph 800 621 1273 · fax 423 899 7619

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**Attachment D**  
**Type B Material Borrow Stockpile Data**

**Attachment D-1 Pace Analytical Services, LLC Data Reports**

**ATTACHMENT D - TYPE B MATERIAL QA DATA  
(From CS OU)**

Sample ID	Date Collected	Butte Hill Reveg Spec:	As	Cd	Cu	Pb	Zn	Hg
			< 97 mg/kg	< 4 mg/kg	< 250 mg/kg	< 100 mg/kg	< 250 mg/kg	< 5 mg/kg
1	20-CS-Type B-1203-001	Volume Tested: Approximatley 5,000 cy	5.8	0.08	10.9	4.7	21.7	-
2	20-CS-Type B-1203-002		4.5	0.10	12.3	4.9	25.8	-
3	20-CS-Type B-1203-003		3.4	Non Detect	8.7	4.7	19.4	-
4	20-CS-Type B-1203-004		8.3	0.13	17.2	6.3	29.7	-
5	20-CS-Type B-1203-005		7.7	0.11	16.8	7.1	29.9	-
6	20-CS-Type B-1203-006		7.8	0.10	14.6	5.9	28.2	-
7	20-CS-Type B-1203-007		10.9	0.09	13.7	5.4	25.7	-
8	20-CS-Type B-1203-008		5.0	0.11	10.5	4.8	23.5	-
9	20-CS-Type B-1203-009		10.1	0.11	18.2	6.7	31.7	-
10	20-CS-Type B-1203-010		5.7	0.09	12.6	5.5	26.2	-
11	20-CS-Type B-1203-011		3.9	Non Detect	8.6	4.0	20.8	-
12	20-CS-Type B-1203-012		3.8	0.09	8.9	5.3	26.7	-
13	21-TypeB-0817-001		-	-	-	-	-	0.02
14	21-TypeB-0817-002		-	-	-	-	-	0.02
15	21-TypeB-0817-003		-	-	-	-	-	0.01
16	21-TypeB-0817-004		-	-	-	-	-	0.02
	MAX:	10.9	0.13	18.2	7.1	31.7	0.02	
	MIN:	3.4	0.08	8.6	4.0	19.4	0.01	
	AVE:	6.4	0.10	12.8	5.4	25.8	0.02	

**Attachment D-1**  
**Pace Analytical Services, LLC Data Reports**



December 11, 2020

Jesse Schwarzrock  
Pioneer Technical Services  
307 E Park  
Suite 421  
Anaconda, MT 59711

RE: Project: CS OU Borrow Development  
Pace Project No.: 10541146

Dear Jesse Schwarzrock:

Enclosed are the analytical results for sample(s) received by the laboratory on December 04, 2020. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 12.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Anderson  
jennifer.anderson@pacelabs.com  
(612)607-6436  
Project Manager

Enclosures

cc: Jennifer Norman, Portage Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: CS OU Borrow Development

Pace Project No.: 10541146

---

### **Pace Analytical Services - Minneapolis MN**

1700 Elm Street SE, Minneapolis, MN 55414

1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab

A2LA Certification #: 2926.01\*

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009\*

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014\*

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605\*

Georgia Certification #: 959

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086\*

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064\*

Maryland Certification #: 322

Massachusetts DWP Certification #: via MN 027-053-137

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

Minnesota Dept of Ag Certification #: via MN 027-053-137

Minnesota Petrofund Certification #: 1240\*

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081\*

New Jersey Certification #: MN002

New York Certification #: 11647\*

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507\*

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001\*

Pennsylvania Certification #: 68-00563\*

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192\*

Utah Certification #: MN00064\*

Vermont Certification #: VT-027053137

Virginia Certification #: 460163\*

Washington Certification #: C486\*

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

\*Please Note: Applicable air certifications are denoted with an asterisk (\*).

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: CS OU Borrow Development

Pace Project No.: 10541146

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10541146001	20-CS-TypeB-1203-001	Solid	12/03/20 10:30	12/04/20 10:40
10541146002	20-CS-TypeB-1203-002	Solid	12/03/20 10:35	12/04/20 10:40
10541146003	20-CS-TypeB-1203-003	Solid	12/03/20 10:40	12/04/20 10:40
10541146004	20-CS-TypeB-1203-004	Solid	12/03/20 10:45	12/04/20 10:40
10541146005	20-CS-TypeB-1203-005	Solid	12/03/20 10:50	12/04/20 10:40
10541146006	20-CS-TypeB-1203-006	Solid	12/03/20 10:55	12/04/20 10:40
10541146007	20-CS-TypeB-1203-007	Solid	12/03/20 11:00	12/04/20 10:40
10541146008	20-CS-TypeB-1203-008	Solid	12/03/20 11:05	12/04/20 10:40
10541146009	20-CS-TypeB-1203-009	Solid	12/03/20 11:10	12/04/20 10:40
10541146010	20-CS-TypeB-1203-010	Solid	12/03/20 11:15	12/04/20 10:40
10541146011	20-CS-TypeB-1203-011	Solid	12/03/20 11:20	12/04/20 10:40
10541146012	20-CS-TypeB-1203-012	Solid	12/03/20 11:25	12/04/20 10:40

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: CS OU Borrow Development

Pace Project No.: 10541146

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10541146001	20-CS-TypeB-1203-001	EPA 6020A	RJS	5	PASI-M
10541146002	20-CS-TypeB-1203-002	EPA 6020A	RJS	5	PASI-M
10541146003	20-CS-TypeB-1203-003	EPA 6020A	RJS	5	PASI-M
10541146004	20-CS-TypeB-1203-004	EPA 6020A	RJS	5	PASI-M
10541146005	20-CS-TypeB-1203-005	EPA 6020A	RJS	5	PASI-M
10541146006	20-CS-TypeB-1203-006	EPA 6020A	RJS	5	PASI-M
10541146007	20-CS-TypeB-1203-007	EPA 6020A	RJS	5	PASI-M
10541146008	20-CS-TypeB-1203-008	EPA 6020A	RJS	5	PASI-M
10541146009	20-CS-TypeB-1203-009	EPA 6020A	RJS	5	PASI-M
10541146010	20-CS-TypeB-1203-010	EPA 6020A	RJS	5	PASI-M
10541146011	20-CS-TypeB-1203-011	EPA 6020A	RJS	5	PASI-M
10541146012	20-CS-TypeB-1203-012	EPA 6020A	RJS	5	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: CS OU Borrow Development

Pace Project No.: 10541146

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**Method:** EPA 6020A

**Description:** 6020A MET ICPMS

**Client:** BPAR-PIONEER-MT

**Date:** December 11, 2020

**General Information:**

12 samples were analyzed for EPA 6020A by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3050B with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-001**      **Lab ID: 10541146001**      Collected: 12/03/20 10:30      Received: 12/04/20 10:40      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>5.8</b>	mg/kg	0.49	20	12/08/20 16:12	12/10/20 14:13	7440-38-2	
Cadmium	<b>0.081</b>	mg/kg	0.078	20	12/08/20 16:12	12/10/20 14:13	7440-43-9	
Copper	<b>10.9</b>	mg/kg	0.98	20	12/08/20 16:12	12/10/20 14:13	7440-50-8	
Lead	<b>4.7</b>	mg/kg	0.20	20	12/08/20 16:12	12/10/20 14:13	7439-92-1	
Zinc	<b>21.7</b>	mg/kg	4.9	20	12/08/20 16:12	12/10/20 14:13	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-002**    **Lab ID: 10541146002**    Collected: 12/03/20 10:35    Received: 12/04/20 10:40    Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>4.5</b>	mg/kg	0.46	20	12/08/20 16:12	12/10/20 14:29	7440-38-2	
Cadmium	<b>0.10</b>	mg/kg	0.074	20	12/08/20 16:12	12/10/20 14:29	7440-43-9	
Copper	<b>12.3</b>	mg/kg	0.93	20	12/08/20 16:12	12/10/20 14:29	7440-50-8	
Lead	<b>4.9</b>	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:29	7439-92-1	
Zinc	<b>25.8</b>	mg/kg	4.6	20	12/08/20 16:12	12/10/20 14:29	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-003      Lab ID: 10541146003      Collected: 12/03/20 10:40      Received: 12/04/20 10:40      Matrix: Solid**

**Results reported on a "wet-weight" basis**

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>3.4</b>	mg/kg	0.49	20	12/08/20 16:12	12/10/20 14:32	7440-38-2	
Cadmium	ND	mg/kg	0.078	20	12/08/20 16:12	12/10/20 14:32	7440-43-9	
Copper	<b>8.7</b>	mg/kg	0.98	20	12/08/20 16:12	12/10/20 14:32	7440-50-8	
Lead	<b>4.7</b>	mg/kg	0.20	20	12/08/20 16:12	12/10/20 14:32	7439-92-1	
Zinc	<b>19.4</b>	mg/kg	4.9	20	12/08/20 16:12	12/10/20 14:32	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-004      Lab ID: 10541146004      Collected: 12/03/20 10:45      Received: 12/04/20 10:40      Matrix: Solid**

**Results reported on a "wet-weight" basis**

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>8.3</b>	mg/kg	0.47	20	12/08/20 16:12	12/10/20 14:41	7440-38-2	
Cadmium	<b>0.13</b>	mg/kg	0.075	20	12/08/20 16:12	12/10/20 14:41	7440-43-9	
Copper	<b>17.2</b>	mg/kg	0.94	20	12/08/20 16:12	12/10/20 14:41	7440-50-8	
Lead	<b>6.3</b>	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:41	7439-92-1	
Zinc	<b>29.7</b>	mg/kg	4.7	20	12/08/20 16:12	12/10/20 14:41	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-005**    **Lab ID: 10541146005**    Collected: 12/03/20 10:50    Received: 12/04/20 10:40    Matrix: Solid

**Results reported on a "wet-weight" basis**

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>7.7</b>	mg/kg	0.47	20	12/08/20 16:12	12/10/20 14:45	7440-38-2	
Cadmium	<b>0.11</b>	mg/kg	0.075	20	12/08/20 16:12	12/10/20 14:45	7440-43-9	
Copper	<b>16.8</b>	mg/kg	0.93	20	12/08/20 16:12	12/10/20 14:45	7440-50-8	
Lead	<b>7.1</b>	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:45	7439-92-1	
Zinc	<b>29.9</b>	mg/kg	4.7	20	12/08/20 16:12	12/10/20 14:45	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-006**    **Lab ID: 10541146006**    Collected: 12/03/20 10:55    Received: 12/04/20 10:40    Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>7.8</b>	mg/kg	0.48	20	12/08/20 16:12	12/10/20 14:48	7440-38-2	
Cadmium	<b>0.10</b>	mg/kg	0.077	20	12/08/20 16:12	12/10/20 14:48	7440-43-9	
Copper	<b>14.6</b>	mg/kg	0.96	20	12/08/20 16:12	12/10/20 14:48	7440-50-8	
Lead	<b>5.9</b>	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:48	7439-92-1	
Zinc	<b>28.2</b>	mg/kg	4.8	20	12/08/20 16:12	12/10/20 14:48	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-007**    **Lab ID: 10541146007**    Collected: 12/03/20 11:00    Received: 12/04/20 10:40    Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>10.9</b>	mg/kg	0.49	20	12/08/20 16:12	12/10/20 14:51	7440-38-2	
Cadmium	<b>0.091</b>	mg/kg	0.078	20	12/08/20 16:12	12/10/20 14:51	7440-43-9	
Copper	<b>13.7</b>	mg/kg	0.98	20	12/08/20 16:12	12/10/20 14:51	7440-50-8	
Lead	<b>5.4</b>	mg/kg	0.20	20	12/08/20 16:12	12/10/20 14:51	7439-92-1	
Zinc	<b>25.7</b>	mg/kg	4.9	20	12/08/20 16:12	12/10/20 14:51	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-008**    **Lab ID: 10541146008**    Collected: 12/03/20 11:05    Received: 12/04/20 10:40    Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>5.0</b>	mg/kg	0.47	20	12/08/20 16:12	12/10/20 14:54	7440-38-2	
Cadmium	<b>0.11</b>	mg/kg	0.075	20	12/08/20 16:12	12/10/20 14:54	7440-43-9	
Copper	<b>10.5</b>	mg/kg	0.94	20	12/08/20 16:12	12/10/20 14:54	7440-50-8	
Lead	<b>4.8</b>	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:54	7439-92-1	
Zinc	<b>23.5</b>	mg/kg	4.7	20	12/08/20 16:12	12/10/20 14:54	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-009**    **Lab ID: 10541146009**    Collected: 12/03/20 11:10    Received: 12/04/20 10:40    Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>10.1</b>	mg/kg	0.46	20	12/08/20 16:12	12/10/20 14:57	7440-38-2	
Cadmium	<b>0.11</b>	mg/kg	0.073	20	12/08/20 16:12	12/10/20 14:57	7440-43-9	
Copper	<b>18.2</b>	mg/kg	0.92	20	12/08/20 16:12	12/10/20 14:57	7440-50-8	
Lead	<b>6.7</b>	mg/kg	0.18	20	12/08/20 16:12	12/10/20 14:57	7439-92-1	
Zinc	<b>31.7</b>	mg/kg	4.6	20	12/08/20 16:12	12/10/20 14:57	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-010**    **Lab ID: 10541146010**    Collected: 12/03/20 11:15    Received: 12/04/20 10:40    Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>5.7</b>	mg/kg	0.48	20	12/08/20 16:12	12/10/20 15:00	7440-38-2	
Cadmium	<b>0.094</b>	mg/kg	0.076	20	12/08/20 16:12	12/10/20 15:00	7440-43-9	
Copper	<b>12.6</b>	mg/kg	0.95	20	12/08/20 16:12	12/10/20 15:00	7440-50-8	
Lead	<b>5.5</b>	mg/kg	0.19	20	12/08/20 16:12	12/10/20 15:00	7439-92-1	
Zinc	<b>26.2</b>	mg/kg	4.8	20	12/08/20 16:12	12/10/20 15:00	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

**Sample: 20-CS-TypeB-1203-011**      **Lab ID: 10541146011**      Collected: 12/03/20 11:20      Received: 12/04/20 10:40      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>3.9</b>	mg/kg	0.49	20	12/08/20 16:12	12/10/20 15:03	7440-38-2	
Cadmium	ND	mg/kg	0.078	20	12/08/20 16:12	12/10/20 15:03	7440-43-9	
Copper	<b>8.6</b>	mg/kg	0.97	20	12/08/20 16:12	12/10/20 15:03	7440-50-8	
Lead	<b>4.0</b>	mg/kg	0.19	20	12/08/20 16:12	12/10/20 15:03	7439-92-1	
Zinc	<b>20.8</b>	mg/kg	4.9	20	12/08/20 16:12	12/10/20 15:03	7440-66-6	

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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**Sample: 20-CS-TypeB-1203-012    Lab ID: 10541146012    Collected: 12/03/20 11:25    Received: 12/04/20 10:40    Matrix: Solid**

**Results reported on a "wet-weight" basis**

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis						
Arsenic	<b>3.8</b>	mg/kg	0.48	20	12/08/20 16:12	12/10/20 15:06	7440-38-2	
Cadmium	<b>0.094</b>	mg/kg	0.077	20	12/08/20 16:12	12/10/20 15:06	7440-43-9	
Copper	<b>8.9</b>	mg/kg	0.96	20	12/08/20 16:12	12/10/20 15:06	7440-50-8	
Lead	<b>5.3</b>	mg/kg	0.19	20	12/08/20 16:12	12/10/20 15:06	7439-92-1	
Zinc	<b>26.7</b>	mg/kg	4.8	20	12/08/20 16:12	12/10/20 15:06	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: CS OU Borrow Development  
Pace Project No.: 10541146

QC Batch: 714545 Analysis Method: EPA 6020A  
QC Batch Method: EPA 3050B Analysis Description: 6020A Solids UPD4  
Laboratory: Pace Analytical Services - Minneapolis  
Associated Lab Samples: 10541146001, 10541146002, 10541146003, 10541146004, 10541146005, 10541146006, 10541146007, 10541146008, 10541146009, 10541146010, 10541146011, 10541146012

METHOD BLANK: 3814382 Matrix: Solid  
Associated Lab Samples: 10541146001, 10541146002, 10541146003, 10541146004, 10541146005, 10541146006, 10541146007, 10541146008, 10541146009, 10541146010, 10541146011, 10541146012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	0.46	12/10/20 14:05	
Cadmium	mg/kg	ND	0.073	12/10/20 14:05	
Copper	mg/kg	ND	0.92	12/10/20 14:05	
Lead	mg/kg	ND	0.18	12/10/20 14:05	
Zinc	mg/kg	ND	4.6	12/10/20 14:05	

LABORATORY CONTROL SAMPLE: 3814383

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	47.2	42.7	90	80-120	
Cadmium	mg/kg	47.2	44.1	93	80-120	
Copper	mg/kg	47.2	46.6	99	80-120	
Lead	mg/kg	47.2	46.7	99	80-120	
Zinc	mg/kg	47.2	45.0	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3814384 3814385

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10541146001 Result	Spike Conc.	Spike Conc.	Result						
Arsenic	mg/kg	5.8	47.2	49	43.7	47.4	80	85	75-125	8	20
Cadmium	mg/kg	0.081	47.2	49	41.6	45.2	88	92	75-125	8	20
Copper	mg/kg	10.9	47.2	49	54.3	59.1	92	98	75-125	9	20
Lead	mg/kg	4.7	47.2	49	47.3	52.3	90	97	75-125	10	20
Zinc	mg/kg	21.7	47.2	49	62.1	68.3	86	95	75-125	10	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: CS OU Borrow Development

Pace Project No.: 10541146

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CS OU Borrow Development

Pace Project No.: 10541146

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10541146001	20-CS-TypeB-1203-001	EPA 3050B	714545	EPA 6020A	714943
10541146002	20-CS-TypeB-1203-002	EPA 3050B	714545	EPA 6020A	714943
10541146003	20-CS-TypeB-1203-003	EPA 3050B	714545	EPA 6020A	714943
10541146004	20-CS-TypeB-1203-004	EPA 3050B	714545	EPA 6020A	714943
10541146005	20-CS-TypeB-1203-005	EPA 3050B	714545	EPA 6020A	714943
10541146006	20-CS-TypeB-1203-006	EPA 3050B	714545	EPA 6020A	714943
10541146007	20-CS-TypeB-1203-007	EPA 3050B	714545	EPA 6020A	714943
10541146008	20-CS-TypeB-1203-008	EPA 3050B	714545	EPA 6020A	714943
10541146009	20-CS-TypeB-1203-009	EPA 3050B	714545	EPA 6020A	714943
10541146010	20-CS-TypeB-1203-010	EPA 3050B	714545	EPA 6020A	714943
10541146011	20-CS-TypeB-1203-011	EPA 3050B	714545	EPA 6020A	714943
10541146012	20-CS-TypeB-1203-012	EPA 3050B	714545	EPA 6020A	714943

### REPORT OF LABORATORY ANALYSIS

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Laboratory Management Program LaMP Chain of Custody Record

Page 1 of 1  
 Req Due Date (mm/dd/yyyy): \_\_\_\_\_ Rush TAT: X No  
 Lab Work Order Number: \_\_\_\_\_

BP Site Node Path: \_\_\_\_\_  
 BP Facility No: \_\_\_\_\_

Lab Name: Pace Analytical Services  
 Lab Address: 1700 Elm Street Minneapolis, MN 55414  
 Lab PM: Jennifer Anderson  
 Lab Phone: 612-807-1700  
 Lab Shipping Acct:  
 Lab Bottle Order No:  
 Other Info: Profile: 35746, Line 3  
 BP Project Manager (PM): Luke Pokorny  
 BP PM Phone: 408-723-1832  
 BP PM Email: luke.pokorny@bp.com

Facility Address:  
 City, State, ZIP Code:  
 Lead Regulatory Agency:  
 California Global ID No.:  
 Enfos Proposal No:  
 Accounting Mode: Provision \_\_\_\_\_  
 Stage: Activity:  
 Consultant/Contractor: Pioneer Technical Services  
 Consultant/Contractor Project No: CS OU Borrow Development  
 Address: 307 E Park Suite 421, Anaconda MT, 59711  
 Consultant/Contractor PM: Jesse Schwarzrock  
 Phone: 406-897-0949 Email: jschwarzrock@pioneer-technical.com  
 Email EDD To: Jesse Schwarzrock  
 Invoice To: BP Contractor: X

Lab No.	Sample Description	Date	Time	Matrix				No. Containers / Preservative				Requested Analyses				Report Type & QC Level	Comments	
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	As, Cd, Cu, Pb, Zn by 6020	Standard			Full Data Package
20-CS-TypeB-1203-001		12/03/20	10:30	X						1								
20-CS-TypeB-1203-002		12/03/20	10:35	X						1								
20-CS-TypeB-1203-003		12/03/20	10:40	X						1								
20-CS-TypeB-1203-004		12/03/20	10:45	X						1								
20-CS-TypeB-1203-005		12/03/20	10:50	X						1								
20-CS-TypeB-1203-006		12/03/20	10:55	X						1								
20-CS-TypeB-1203-007		12/03/20	11:00	X						1								
20-CS-TypeB-1203-008		12/03/20	11:05	X						1								
20-CS-TypeB-1203-009		12/03/20	11:10	X						1								
20-CS-TypeB-1203-010		12/03/20	11:15	X						1								
20-CS-TypeB-1203-011		12/03/20	11:20	X						1								
20-CS-TypeB-1203-012		12/03/20	11:25	X						1								

Relinquished By / Affiliation: Cole Dallassera / PTS Date: 12/3/20 Time: 11:30  
 Accepted By / Affiliation: PTL PAU Date: 12/4/20 Time: 10:40  
 Shipper's Name: Cole Dallassera  
 Shipper's Company: Pioneer Technical Services  
 Shipment Method: FedEx Overnight Ship Date: 12/3/20  
 Shipment Tracking No: \_\_\_\_\_

Special Instructions:  
 THIS LINE - LAB USE ONLY. Custody Seals In Place Yes / No  
 Temp Blank Yes / No  
 Cooler Temp on Receipt: 2.7 °F/C  
 Trip Blank: Yes / No  
 MS/MSD Sample Submitted: Yes / No  
 BP Remediation Mana

PLEASE RUSH THESE SAMPLES

WO#: 10541146





**Sample Condition Upon Receipt - ESI Tech Specs**

**Client Name:**

**Project #:**

*BP - pioneer tech*

**WO# : 10541146**

**PM: JMA Due Date: 12/18/20**  
**CLIENT: BP-PIIONEER**

**Courier:**  Fed Ex  UPS  USPS  Client  
 Pace  SpeedDee  Commercial

**Tracking Number:** *4278 9929 1428*  See Exceptions ENV-FRM-MIN4-0142

**Custody Seal on Cooler/Box Present?**  Yes  No **Seals Intact?**  Yes  No **Biological Tissue Frozen?**  Yes  No  N/A

**Packing Material:**  Bubble Wrap  Bubble Bags  None  Other: \_\_\_\_\_ **Temp Blank?**  Yes  No

**Thermometer:**  T1(0461)  T2(1336)  T3(0459)  T4(0254)  T5(0489) **Type of Ice:**  Wet  Blue  None  Dry  Melted

Temp should be above freezing to 6°C	Cooler Temp Read w/temp blank: <i>2.5</i> °C	Average Corrected Temp (no temp blank only): _____ °C
<b>Correction Factor:</b> <i>+0.2</i>	Cooler Temp Corrected w/temp blank: <i>2.7</i> °C	<input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

**USDA Regulated Soil:** (  N/A, water sample/Other: \_\_\_\_\_ ) **Date/Initials of Person Examining Contents:** *RJR 12/4/20*  
 Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)?  Yes  No  
 Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)?  Yes  No  
**If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.**

	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
<b>Short Hold Time Analysis (&lt;72 hr)?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos
<b>Rush Turn Around Time Requested?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6.
Sufficient Sample Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Triple Volume Provided for MS/MSD (if more than 10 samples)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. <i>plastic bags</i>
-Pace Containers Used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. If no, write ID/ Date/Time on Container Below: <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142
Matrix: <input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other _____	12. Sample #  <input type="checkbox"/> NaOH <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> Zinc Acetate  Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No <b>pH Paper Lot#</b> <input type="checkbox"/> See Exception ENV-FRM-MIN4-0142 Res. Chlorine   0-6 Roll   0-6 Strip   0-14 Strip
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS *If adding preservative to a container it must be added to associated field and equipment blanks (verify with PM first) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> See Exception ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Pace Trip Blank Lot # (if purchased): _____
3 Trip Blanks Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Temp Log: Temp must be maintained at <6°C during login, record temp every 20 mins	<b>CLIENT NOTIFICATION/RESOLUTION</b>	<b>Field Data Required?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
Opened Time: <i>1158</i> Temp: <i>2.5</i> Corrected Temp: <i>2.7</i>	Person Contacted: _____	Date/Time: _____
Time: put in cooler	Comments/Resolution: _____	
Time: <i>1218</i> Temp: <i>3.3</i> Corrected Temp: <i>3.5</i>		

**Project Manager Review:** *[Signature]*

**Date:** *12/07/2020*

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

August 25, 2021

Jesse Schwarzrock  
Pioneer Technical Services  
307 E Park  
Suite 421  
Anaconda, MT 59711

RE: Project: BPSOU School Sampling  
Pace Project No.: 10574925

Dear Jesse Schwarzrock:

Enclosed are the analytical results for sample(s) received by the laboratory on August 18, 2021. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 12.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Anderson  
jennifer.anderson@pacelabs.com  
(612)607-6436  
Project Manager

Enclosures

cc: Lester Dupes, Environmental Standards  
Alyssa Reed, Environmental Standards, Inc.



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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### **Pace Analytical Services, LLC - Minneapolis MN**

1700 Elm Street SE, Minneapolis, MN 55414

1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab

A2LA Certification #: 2926.01\*

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009\*

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014\*

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605\*

Georgia Certification #: 959

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086\*

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064\*

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240\*

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081\*

New Jersey Certification #: MN002

New York Certification #: 11647\*

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Ohio VAP Certification (1800) #: CL110\*

Oklahoma Certification #: 9507\*

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001\*

Pennsylvania Certification #: 68-00563\*

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192\*

Utah Certification #: MN00064\*

Vermont Certification #: VT-027053137

Virginia Certification #: 460163\*

Washington Certification #: C486\*

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

\*Please Note: Applicable air certifications are denoted with an asterisk (\*).

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: BPSOU School Sampling

Pace Project No.: 10574925

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10574925001	21-TypeB-0817-001	Solid	08/17/21 11:20	08/18/21 08:50
10574925002	21-TypeB-0817-002	Solid	08/17/21 11:30	08/18/21 08:50
10574925003	21-TypeB-0817-003	Solid	08/17/21 11:40	08/18/21 08:50
10574925004	21-TypeB-0817-004	Solid	08/17/21 11:50	08/18/21 08:50

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### SAMPLE ANALYTE COUNT

Project: BPSOU School Sampling

Pace Project No.: 10574925

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10574925001	21-TypeB-0817-001	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574925002	21-TypeB-0817-002	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574925003	21-TypeB-0817-003	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574925004	21-TypeB-0817-004	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: BPSOU School Sampling

Pace Project No.: 10574925

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**Date:** August 25, 2021

Samples analyzed for method 6020 arsenic and lead were analyzed after they were dried and sieved using a number 60 sieve.

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: BPSOU School Sampling

Pace Project No.: 10574925

---

**Method:** EPA 7471B

**Description:** 7471B Mercury

**Client:** BPAR-PIONEER-MT

**Date:** August 25, 2021

**General Information:**

4 samples were analyzed for EPA 7471B by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7471B with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574925

---

**Sample: 21-TypeB-0817-001**      **Lab ID: 10574925001**      Collected: 08/17/21 11:20      Received: 08/18/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.018</b>	mg/kg	0.018	0.0077	1	08/23/21 17:49	08/25/21 14:51	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>0.99</b>	%	0.10	0.10	1		08/20/21 13:56		N2

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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**Sample: 21-TypeB-0817-002**      **Lab ID: 10574925002**      Collected: 08/17/21 11:30      Received: 08/18/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.017</b>	mg/kg	0.017	0.0073	1	08/23/21 17:49	08/25/21 14:57	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>1.4</b>	%	0.10	0.10	1		08/20/21 13:56		N2

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574925

**Sample: 21-TypeB-0817-003**      **Lab ID: 10574925003**      Collected: 08/17/21 11:40      Received: 08/18/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.013J</b>	mg/kg	0.020	0.0088	1	08/23/21 17:49	08/25/21 14:59	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>1.1</b>	%	0.10	0.10	1		08/20/21 13:56		N2

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574925

**Sample: 21-TypeB-0817-004**      **Lab ID: 10574925004**      Collected: 08/17/21 11:50      Received: 08/18/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.018J</b>	mg/kg	0.020	0.0088	1	08/23/21 17:49	08/25/21 15:01	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>1.1</b>	%	0.10	0.10	1		08/20/21 13:57		N2

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: BPSOU School Sampling  
Pace Project No.: 10574925

QC Batch: 765313 Analysis Method: EPA 7471B  
QC Batch Method: EPA 7471B Analysis Description: 7471B Mercury Solids  
Laboratory: Pace Analytical Services - Minneapolis  
Associated Lab Samples: 10574925001, 10574925002, 10574925003, 10574925004

METHOD BLANK: 4079252 Matrix: Solid  
Associated Lab Samples: 10574925001, 10574925002, 10574925003, 10574925004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/kg	<0.0079	0.018	0.0079	08/25/21 14:48	

LABORATORY CONTROL SAMPLE: 4079253

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.47	0.48	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4079254 4079255

Parameter	Units	10574925001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.018	0.48	0.5	0.51	0.51	100	98	80-120	1	20	

SAMPLE DUPLICATE: 4079256

Parameter	Units	10574925001 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	mg/kg	0.018	0.018	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: BPSOU School Sampling

Pace Project No.: 10574925

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QC Batch: 764856	Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974	Analysis Description: Dry Weight / %M by ASTM D2974
	Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10574925001, 10574925002, 10574925003, 10574925004

SAMPLE DUPLICATE: 4077836

Parameter	Units	10574920001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	16.2	17.7	9	30	N2

SAMPLE DUPLICATE: 4077837

Parameter	Units	10574716004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.4	21.0	8	30	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BPSOU School Sampling

Pace Project No.: 10574925

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10574925001	21-TypeB-0817-001	EPA 7471B	765313	EPA 7471B	765752
10574925002	21-TypeB-0817-002	EPA 7471B	765313	EPA 7471B	765752
10574925003	21-TypeB-0817-003	EPA 7471B	765313	EPA 7471B	765752
10574925004	21-TypeB-0817-004	EPA 7471B	765313	EPA 7471B	765752
10574925001	21-TypeB-0817-001	ASTM D2974	764856		
10574925002	21-TypeB-0817-002	ASTM D2974	764856		
10574925003	21-TypeB-0817-003	ASTM D2974	764856		
10574925004	21-TypeB-0817-004	ASTM D2974	764856		

### REPORT OF LABORATORY ANALYSIS

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# Laboratory Management Program LAMP Chain of Custody Record

Req Due Date (mm/dd/yy): \_\_\_\_\_  
Lab Work Order Number: \_\_\_\_\_

Rush TAT: XX No

Lab Name: Pace Analytical Services	Facility Address:	Consultant/Contractor: Pioneer Technical Services
Lab Address: 1700 Elm Street Minneapolis, MN 55414	City, State, ZIP Code:	Consultant/Contractor Project No: BPSOU School Sampling
Lab PM: Jennifer Anderson	Lead Regulatory Agency:	Address: 307 E Park Suite 421, Anaconda MT, 59711
Lab Phone: 612-607-1700	California Global ID No.:	Consultant/Contractor PM: Jesse Schwarzrock
Lab Shipping Acct:	Enfos Proposal No.:	Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com
Lab Bottle Order No.:	Accounting Mode:	Email EDD To: Jesse Schwarzrock
Other Info:	Stage:	Invoice To: BP Contractor <u>X</u>

BP Project Manager (PM): Mike McAnulty  
 BP PM Phone: 406-723-1822  
 BP PM Email: mcanumc@bp.com

Lab No.	Sample Description	Date	Time	Requested Analyses							Report Type & QC Level	Comments						
				Matrix	No. Containers / Preservative	7471 Mercury, dry weight	Air dry&sieve*, 6020 (As, Cd, Cu, Pb, Zn)	Soil / Solid	Water / Liquid	Air / Vapor			Is this location a well?					
21-TypeB-0817-001		08/17/21	1120	X	1	X		X					RUSH TURNAROUND					
21-TypeB-0817-002		08/17/21	1130	X	1	X		X					RUSH TURNAROUND					
21-TypeB-0817-003		08/17/21	1140	X	1	X		X					RUSH TURNAROUND					
21-TypeB-0817-004		08/17/21	1150	X	1	X		X					RUSH TURNAROUND					
<b>WO# : 10574925</b>  <b>10574925</b>																		
Sampler's Name: Molly Sprunger				Relinquished By / Affiliation			Date			Time			Accepted By / Affiliation		Date		Time	
Sampler's Company: Pioneer Technical Services				Molly Sprunger / Pioneer			8/17/21			12:15			Molly Sprunger / Pca		8/18/21		8:50	
Shipment Method: FedEx Overnight																		
Shipment Tracking No: 4278 9935 1703																		

Special Instructions:

Temp Blank: Yes/No 5-9 °F/C

Cooler Temp on Receipt: \_\_\_\_\_

Trip Blank: Yes/No Yes

MS/MSD Sample Submitted: Yes/No No



Document Name: Sample Condition Upon Receipt (SCUR) - ESI

Document Revised: 12Aug2020

Document No.: ENV-FRM-MIN4-0149 Rev.01

Page 1 of 1 Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt - ESI Tech Specs

Client Name:

Project #:

WO#: 10574925

PM: JMA

Due Date: 08/25/21

CLIENT: BP-PIONEER

Courier: Fed Ex, UPS, USPS, Client, Pace, Speedee, Commercial

Tracking Number: 4278 9935 1703

See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No, Seals Intact? Yes No, Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap, Bubble Bags, None, Other, Temp Blank? Yes No

Thermometer: T1(0461), T2(1336), T3(0459), T4(0254), T5(0489), Type of Ice: Wet, Blue, None, Dry, Melted

Temp should be above freezing to 6°C, Cooler Temp Read w/temp blank: 5.4 °C, Average Corrected Temp (no temp blank): 5.4 °C, Correction Factor: True

USDA Regulated Soil: ( N/A, water sample/Other: ), Date/Initials of Person Examining Contents: HKB 8/18/21, Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No, Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

Table with 2 columns: Questions and COMMENTS. Contains 14 numbered rows of inspection criteria and their status.

Temp Log: Temp must be maintained at <6°C during login, record temp every 20 mins. Opened Time: 11:30, Temp: 5.4, Corrected Temp: 5.4. Time: 11:45 put in cooler. Time: JMA 8/19/21, Temp: , Corrected Temp:

CLIENT NOTIFICATION/RESOLUTION. Field Data Required? Yes No. Person Contacted: , Date/Time: . Comments/Resolution:

Project Manager Review:

Date: 08/19/2021

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Labeled by: HKB (2) [Signature]

**Attachment E**  
**Agency Approved Kaw Avenue Borrow Stockpile Data**

**Attachment E-1 Energy Laboratories, Inc. Data Report**  
**Attachment E-2 Pace Analytical Services, LLC Data Report**

# BUTTE HILL COVER SOIL APPROVAL SUBMITTAL

8/21/2021

Source: Kaw Avenue Stockpile  
 Sample #: BPSOU-KAW-1

Description	Specification			Specification Met		Other Information Requested
				Sample	Yes	
<b>Chemical (mg/kg)</b>						<b>Organic Matter (%)</b>
As	<	97	26.9	X		3.70
Cd	<	4	0.9	X		
Cu	<	250	66.9	X		<b>Soil Nutrients</b>
Hg	<	5	0.03	X		N (mg/kg) N/A
Pb	<	100	29.4	X		P (mg/kg) N/A
Zn	<	250	132.0	X		K (mg/kg) N/A
<b>pH (s.u.)</b>						
	>	5.5	7.9	X		
	<	8.5				
<b>SAR</b>	<	12	1.12	X		
<b>Saturation (%)</b>						
	<	85	42.7	X		
	>	25				
<b>EC (mmhos/cm)</b>	<	4	1.3	X		
<b>Textural Classification (USDA) &lt;2.0 mm</b>						<b>Particle Size</b>
		Loam		X		Sand (%) 52
		Sandy loam				Silt (%) 28
		Sandy clay loam				Clay (%) 20
		Sandy clay				
		Clay loam				
		Silty clay				
		Silty clay loam				
		Silt loam				
		Silt				
		*Per EPA Approval (Loamy sand)				
<b>Rock Content (%) (by volume)</b>	<	45	13.1	X		

Legend:

# Value	- Criteria met
# Value	- Does not meet Criteria

Atlantic Richfield Representative: Mike McNulty Date: 8-21-21

EPA Representative: NIKIA GREENE Date:                       
Digitally signed by NIKIA GREENE Date: 2021.08.27 11:11:04 -06'00'

MT DEQ Representative: Clay Reed Date: 8/27/2021

**BUTTE HILL COVER SOIL APPROVAL SUBMITTAL**

8/21/2021

Source: **Kaw Avenue Stockpile**  
 Sample #: **BPSOU-KAW-2**

Description	Specification Met			Yes	No	Other Information Requested
	Specification	Sample	Value			
<b>Chemical (mg/kg)</b>						<b>Organic Matter (%)</b> 3.50
As	<	97	15.9	X		<b>Soil Nutrients</b> N (mg/kg) N/A P (mg/kg) N/A K (mg/kg) N/A
Cd	<	4	0.5	X		
Cu	<	250	36.2	X		
Hg	<	5	0.02	X		
Pb	<	100	16.0	X		
Zn	<	250	76.0	X		
<b>pH (s.u.)</b>						
	>	5.5	8.0	X		
	<	8.5				
<b>SAR</b>						
	<	12	0.77	X		
<b>Saturation (%)</b>						
	<	85	43.7	X		
	>	25				
<b>EC (mmhos/cm)</b>						
	<	4	0.9	X		
<b>Textural Classification (USDA) &lt;2.0 mm</b>						<b>Particle Size</b> Sand (%) 44 Silt (%) 32 Clay (%) 24
Loam				X		
Sandy loam						
Sandy clay loam						
Sandy clay						
Clay loam						
Silty clay						
Silty clay loam						
Silt loam						
Silt						
*Per EPA Approval (Loamy sand)						
<b>Rock Content (%) (by volume)</b>						
	<	45	17.3	X		

Legend:

# Value	- Criteria met
# Value	- Does not meet Criteria

Atlantic Richfield Representative: Mike McNulty Date: 8-21-21

EPA Representative: NIKIA GREENE Digitally signed by NIKIA GREENE Date: 2021.08.27 11:12:44 -06'00' Date: \_\_\_\_\_

MT DEQ Representative: Clay Reed Date: 8/27/2021

# BUTTE HILL COVER SOIL APPROVAL SUBMITTAL

8/21/2021

Source: **Kaw Avenue Stockpile**  
 Sample #: **BPSOU-KAW-3**

**Specification Met**

Description	Specification	Sample	Specification Met		Other Information Requested
			Yes	No	
<b>Chemical (mg/kg)</b>					<b>Organic Matter (%)</b>
As	< 97	29.8	X		3.60
Cd	< 4	0.8	X		
Cu	< 250	64.7	X		
Hg	< 5	0.02	X		
Pb	< 100	23.8	X		
Zn	< 250	103.0	X		
<b>pH (s.u.)</b>					<b>Soil Nutrients</b>
	> 5.5	7.8	X		N (mg/kg) N/A
	< 8.5				P (mg/kg) N/A
					K (mg/kg) N/A
<b>SAR</b>					
	< 12	0.78	X		
<b>Saturation (%)</b>					
	< 85	44.4	X		
	> 25				
<b>EC (mmhos/cm)</b>					
	< 4	1.5	X		
<b>Textural Classification (USDA) &lt;2.0 mm</b>					<b>Particle Size</b>
Loam			X		Sand (%) 42
Sandy loam					Silt (%) 32
Sandy clay loam					Clay (%) 26
Sandy clay					
Clay loam					
Silty clay					
Silty clay loam					
Silt loam					
Silt					
*Per EPA Approval (Loamy sand)					
<b>Rock Content (%) (by volume)</b>					
	< 45	12.5	X		

**Legend:**

# Value	- Criteria met
# Value	- Does not meet Criteria

Atlantic Richfield Representative: Mike McNulty Date: 8-21-21

EPA Representative: NIKIA GREENE Digitally signed by NIKIA GREENE Date: 2021.08.27 11:16:08 -06'00' Date: \_\_\_\_\_

MT DEQ Representative: Clay Keel Date: 8/27/2021

# BUTTE HILL COVER SOIL APPROVAL SUBMITTAL

8/21/2021

Source: **Kaw Avenue Stockpile**  
 Sample #: **BPSOU-KAW-4**

Description	Specification	Sample	Specification Met		Other Information Requested
			Yes	No	
<b>Chemical (mg/kg)</b>					<b>Organic Matter (%)</b>
As	< 97	31.0	X		3.50
Cd	< 4	0.8	X		
Cu	< 250	77.9	X		
Hg	< 5	0.03	X		
Pb	< 100	26.6	X		
Zn	< 250	129.0	X		
<b>pH (s.u.)</b>					<b>Soil Nutrients</b>
	> 5.5	7.7	X		N (mg/kg) N/A
	< 8.5				P (mg/kg) N/A
					K (mg/kg) N/A
<b>SAR</b>					
	< 12	0.56	X		
<b>Saturation (%)</b>					
	< 85	49.4	X		
	> 25				
<b>EC (mmhos/cm)</b>					
	< 4	1.5	X		
<b>Textural Classification (USDA) &lt;2.0 mm</b>					<b>Particle Size</b>
Loam					Sand (%) 34
Sandy loam					Silt (%) 38
Sandy clay loam					Clay (%) 28
Sandy clay					
Clay loam			X		
Silty clay					
Silty clay loam					
Silt loam					
Silt					
*Per EPA Approval (Loamy sand)					
<b>Rock Content (%) (by volume)</b>					
	< 45	12.2	X		

Legend:

# Value	- Criteria met
# Value	- Does not meet Criteria

Atlantic Richfield Representative: Mike McNulty Date: 8-21-21

EPA Representative: NIKIA GREENE Date: \_\_\_\_\_  
Digitally signed by NIKIA GREENE Date: 2021.08.27 11:17:59 -0600

MT DEQ Representative: Clay Reed Date: 8/27/2021

# BUTTE HILL COVER SOIL APPROVAL SUBMITTAL

8/21/2021

Source: **Kaw Avenue Stockpile**  
 Sample #: **BPSOU-KAW-5**

Description	Specification	Sample	Specification Met		Other Information Requested
			Yes	No	
<b>Chemical (mg/kg)</b>					<b>Organic Matter (%)</b>
As	< 97	33.9	X		3.80
Cd	< 4	0.9	X		
Cu	< 250	78.2	X		<b>Soil Nutrients</b>
Hg	< 5	0.03	X		N (mg/kg)
Pb	< 100	26.9	X		P (mg/kg)
Zn	< 250	127.0	X		K (mg/kg)
					N/A
					N/A
					N/A
<b>pH (s.u.)</b>					
	> 5.5	7.8	X		
	< 8.5				
<b>SAR</b>					
	< 12	0.47	X		
<b>Saturation (%)</b>					
	< 85	52.2	X		
	> 25				
<b>EC (mmhos/cm)</b>					
	< 4	1.0	X		
<b>Textural Classification (USDA) &lt;2.0 mm</b>					<b>Particle Size</b>
Loam					Sand (%)
Sandy loam					Silt (%)
Sandy clay loam					Clay (%)
Sandy clay					28
Clay loam			X		42
Silty clay					30
Silty clay loam					
Silt loam					
Silt					
*Per EPA Approval (Loamy sand)					
<b>Rock Content (%) (by volume)</b>					
	< 45	9.3	X		

Legend:

# Value	- Criteria met
# Value	- Does not meet Criteria

Atlantic Richfield Representative Mike McNulty Date: 8-21-21

EPA Representative: NIKIA GREENE Digitally signed by NIKIA GREENE Date: 2021.08.27 11:19:54 -06'00' Date: \_\_\_\_\_

MT DEQ Representative: Clay Reed Date: 8/27/2021



**BUTTE HILL COVER SOIL APPROVAL SUBMITTAL**

8/21/2021

Source: **Kaw Avenue Stockpile**  
 Sample #: **BPSOU-KAW-6**

**Specification Met**

Description	Specification	Sample	Specification Met		Other Information Requested
			Yes	No	
<b>Chemical (mg/kg)</b>					<b>Organic Matter (%)</b>
As	< 97	43.4	X		3.70
Cd	< 4	1.0	X		
Cu	< 250	99.3	X		<b>Soil Nutrients</b>
Hg	< 5	0.03	X		N (mg/kg) N/A
Pb	< 100	36.1	X		P (mg/kg) N/A
Zn	< 250	143.0	X		K (mg/kg) N/A
<b>pH (s.u.)</b>					
	> 5.5	7.9	X		
	< 8.5				
<b>SAR</b>					
	< 12	0.88	X		
<b>Saturation (%)</b>					
	< 85	49.2	X		
	> 25				
<b>EC (mmhos/cm)</b>					
	< 4	1.4	X		
<b>Textural Classification (USDA) &lt;2.0 mm</b>					<b>Particle Size</b>
Loam			X		Sand (%) 34
Sandy loam					Silt (%) 40
Sandy clay loam					Clay (%) 26
Sandy clay					
Clay loam					
Silty clay					
Silty clay loam					
Silt loam					
Silt					
*Per EPA Approval (Loamy sand)					
<b>Rock Content (%) (by volume)</b>					
	< 45	11.0	X		

Legend:

# Value	- Criteria met
# Value	- Does not meet Criteria

Atlantic Richfield Representative: Mike McNulty Date: 8-21-21

EPA Representative: NIKIA GREENE Digitally signed by NIKIA GREENE Date: 2021.08.27 11:22:16 -06'00' Date: \_\_\_\_\_

MT DEQ Representative: Clay Reed Date: 8/27/2021

# BUTTE HILL COVER SOIL APPROVAL SUBMITTAL

8/21/2021

Source: **Kaw Avenue Stockpile**  
 Sample #: **BPSOU-KAW-7**

Description	Specification Met			Yes	No	Other Information Requested
	Specification	Sample	Value			
<b>Chemical (mg/kg)</b>						<b>Organic Matter (%)</b>
As	<	97	36.6	X		4.10
Cd	<	4	0.9	X		
Cu	<	250	85.7	X		<b>Soil Nutrients</b>
Hg	<	5	0.03	X		N (mg/kg)
Pb	<	100	28.8	X		P (mg/kg)
Zn	<	250	133.0	X		K (mg/kg)
						N/A
						N/A
						N/A
<b>pH (s.u.)</b>						
	>	5.5	7.5	X		
	<	8.5				
<b>SAR</b>						
	<	12	0.39	X		
<b>Saturation (%)</b>						
	<	85	49.3	X		
	>	25				
<b>EC (mmhos/cm)</b>						
	<	4	1.3	X		
<b>Textural Classification (USDA) &lt;2.0 mm</b>						<b>Particle Size</b>
		Loam		X		Sand (%)
		Sandy loam				Silt (%)
		Sandy clay loam				Clay (%)
		Sandy clay				32
		Clay loam				40
		Silty clay				28
		Silty clay loam				
		Silt loam				
		Silt				
		*Per EPA Approval (Loamy sand)				
<b>Rock Content (%) (by volume)</b>						
	<	45	11.5	X		

Legend:

# Value		- Criteria met
# Value		- Does not meet Criteria

Atlantic Richfield Representative: Mike McNulty Date: 8-21-21

EPA Representative: NIKIA GREENE Digitally signed by NIKIA GREENE Date: 2021.08.27 11:24:49 -06'00' Date: \_\_\_\_\_

MT DEQ Representative: Clay Reed Date: 8/27/2021

# BUTTE HILL COVER SOIL APPROVAL SUBMITTAL

8/21/2021

Source: **Kaw Avenue Stockpile**  
 Sample #: **BPSOU-KAW-8**

Description			Specification Met		Other Information Requested
			Yes	No	
<b>Chemical (mg/kg)</b>					<b>Organic Matter (%)</b>
As	<	97	37.8	X	3.70
Cd	<	4	0.9	X	
Cu	<	250	82.9	X	<b>Soil Nutrients</b>
Hg	<	5	0.03	X	N (mg/kg)
Pb	<	100	27.5	X	P (mg/kg)
Zn	<	250	131.0	X	K (mg/kg)
<b>pH (s.u.)</b>					
	>	5.5	7.4	X	
	<	8.5			
<b>SAR</b>					
	<	12	0.79	X	
<b>Saturation (%)</b>					
	<	85	45.7	X	
	>	25			
<b>EC (mmhos/cm)</b>					
	<	4	2.1	X	
<b>Textural Classification (USDA) &lt;2.0 mm</b>					<b>Particle Size</b>
Loam				X	Sand (%)
Sandy loam					Silt (%)
Sandy clay loam					Clay (%)
Sandy clay					
Clay loam					
Silty clay					
Silty clay loam					
Silt loam					
Silt					
*Per EPA Approval (Loamy sand)					
<b>Rock Content (%) (by volume)</b>					
	<	45	12.2	X	

Legend:

# Value	- Criteria met
# Value	- Does not meet Criteria

Atlantic Richfield Representative: Mike McNulty Date: 8-21-21

EPA Representative: NIKIA GREENE Digitally signed by NIKIA GREENE Date: 2021.08.27 11:26:25 -06'00' Date: \_\_\_\_\_

MT DEQ Representative: Clay Reed Date: 8/27/2021

**Attachment E-1**  
**Energy Laboratories, Inc. Data Report**



# ANALYTICAL SUMMARY REPORT

August 20, 2021

Pioneer Technical Services  
307 E Park Ste 421  
Anaconda, MT 59711-2300

Work Order: B21081152      Quote ID: B5332

Project Name: BPSOU School Sampling

Energy Laboratories Inc Billings MT received the following 8 samples for Pioneer Technical Services on 8/12/2021 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B21081152-001	BPSOU-KAW-1	08/10/21 12:30	08/12/21	Soil	Metals, Saturated Paste Conductivity, Saturated Paste Extract Organic Carbon/Matter Walkley-Black pH, Saturated Paste Saturated Paste Extraction ASA Particle Size Analysis / Texture Sodium Adsorption Ratio Saturation Percentage Sieve Analysis, Dry
B21081152-002	BPSOU-KAW-2	08/10/21 12:35	08/12/21	Soil	Same As Above
B21081152-003	BPSOU-KAW-3	08/10/21 12:40	08/12/21	Soil	Same As Above
B21081152-004	BPSOU-KAW-4	08/10/21 12:45	08/12/21	Soil	Same As Above
B21081152-005	BPSOU-KAW-5	08/10/21 12:50	08/12/21	Soil	Same As Above
B21081152-006	BPSOU-KAW-6	08/10/21 12:55	08/12/21	Soil	Same As Above
B21081152-007	BPSOU-KAW-7	08/10/21 13:00	08/12/21	Soil	Same As Above
B21081152-008	BPSOU-KAW-8	08/10/21 13:05	08/12/21	Soil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



**CLIENT:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Work Order:** B21081152

**Report Date:** 08/20/21

## **CASE NARRATIVE**

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Tests associated with analyst identified as ELI-H were subcontracted to Energy Laboratories, 3161 East Lyndale Ave, Helena, MT, EPA Number MT00945.



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Lab ID:** B21081152-001  
**Client Sample ID:** BPSOU-KAW-1

**Report Date:** 08/20/21  
**Collection Date:** 08/10/21 12:30  
**Date Received:** 08/12/21  
**Matrix:** Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	52	%		1		ASA15-5	08/19/21 12:17 / eli-h
Silt	28	%		1		ASA15-5	08/19/21 12:17 / eli-h
Clay	20	%		1		ASA15-5	08/19/21 12:17 / eli-h
Texture	L			1		ASA15-5	08/19/21 12:17 / eli-h
<b>SATURATED PASTE EXTRACT</b>							
pH, sat. paste	7.9	s.u.		0.1		ASA10-3	08/19/21 08:57 / eli-h
Conductivity, sat. paste	1.3	mmhos/cm		0.1		ASA10-3	08/19/21 12:46 / eli-h
Saturation	42.7	%		0.1		USDA27a	08/19/21 08:37 / eli-h
Calcium, sat. paste	6.10	meq/L		0.05		SW6010B	08/19/21 23:25 / eli-h
Magnesium, sat. paste	3.16	meq/L		0.08		SW6010B	08/19/21 23:25 / eli-h
Sodium, sat. paste	2.41	meq/L		0.04		SW6010B	08/19/21 23:25 / eli-h
Sodium Adsorption Ratio (SAR)	1.12	unitless		0.01		USDA20b	08/20/21 12:23 / eli-h
<b>CHEMICAL CHARACTERISTICS</b>							
Organic Matter	3.7	%		0.2		ASA29-3	08/20/21 12:20 / eli-h
<b>SIEVE ANALYSIS</b>							
1 in (25 mm), Retained	5.8	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
No. 10 (2 mm), Retained	13.1	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
Pan	81.1	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h

**Report Definitions:** RL - Analyte Reporting Limit  
QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Lab ID:** B21081152-002  
**Client Sample ID:** BPSOU-KAW-2

**Report Date:** 08/20/21  
**Collection Date:** 08/10/21 12:35  
**Date Received:** 08/12/21  
**Matrix:** Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	44	%		1		ASA15-5	08/19/21 12:17 / eli-h
Silt	32	%		1		ASA15-5	08/19/21 12:17 / eli-h
Clay	24	%		1		ASA15-5	08/19/21 12:17 / eli-h
Texture	L			1		ASA15-5	08/19/21 12:17 / eli-h
<b>SATURATED PASTE EXTRACT</b>							
pH, sat. paste	8.0	s.u.		0.1		ASA10-3	08/19/21 08:57 / eli-h
Conductivity, sat. paste	0.9	mmhos/cm		0.1		ASA10-3	08/19/21 12:47 / eli-h
Saturation	43.7	%		0.1		USDA27a	08/19/21 08:37 / eli-h
Calcium, sat. paste	4.38	meq/L		0.05		SW6010B	08/19/21 23:42 / eli-h
Magnesium, sat. paste	2.60	meq/L		0.08		SW6010B	08/19/21 23:42 / eli-h
Sodium, sat. paste	1.44	meq/L		0.04		SW6010B	08/19/21 23:42 / eli-h
Sodium Adsorption Ratio (SAR)	0.77	unitless		0.01		USDA20b	08/20/21 12:23 / eli-h
<b>CHEMICAL CHARACTERISTICS</b>							
Organic Matter	3.5	%		0.2		ASA29-3	08/20/21 12:20 / eli-h
<b>SIEVE ANALYSIS</b>							
1 in (25 mm), Retained	< 0.1	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
No. 10 (2 mm), Retained	17.3	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
Pan	82.7	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h

**Report Definitions:** RL - Analyte Reporting Limit  
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ND - Not detected at the Reporting Limit (RL)





### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Lab ID:** B21081152-003  
**Client Sample ID:** BPSOU-KAW-3

**Report Date:** 08/20/21  
**Collection Date:** 08/10/21 12:40  
**Date Received:** 08/12/21  
**Matrix:** Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	42	%		1		ASA15-5	08/19/21 12:17 / eli-h
Silt	32	%		1		ASA15-5	08/19/21 12:17 / eli-h
Clay	26	%		1		ASA15-5	08/19/21 12:17 / eli-h
Texture	L			1		ASA15-5	08/19/21 12:17 / eli-h
<b>SATURATED PASTE EXTRACT</b>							
pH, sat. paste	7.8	s.u.		0.1		ASA10-3	08/19/21 08:58 / eli-h
Conductivity, sat. paste	1.5	mmhos/cm		0.1		ASA10-3	08/19/21 12:47 / eli-h
Saturation	44.4	%		0.1		USDA27a	08/19/21 08:38 / eli-h
Calcium, sat. paste	8.57	meq/L		0.05		SW6010B	08/19/21 23:46 / eli-h
Magnesium, sat. paste	3.22	meq/L		0.08		SW6010B	08/19/21 23:46 / eli-h
Sodium, sat. paste	1.90	meq/L		0.04		SW6010B	08/19/21 23:46 / eli-h
Sodium Adsorption Ratio (SAR)	0.78	unitless		0.01		USDA20b	08/20/21 12:23 / eli-h
<b>CHEMICAL CHARACTERISTICS</b>							
Organic Matter	3.6	%		0.2		ASA29-3	08/20/21 12:20 / eli-h
<b>SIEVE ANALYSIS</b>							
1 in (25 mm), Retained	3.6	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
No. 10 (2 mm), Retained	12.5	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
Pan	83.9	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h

**Report Definitions:** RL - Analyte Reporting Limit  
QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Lab ID:** B21081152-004  
**Client Sample ID:** BPSOU-KAW-4

**Report Date:** 08/20/21  
**Collection Date:** 08/10/21 12:45  
**Date Received:** 08/12/21  
**Matrix:** Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	34	%		1		ASA15-5	08/19/21 12:17 / eli-h
Silt	38	%		1		ASA15-5	08/19/21 12:17 / eli-h
Clay	28	%		1		ASA15-5	08/19/21 12:17 / eli-h
Texture	CL			1		ASA15-5	08/19/21 12:17 / eli-h
<b>SATURATED PASTE EXTRACT</b>							
pH, sat. paste	7.7	s.u.		0.1		ASA10-3	08/19/21 08:59 / eli-h
Conductivity, sat. paste	1.5	mmhos/cm		0.1		ASA10-3	08/19/21 12:48 / eli-h
Saturation	49.4	%		0.1		USDA27a	08/19/21 08:38 / eli-h
Calcium, sat. paste	8.03	meq/L		0.05		SW6010B	08/19/21 23:51 / eli-h
Magnesium, sat. paste	3.97	meq/L		0.08		SW6010B	08/19/21 23:51 / eli-h
Sodium, sat. paste	1.38	meq/L		0.04		SW6010B	08/19/21 23:51 / eli-h
Sodium Adsorption Ratio (SAR)	0.56	unitless		0.01		USDA20b	08/20/21 12:23 / eli-h
<b>CHEMICAL CHARACTERISTICS</b>							
Organic Matter	3.5	%		0.2		ASA29-3	08/20/21 12:20 / eli-h
<b>SIEVE ANALYSIS</b>							
1 in (25 mm), Retained	< 0.1	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
No. 10 (2 mm), Retained	12.2	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
Pan	87.8	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h

**Report Definitions:** RL - Analyte Reporting Limit  
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ND - Not detected at the Reporting Limit (RL)



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Lab ID:** B21081152-005  
**Client Sample ID:** BPSOU-KAW-5

**Report Date:** 08/20/21  
**Collection Date:** 08/10/21 12:50  
**DateReceived:** 08/12/21  
**Matrix:** Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	28	%		1		ASA15-5	08/19/21 12:17 / eli-h
Silt	42	%		1		ASA15-5	08/19/21 12:17 / eli-h
Clay	30	%		1		ASA15-5	08/19/21 12:17 / eli-h
Texture	CL			1		ASA15-5	08/19/21 12:17 / eli-h
<b>SATURATED PASTE EXTRACT</b>							
pH, sat. paste	7.8	s.u.		0.1		ASA10-3	08/19/21 09:00 / eli-h
Conductivity, sat. paste	1.0	mmhos/cm		0.1		ASA10-3	08/19/21 12:49 / eli-h
Saturation	52.2	%		0.1		USDA27a	08/19/21 08:38 / eli-h
Calcium, sat. paste	5.10	meq/L		0.05		SW6010B	08/19/21 23:55 / eli-h
Magnesium, sat. paste	3.13	meq/L		0.08		SW6010B	08/19/21 23:55 / eli-h
Sodium, sat. paste	0.96	meq/L		0.04		SW6010B	08/19/21 23:55 / eli-h
Sodium Adsorption Ratio (SAR)	0.47	unitless		0.01		USDA20b	08/20/21 12:23 / eli-h
<b>CHEMICAL CHARACTERISTICS</b>							
Organic Matter	3.8	%		0.2		ASA29-3	08/20/21 12:20 / eli-h
<b>SIEVE ANALYSIS</b>							
1 in (25 mm), Retained	1.6	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
No. 10 (2 mm), Retained	9.3	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
Pan	89.0	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h

**Report Definitions:** RL - Analyte Reporting Limit  
QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Lab ID:** B21081152-006  
**Client Sample ID:** BPSOU-KAW-6

**Report Date:** 08/20/21  
**Collection Date:** 08/10/21 12:55  
**Date Received:** 08/12/21  
**Matrix:** Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	34	%		1		ASA15-5	08/19/21 12:17 / eli-h
Silt	40	%		1		ASA15-5	08/19/21 12:17 / eli-h
Clay	26	%		1		ASA15-5	08/19/21 12:17 / eli-h
Texture	L			1		ASA15-5	08/19/21 12:17 / eli-h
<b>SATURATED PASTE EXTRACT</b>							
pH, sat. paste	7.9	s.u.		0.1		ASA10-3	08/19/21 09:02 / eli-h
Conductivity, sat. paste	1.4	mmhos/cm		0.1		ASA10-3	08/19/21 12:50 / eli-h
Saturation	49.2	%		0.1		USDA27a	08/19/21 08:38 / eli-h
Calcium, sat. paste	6.64	meq/L		0.05		SW6010B	08/20/21 00:04 / eli-h
Magnesium, sat. paste	4.32	meq/L		0.08		SW6010B	08/20/21 00:04 / eli-h
Sodium, sat. paste	2.06	meq/L		0.04		SW6010B	08/20/21 00:04 / eli-h
Sodium Adsorption Ratio (SAR)	0.88	unitless		0.01		USDA20b	08/20/21 12:23 / eli-h
<b>CHEMICAL CHARACTERISTICS</b>							
Organic Matter	3.7	%		0.2		ASA29-3	08/20/21 12:20 / eli-h
<b>SIEVE ANALYSIS</b>							
1 in (25 mm), Retained	< 0.1	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
No. 10 (2 mm), Retained	11.0	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
Pan	89.0	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h

**Report Definitions:** RL - Analyte Reporting Limit  
QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Lab ID:** B21081152-007  
**Client Sample ID:** BPSOU-KAW-7

**Report Date:** 08/20/21  
**Collection Date:** 08/10/21 13:00  
**Date Received:** 08/12/21  
**Matrix:** Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	32	%		1		ASA15-5	08/19/21 12:17 / eli-h
Silt	40	%		1		ASA15-5	08/19/21 12:17 / eli-h
Clay	28	%		1		ASA15-5	08/19/21 12:17 / eli-h
Texture	CL			1		ASA15-5	08/19/21 12:17 / eli-h
<b>SATURATED PASTE EXTRACT</b>							
pH, sat. paste	7.5	s.u.		0.1		ASA10-3	08/19/21 09:02 / eli-h
Conductivity, sat. paste	1.3	mmhos/cm		0.1		ASA10-3	08/19/21 12:51 / eli-h
Saturation	49.3	%		0.1		USDA27a	08/19/21 08:38 / eli-h
Calcium, sat. paste	7.19	meq/L		0.05		SW6010B	08/20/21 00:51 / eli-h
Magnesium, sat. paste	3.45	meq/L		0.08		SW6010B	08/20/21 00:51 / eli-h
Sodium, sat. paste	0.90	meq/L		0.04		SW6010B	08/20/21 00:51 / eli-h
Sodium Adsorption Ratio (SAR)	0.39	unitless		0.01		USDA20b	08/20/21 12:23 / eli-h
<b>CHEMICAL CHARACTERISTICS</b>							
Organic Matter	4.1	%		0.2		ASA29-3	08/20/21 12:20 / eli-h
<b>SIEVE ANALYSIS</b>							
1 in (25 mm), Retained	< 0.1	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
No. 10 (2 mm), Retained	11.5	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
Pan	88.5	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h

**Report Definitions:** RL - Analyte Reporting Limit  
QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Pioneer Technical Services  
**Project:** BPSOU School Sampling  
**Lab ID:** B21081152-008  
**Client Sample ID:** BPSOU-KAW-8

**Report Date:** 08/20/21  
**Collection Date:** 08/10/21 13:05  
**Date Received:** 08/12/21  
**Matrix:** Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL CHARACTERISTICS</b>							
Sand	46	%		1		ASA15-5	08/19/21 12:17 / eli-h
Silt	28	%		1		ASA15-5	08/19/21 12:17 / eli-h
Clay	26	%		1		ASA15-5	08/19/21 12:17 / eli-h
Texture	L			1		ASA15-5	08/19/21 12:17 / eli-h
<b>SATURATED PASTE EXTRACT</b>							
pH, sat. paste	7.4	s.u.		0.1		ASA10-3	08/19/21 09:03 / eli-h
Conductivity, sat. paste	2.1	mmhos/cm		0.1		ASA10-3	08/19/21 12:52 / eli-h
Saturation	45.7	%		0.1		USDA27a	08/19/21 08:39 / eli-h
Calcium, sat. paste	12.8	meq/L		0.05		SW6010B	08/20/21 00:56 / eli-h
Magnesium, sat. paste	3.82	meq/L		0.08		SW6010B	08/20/21 00:56 / eli-h
Sodium, sat. paste	2.29	meq/L		0.04		SW6010B	08/20/21 00:56 / eli-h
Sodium Adsorption Ratio (SAR)	0.79	unitless		0.01		USDA20b	08/20/21 12:23 / eli-h
<b>CHEMICAL CHARACTERISTICS</b>							
Organic Matter	3.7	%		0.2		ASA29-3	08/20/21 12:20 / eli-h
<b>SIEVE ANALYSIS</b>							
1 in (25 mm), Retained	< 0.1	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
No. 10 (2 mm), Retained	12.2	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h
Pan	87.8	wt%-dry		0.1		SSSA 15-2	08/17/21 16:35 / eli-h

**Report Definitions:** RL - Analyte Reporting Limit  
QCL - Quality Control Limit

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Pioneer Technical Services

Work Order: B21081152

Report Date: 08/20/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: ASA10-3</b>							Analytical Run: SOIL EC_210819A		
<b>Lab ID:</b> ICV_1_210818_1	Initial Calibration Verification Standard								08/19/21 12:43
Conductivity, sat. paste	1.51	mmhos/cm	0.10	107	90	110			
<b>Lab ID:</b> CCV_1_210818_1	Continuing Calibration Verification Standard								08/19/21 12:43
Conductivity, sat. paste	5.22	mmhos/cm	0.10	104	90	110			
<b>Lab ID:</b> CCV1_1_210818_1	Continuing Calibration Verification Standard								08/19/21 12:44
Conductivity, sat. paste	0.924	mmhos/cm	0.10	92	90	110			
<b>Method: ASA10-3</b>							Batch: 57600		
<b>Lab ID:</b> MB-57600	Method Blank								08/19/21 12:45
Conductivity, sat. paste	ND	mmhos/cm	0.05						Run: SOIL EC_210819A
<b>Lab ID:</b> LCS-57600	Laboratory Control Sample								08/19/21 12:46
Conductivity, sat. paste	4.37	mmhos/cm	0.10	104	80	120			Run: SOIL EC_210819A
<b>Lab ID:</b> B21081152-005ADUP	Sample Duplicate								08/19/21 12:49
Conductivity, sat. paste	1.08	mmhos/cm	0.10				3.1	20	Run: SOIL EC_210819A
<b>Method: ASA10-3</b>							al Run: SOIL PH METER - ORION A211_210819A		
<b>Lab ID:</b> ICV_1_210818_1	Initial Calibration Verification Standard								08/19/21 08:53
pH, sat. paste	7.03	s.u.	0.10	100	98.6	101.4			
<b>Lab ID:</b> CCV_1_210818_1	Continuing Calibration Verification Standard								08/19/21 08:54
pH, sat. paste	7.04	s.u.	0.10	101	98.6	101.4			
<b>Lab ID:</b> CCV1_1_210818_1	Continuing Calibration Verification Standard								08/19/21 08:55
pH, sat. paste	4.01	s.u.	0.10	100	97.5	102.5			
<b>Method: ASA10-3</b>							Batch: 57600		
<b>Lab ID:</b> LCS-57600	Laboratory Control Sample								08/19/21 08:56
pH, sat. paste	8.08	s.u.	0.10	100	95	105			Run: SOIL PH METER - ORION A2
<b>Lab ID:</b> B21081152-005ADUP	Sample Duplicate								08/19/21 09:01
pH, sat. paste	7.82	s.u.	0.10				0.3	20	Run: SOIL PH METER - ORION A2

### Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Pioneer Technical Services

**Work Order:** B21081152

**Report Date:** 08/20/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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**Method:** ASA15-5 Batch: 57612

**Lab ID:** B21081152-002ADUP Sample Duplicate Run: SOIL HYDROMETER\_210820 08/19/21 12:17

Sand	44.0	%	1.0				0.0	20	
Silt	32.0	%	1.0				0.0	20	
Clay	24.0	%	1.0				0.0	20	
Texture	L		1.0						

**Lab ID:** LCS-57612 Laboratory Control Sample Run: SOIL HYDROMETER\_210820 08/19/21 12:17

Sand	46.0	%	1.0	110	70	130			
Silt	28.0	%	1.0	88	70	130			
Clay	26.0	%	1.0	100	70	130			

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)





# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Pioneer Technical Services

**Work Order:** B21081152

**Report Date:** 08/20/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> ASA29-3									Batch: 57606
<b>Lab ID:</b> LCS-57606	Laboratory Control Sample								Run: MISC SOILS_210820A 08/20/21 12:20
Organic Matter	1.13	%	0.17	116	70	130			
<b>Lab ID:</b> MB-57606	Method Blank								Run: MISC SOILS_210820A 08/20/21 12:20
Organic Matter	ND	%	0.2						
<b>Lab ID:</b> B21081152-006ADUP	Sample Duplicate								Run: MISC SOILS_210820A 08/20/21 12:20
Organic Matter	3.74	%	0.17						

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Pioneer Technical Services

Work Order: B21081152

Report Date: 08/20/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: SW6010B</b>							Analytical Run: ICP2-HE_210819B			
<b>Lab ID: ICV</b>	Initial Calibration Verification Standard							08/19/21 14:52		
Calcium	40.3	mg/L	1.0	101	90	110				
Magnesium	39.9	mg/L	1.0	100	90	110				
Sodium	40.0	mg/L	1.0	100	90	110				
<b>Lab ID: CCV</b>	Continuing Calibration Verification Standard							08/19/21 14:56		
Calcium	25.2	mg/L	1.0	101	90	110				
Magnesium	24.9	mg/L	1.0	100	90	110				
Sodium	25.4	mg/L	1.0	102	90	110				
<b>Lab ID: ICB</b>	Continuing Calibration Blank							08/19/21 15:00		
Calcium	0.0347	mg/L	1.0							
Magnesium	0.0127	mg/L	1.0							
Sodium	0.00124	mg/L	1.0							
<b>Lab ID: ICSA</b>	Interference Check Sample A							08/19/21 15:09		
Calcium	483	mg/L	1.0	97	80	120				
Magnesium	535	mg/L	1.0	107	80	120				
Sodium	-0.00132	mg/L	1.0		0	0				
<b>Lab ID: ICSAB</b>	Interference Check Sample AB							08/19/21 15:14		
Calcium	489	mg/L	1.0	98	80	120				
Magnesium	536	mg/L	1.0	107	80	120				
Sodium	19.6	mg/L	1.0	98	80	120				
<b>Method: SW6010B</b>							Batch: 57600			
<b>Lab ID: MB-57600</b>	Method Blank							Run: ICP2-HE_210819B		08/19/21 23:03
Calcium	ND	mg/L	0.1							
Magnesium	ND	mg/L	0.02							
Sodium	ND	mg/L	0.02							
Calcium, sat. paste	ND	meq/L	0.007							
Magnesium, sat. paste	ND	meq/L	0.002							
Sodium, sat. paste	ND	meq/L	0.0009							
<b>Lab ID: LFB-57600</b>	Laboratory Fortified Blank							Run: ICP2-HE_210819B		08/19/21 23:08
Calcium	48.7	mg/L	1.0	97	80	120				
Magnesium	52.8	mg/L	1.0	106	80	120				
Sodium	52.4	mg/L	1.0	105	80	120				
Calcium, sat. paste	2.43	meq/L	0.050	97	80	120				
Magnesium, sat. paste	4.35	meq/L	0.082	106	80	120				
Sodium, sat. paste	2.28	meq/L	0.043	105	80	120				
<b>Lab ID: LCS-57600</b>	Laboratory Control Sample							Run: ICP2-HE_210819B		08/19/21 23:12
Calcium	209	mg/L	1.0	96	70	130				
Magnesium	80.6	mg/L	1.0	95	70	130				
Sodium	692	mg/L	1.0	113	70	130				

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Pioneer Technical Services

Work Order: B21081152

Report Date: 08/20/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: SW6010B</b>							Batch: 57600		
<b>Lab ID: LCS-57600</b>	Laboratory Control Sample			Run: ICP2-HE_210819B			08/19/21 23:12		
Calcium, sat. paste	10.4	meq/L	0.050	96	70	130			
Magnesium, sat. paste	6.64	meq/L	0.082	95	70	130			
Sodium, sat. paste	30.1	meq/L	0.043	113	70	130			
<b>Lab ID: B21081152-001AMS2</b>	Sample Matrix Spike			Run: ICP2-HE_210819B			08/19/21 23:34		
Calcium	215	mg/L	1.0	92	70	130			
Magnesium	141	mg/L	1.0	102	70	130			
Sodium	162	mg/L	1.0	107	70	130			
Calcium, sat. paste	10.7	meq/L	0.050	92	70	130			
Magnesium, sat. paste	11.6	meq/L	0.082	102	70	130			
Sodium, sat. paste	7.04	meq/L	0.043	107	70	130			
<b>Lab ID: B21081152-001AMSD2</b>	Sample Matrix Spike Duplicate			Run: ICP2-HE_210819B			08/19/21 23:38		
Calcium	217	mg/L	1.0	95	70	130	1.2	20	
Magnesium	142	mg/L	1.0	104	70	130	0.9	20	
Sodium	157	mg/L	1.0	102	70	130	3.0	20	
Calcium, sat. paste	10.8	meq/L	0.050	95	70	130	1.2	20	
Magnesium, sat. paste	11.7	meq/L	0.082	104	70	130	0.9	20	
Sodium, sat. paste	6.83	meq/L	0.043	102	70	130	3.0	20	
<b>Lab ID: B21081152-005Adup</b>	Sample Duplicate			Run: ICP2-HE_210819B			08/19/21 23:59		
Calcium	104	mg/L	1.0				1.9	30	
Magnesium	38.8	mg/L	1.0				1.9	30	
Sodium	22.9	mg/L	1.0				3.8	30	
Calcium, sat. paste	5.20	meq/L	0.050				1.9	30	
Magnesium, sat. paste	3.19	meq/L	0.082				1.9	30	
Sodium, sat. paste	0.994	meq/L	0.043				3.8	30	

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Pioneer Technical Services

**Work Order:** B21081152

**Report Date:** 08/20/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: USDA20b</b>							Batch: 57600		
<b>Lab ID: B21081152-005ADUP</b>	Sample Duplicate				Run: SOIL CALC_210820A		08/20/21 12:23		
Sodium Adsorption Ratio (SAR)	0.480	unitless	0.10				2.1	30	
<b>Lab ID: LCS-57600</b>	Laboratory Control Sample				Run: SOIL CALC_210820A		08/20/21 12:23		
Sodium Adsorption Ratio (SAR)	10.3	unitless	0.10	117	80	120			

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Pioneer Technical Services

**Work Order:** B21081152

**Report Date:** 08/20/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> USDA27a									Batch: 57600
<b>Lab ID:</b> LCS-57600	Laboratory Control Sample								Run: SOIL DRYING OVEN 2_21082 08/19/21 08:37
Saturation	42.0	%	0.10	101	80	120			
<b>Lab ID:</b> B21081152-005ADUP	Sample Duplicate								Run: SOIL DRYING OVEN 2_21082 08/19/21 08:38
Saturation	51.1	%	0.10				2.3	20	

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



# Work Order Receipt Checklist

Pioneer Technical Services

B21081152

Login completed by: Richard L. Shular

Date Received: 8/12/2021

Reviewed by: BL2000\tedwards

Received by: its

Reviewed Date: 8/16/2021

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	23.0°C No Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

## Contact and Corrective Action Comments:

Results due 08/20/21 per Gina Mccartney, Energy Laboratories Project Manager.





# Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: \_\_\_\_\_

Req Due Date (mm/dd/yy): \_\_\_\_\_

Rush TAT: XX No

BP Facility No: \_\_\_\_\_

Lab Work Order Number: \_\_\_\_\_

Lab Name: Energy Laboratories	Facility Address:	Consultant/Contractor: Pioneer Technical Services
Lab Address: 1120 S 27th St, Billings MT 59101	City, State, ZIP Code:	Consultant/Contractor Project No: BPSOU School Sampling
Lab PM: Gina McCartney	Lead Regulatory Agency:	Address: 307 E Park Suite 421, Anaconda MT, 59711
Lab Phone: 800-735-4489	California Global ID No:	Consultant/Contractor PM: Jesse Schwarzrock
Lab Shipping Acct.:	Enfos Proposal No:	Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com
Lab Bottle Order No:	Accounting Mode:	Email EDD To: Jesse Schwarzrock
Other Info:	Stage: _____	Invoice To: BP Contractor: X
BP Project Manager (PM) Mike Mc Anulty	Matrix:	Report Type & QC Level
BP PM Phone: 406-723-1822	Water / Liquid	Standard X
BP PM Email: mcanu@bp.com	Soil / Solid	Full Data Package
	Is this location a well?	Note: If sample not collected, indicate "No Sample" in comments and single-strike out
	Air / Vapor	Comments
	Total Number of Containers	
	Unpreserved	
	H2SO4	
	HNO3	
	HCl	
	Methanol	
	Texture USDA	
	% Course Material (1" and 2mm)	
	Saturation Percentage	
	Electrical Conductivity	
	Sodium Adsorption Ratio	
	Saturated Paste pH	
	Organic Matter (Walkley Black)	
	Requested Analyses	
	No. Containers / Preservative	
	Date	
	Time	
	Relinquished By / Affiliation	
	Date	
	Time	
	Accepted By / Affiliation	
	Date	
	Time	
Sampler's Name: Kile Denney		
Sampler's Company: Pioneer Technical Services		
Shipment Method: FedEx		
Shipment Tracking No: 5228 1538 4741		
Ship Date: 8/11/24		
Special Instructions:		

**Attachment E-2**  
**Pace Analytical Services, LLC Data Report**

August 19, 2021

Jesse Schwarzrock  
Pioneer Technical Services  
307 E Park  
Suite 421  
Anaconda, MT 59711

RE: Project: BPSOU School Sampling  
Pace Project No.: 10574177

Dear Jesse Schwarzrock:

Enclosed are the analytical results for sample(s) received by the laboratory on August 12, 2021. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 12.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jennifer Anderson  
jennifer.anderson@pacelabs.com  
(612)607-6436  
Project Manager

Enclosures

cc: Cole Dallaserra, Pioneer Technical  
Jennifer Norman, Portage Inc.



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: BPSOU School Sampling

Pace Project No.: 10574177

---

### **Pace Analytical Services, LLC - Minneapolis MN**

1700 Elm Street SE, Minneapolis, MN 55414  
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab

A2LA Certification #: 2926.01\*  
Alabama Certification #: 40770  
Alaska Contaminated Sites Certification #: 17-009\*  
Alaska DW Certification #: MN00064  
Arizona Certification #: AZ0014\*  
Arkansas DW Certification #: MN00064  
Arkansas WW Certification #: 88-0680  
California Certification #: 2929  
Colorado Certification #: MN00064  
Connecticut Certification #: PH-0256  
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137  
Florida Certification #: E87605\*  
Georgia Certification #: 959  
Hawaii Certification #: MN00064  
Idaho Certification #: MN00064  
Illinois Certification #: 200011  
Indiana Certification #: C-MN-01  
Iowa Certification #: 368  
Kansas Certification #: E-10167  
Kentucky DW Certification #: 90062  
Kentucky WW Certification #: 90062  
Louisiana DEQ Certification #: AI-03086\*  
Louisiana DW Certification #: MN00064  
Maine Certification #: MN00064\*  
Maryland Certification #: 322  
Michigan Certification #: 9909  
Minnesota Certification #: 027-053-137\*  
Minnesota Dept of Ag Approval: via MN 027-053-137  
Minnesota Petrofund Registration #: 1240\*  
Mississippi Certification #: MN00064

Missouri Certification #: 10100  
Montana Certification #: CERT0092  
Nebraska Certification #: NE-OS-18-06  
Nevada Certification #: MN00064  
New Hampshire Certification #: 2081\*  
New Jersey Certification #: MN002  
New York Certification #: 11647\*  
North Carolina DW Certification #: 27700  
North Carolina WW Certification #: 530  
North Dakota Certification #: R-036  
Ohio DW Certification #: 41244  
Ohio VAP Certification (1700) #: CL101  
Ohio VAP Certification (1800) #: CL110\*  
Oklahoma Certification #: 9507\*  
Oregon Primary Certification #: MN300001  
Oregon Secondary Certification #: MN200001\*  
Pennsylvania Certification #: 68-00563\*  
Puerto Rico Certification #: MN00064  
South Carolina Certification #: 74003001  
Tennessee Certification #: TN02818  
Texas Certification #: T104704192\*  
Utah Certification #: MN00064\*  
Vermont Certification #: VT-027053137  
Virginia Certification #: 460163\*  
Washington Certification #: C486\*  
West Virginia DEP Certification #: 382  
West Virginia DW Certification #: 9952 C  
Wisconsin Certification #: 999407970  
Wyoming UST Certification #: via A2LA 2926.01  
USDA Permit #: P330-19-00208  
\*Please Note: Applicable air certifications are denoted with an asterisk (\*).

---

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: BPSOU School Sampling

Pace Project No.: 10574177

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10574177001	BPSOU-KAW-1	Solid	08/10/21 12:30	08/12/21 08:50
10574177002	BPSOU-KAW-1	Solid	08/10/21 12:30	08/12/21 08:50
10574177003	BPSOU-KAW-2	Solid	08/10/21 12:35	08/12/21 08:50
10574177004	BPSOU-KAW-2	Solid	08/10/21 12:35	08/12/21 08:50
10574177005	BPSOU-KAW-3	Solid	08/10/21 12:40	08/12/21 08:50
10574177006	BPSOU-KAW-3	Solid	08/10/21 12:40	08/12/21 08:50
10574177007	BPSOU-KAW-4	Solid	08/10/21 12:45	08/12/21 08:50
10574177008	BPSOU-KAW-4	Solid	08/10/21 12:45	08/12/21 08:50
10574177009	BPSOU-KAW-5	Solid	08/10/21 12:50	08/12/21 08:50
10574177010	BPSOU-KAW-5	Solid	08/10/21 12:50	08/12/21 08:50
10574177011	BPSOU-KAW-6	Solid	08/10/21 12:55	08/12/21 08:50
10574177012	BPSOU-KAW-6	Solid	08/10/21 12:55	08/12/21 08:50
10574177013	BPSOU-KAW-7	Solid	08/10/21 13:00	08/12/21 08:50
10574177014	BPSOU-KAW-7	Solid	08/10/21 13:00	08/12/21 08:50
10574177015	BPSOU-KAW-8	Solid	08/10/21 13:05	08/12/21 08:50
10574177016	BPSOU-KAW-8	Solid	08/10/21 13:05	08/12/21 08:50

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: BPSOU School Sampling  
Pace Project No.: 10574177

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10574177001	BPSOU-KAW-1	EPA 6020A	BWB	5	PASI-M
10574177002	BPSOU-KAW-1	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574177003	BPSOU-KAW-2	EPA 6020A	BWB	5	PASI-M
10574177004	BPSOU-KAW-2	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574177005	BPSOU-KAW-3	EPA 6020A	BWB	5	PASI-M
10574177006	BPSOU-KAW-3	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574177007	BPSOU-KAW-4	EPA 6020A	BWB	5	PASI-M
10574177008	BPSOU-KAW-4	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574177009	BPSOU-KAW-5	EPA 6020A	BWB	5	PASI-M
10574177010	BPSOU-KAW-5	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574177011	BPSOU-KAW-6	EPA 6020A	BWB	5	PASI-M
10574177012	BPSOU-KAW-6	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574177013	BPSOU-KAW-7	EPA 6020A	BWB	5	PASI-M
10574177014	BPSOU-KAW-7	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10574177015	BPSOU-KAW-8	EPA 6020A	BWB	5	PASI-M
10574177016	BPSOU-KAW-8	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: BPSOU School Sampling

Pace Project No.: 10574177

---

**Date:** August 19, 2021

Samples analyzed for method 6020 arsenic, cadmium, copper, lead and zinc were analyzed after they were dried and sieved using a number 60 sieve.

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: BPSOU School Sampling

Pace Project No.: 10574177

---

**Method:** EPA 6020A

**Description:** 6020A MET ICPMS

**Client:** BPAR-PIONEER-MT

**Date:** August 19, 2021

**General Information:**

8 samples were analyzed for EPA 6020A by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3050B with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 764488

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10574177001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4075058)
- Zinc

**Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: BPSOU School Sampling

Pace Project No.: 10574177

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**Method:** EPA 7471B

**Description:** 7471B Mercury

**Client:** BPAR-PIONEER-MT

**Date:** August 19, 2021

**General Information:**

8 samples were analyzed for EPA 7471B by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7471B with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-1**      **Lab ID: 10574177001**      Collected: 08/10/21 12:30      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>									
Analytical Method: EPA 6020A    Preparation Method: EPA 3050B									
Pace Analytical Services - Minneapolis									
Arsenic	<b>26.9</b>	mg/kg	0.50	0.11	1	08/19/21 08:25	08/19/21 11:57	7440-38-2	
Cadmium	<b>0.90</b>	mg/kg	0.079	0.031	1	08/19/21 08:25	08/19/21 11:57	7440-43-9	
Copper	<b>66.9</b>	mg/kg	0.99	0.24	1	08/19/21 08:25	08/19/21 11:57	7440-50-8	
Lead	<b>29.4</b>	mg/kg	0.20	0.029	1	08/19/21 08:25	08/19/21 11:57	7439-92-1	
Zinc	<b>132</b>	mg/kg	5.0	0.89	1	08/19/21 08:25	08/19/21 11:57	7440-66-6	M1

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

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**Sample: BPSOU-KAW-1**      **Lab ID: 10574177002**    Collected: 08/10/21 12:30    Received: 08/12/21 08:50    Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.026</b>	mg/kg	0.022	0.0094	1	08/16/21 13:44	08/18/21 15:47	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>10.5</b>	%	0.10	0.10	1		08/17/21 10:41		N2

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-2**      **Lab ID: 10574177003**      Collected: 08/10/21 12:35      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>									
Analytical Method: EPA 6020A    Preparation Method: EPA 3050B									
Pace Analytical Services - Minneapolis									
Arsenic	<b>15.9</b>	mg/kg	0.46	0.10	1	08/19/21 08:25	08/19/21 12:17	7440-38-2	
Cadmium	<b>0.49</b>	mg/kg	0.074	0.029	1	08/19/21 08:25	08/19/21 12:17	7440-43-9	
Copper	<b>36.2</b>	mg/kg	0.93	0.22	1	08/19/21 08:25	08/19/21 12:17	7440-50-8	
Lead	<b>16.0</b>	mg/kg	0.19	0.027	1	08/19/21 08:25	08/19/21 12:17	7439-92-1	
Zinc	<b>76.0</b>	mg/kg	4.6	0.83	1	08/19/21 08:25	08/19/21 12:17	7440-66-6	

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-2**      **Lab ID: 10574177004**      Collected: 08/10/21 12:35      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.022</b>	mg/kg	0.022	0.0095	1	08/16/21 13:44	08/18/21 15:53	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>11.7</b>	%	0.10	0.10	1		08/17/21 10:41		N2

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

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**Sample: BPSOU-KAW-3**      **Lab ID: 10574177005**      Collected: 08/10/21 12:40      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>									
Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis									
Arsenic	<b>29.8</b>	mg/kg	0.49	0.11	1	08/19/21 08:25	08/19/21 12:20	7440-38-2	
Cadmium	<b>0.82</b>	mg/kg	0.078	0.031	1	08/19/21 08:25	08/19/21 12:20	7440-43-9	
Copper	<b>64.7</b>	mg/kg	0.98	0.24	1	08/19/21 08:25	08/19/21 12:20	7440-50-8	
Lead	<b>23.8</b>	mg/kg	0.20	0.029	1	08/19/21 08:25	08/19/21 12:20	7439-92-1	
Zinc	<b>103</b>	mg/kg	4.9	0.88	1	08/19/21 08:25	08/19/21 12:20	7440-66-6	

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

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**Sample: BPSOU-KAW-3**      **Lab ID: 10574177006**      Collected: 08/10/21 12:40      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.016J</b>	mg/kg	0.020	0.0086	1	08/16/21 13:44	08/18/21 15:55	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>10.9</b>	%	0.10	0.10	1		08/17/21 10:41		N2

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

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**Sample: BPSOU-KAW-4**      **Lab ID: 10574177007**      Collected: 08/10/21 12:45      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	<b>31.0</b>	mg/kg	0.45	0.099	1	08/19/21 08:25	08/19/21 12:31	7440-38-2	
Cadmium	<b>0.77</b>	mg/kg	0.073	0.029	1	08/19/21 08:25	08/19/21 12:31	7440-43-9	
Copper	<b>77.9</b>	mg/kg	0.91	0.22	1	08/19/21 08:25	08/19/21 12:31	7440-50-8	
Lead	<b>26.6</b>	mg/kg	0.18	0.027	1	08/19/21 08:25	08/19/21 12:31	7439-92-1	
Zinc	<b>129</b>	mg/kg	4.5	0.82	1	08/19/21 08:25	08/19/21 12:31	7440-66-6	

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-4**      **Lab ID: 10574177008**      Collected: 08/10/21 12:45      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.027</b>	mg/kg	0.019	0.0082	1	08/16/21 13:44	08/18/21 16:00	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>9.4</b>	%	0.10	0.10	1		08/17/21 10:41		N2

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

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**Sample: BPSOU-KAW-5**      **Lab ID: 10574177009**      Collected: 08/10/21 12:50      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>		Analytical Method: EPA 6020A    Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	<b>33.9</b>	mg/kg	0.47	0.10	1	08/19/21 08:25	08/19/21 12:34	7440-38-2	
Cadmium	<b>0.90</b>	mg/kg	0.075	0.030	1	08/19/21 08:25	08/19/21 12:34	7440-43-9	
Copper	<b>78.2</b>	mg/kg	0.94	0.23	1	08/19/21 08:25	08/19/21 12:34	7440-50-8	
Lead	<b>26.9</b>	mg/kg	0.19	0.028	1	08/19/21 08:25	08/19/21 12:34	7439-92-1	
Zinc	<b>127</b>	mg/kg	4.7	0.85	1	08/19/21 08:25	08/19/21 12:34	7440-66-6	

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

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**Sample: BPSOU-KAW-5**      **Lab ID: 10574177010**    Collected: 08/10/21 12:50    Received: 08/12/21 08:50    Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.026</b>	mg/kg	0.022	0.0097	1	08/16/21 13:44	08/18/21 16:02	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>13.3</b>	%	0.10	0.10	1		08/17/21 10:41		N2

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

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**Sample: BPSOU-KAW-6**      **Lab ID: 10574177011**      Collected: 08/10/21 12:55      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>									
Analytical Method: EPA 6020A    Preparation Method: EPA 3050B									
Pace Analytical Services - Minneapolis									
Arsenic	<b>43.4</b>	mg/kg	0.47	0.10	1	08/19/21 08:25	08/19/21 12:37	7440-38-2	
Cadmium	<b>1.0</b>	mg/kg	0.075	0.030	1	08/19/21 08:25	08/19/21 12:37	7440-43-9	
Copper	<b>99.3</b>	mg/kg	0.94	0.23	1	08/19/21 08:25	08/19/21 12:37	7440-50-8	
Lead	<b>36.1</b>	mg/kg	0.19	0.028	1	08/19/21 08:25	08/19/21 12:37	7439-92-1	
Zinc	<b>143</b>	mg/kg	4.7	0.85	1	08/19/21 08:25	08/19/21 12:37	7440-66-6	

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-6**      **Lab ID: 10574177012**      Collected: 08/10/21 12:55      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.027</b>	mg/kg	0.020	0.0088	1	08/16/21 13:44	08/18/21 16:03	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>7.2</b>	%	0.10	0.10	1		08/17/21 10:42		N2

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-7**      **Lab ID: 10574177013**      Collected: 08/10/21 13:00      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>									
Analytical Method: EPA 6020A    Preparation Method: EPA 3050B									
Pace Analytical Services - Minneapolis									
Arsenic	<b>36.6</b>	mg/kg	0.47	0.10	1	08/19/21 08:25	08/19/21 12:41	7440-38-2	
Cadmium	<b>0.91</b>	mg/kg	0.075	0.030	1	08/19/21 08:25	08/19/21 12:41	7440-43-9	
Copper	<b>85.7</b>	mg/kg	0.94	0.23	1	08/19/21 08:25	08/19/21 12:41	7440-50-8	
Lead	<b>28.8</b>	mg/kg	0.19	0.028	1	08/19/21 08:25	08/19/21 12:41	7439-92-1	
Zinc	<b>133</b>	mg/kg	4.7	0.85	1	08/19/21 08:25	08/19/21 12:41	7440-66-6	

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-7**      **Lab ID: 10574177014**      Collected: 08/10/21 13:00      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.032</b>	mg/kg	0.018	0.0079	1	08/16/21 13:44	08/18/21 16:05	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>8.4</b>	%	0.10	0.10	1		08/17/21 10:42		N2

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-8**      **Lab ID: 10574177015**      Collected: 08/10/21 13:05      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020A MET ICPMS</b>									
Analytical Method: EPA 6020A    Preparation Method: EPA 3050B									
Pace Analytical Services - Minneapolis									
Arsenic	<b>37.8</b>	mg/kg	0.50	0.11	1	08/19/21 08:25	08/19/21 12:44	7440-38-2	
Cadmium	<b>0.86</b>	mg/kg	0.080	0.031	1	08/19/21 08:25	08/19/21 12:44	7440-43-9	
Copper	<b>82.9</b>	mg/kg	1.0	0.24	1	08/19/21 08:25	08/19/21 12:44	7440-50-8	
Lead	<b>27.5</b>	mg/kg	0.20	0.029	1	08/19/21 08:25	08/19/21 12:44	7439-92-1	
Zinc	<b>131</b>	mg/kg	5.0	0.90	1	08/19/21 08:25	08/19/21 12:44	7440-66-6	

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574177

**Sample: BPSOU-KAW-8**      **Lab ID: 10574177016**      Collected: 08/10/21 13:05      Received: 08/12/21 08:50      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>7471B Mercury</b>	Analytical Method: EPA 7471B    Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	<b>0.028</b>	mg/kg	0.020	0.0086	1	08/16/21 13:44	08/18/21 16:06	7439-97-6	
<b>Dry Weight / %M by ASTM D2974</b>	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	<b>8.6</b>	%	0.10	0.10	1		08/17/21 10:42		N2

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: BPSOU School Sampling

Pace Project No.: 10574177

QC Batch: 763252

Analysis Method: EPA 7471B

QC Batch Method: EPA 7471B

Analysis Description: 7471B Mercury Solids

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10574177002, 10574177004, 10574177006, 10574177008, 10574177010, 10574177012, 10574177014, 10574177016

METHOD BLANK: 4069399

Matrix: Solid

Associated Lab Samples: 10574177002, 10574177004, 10574177006, 10574177008, 10574177010, 10574177012, 10574177014, 10574177016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/kg	<0.0087	0.020	0.0087	08/18/21 15:44	

LABORATORY CONTROL SAMPLE: 4069400

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.48	0.47	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4069402 4069403

Parameter	Units	10574177002		4069403		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/kg	0.026	0.5	0.53	0.50	0.53	93	95	80-120	5	20

SAMPLE DUPLICATE: 4069401

Parameter	Units	10574177002 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	mg/kg	0.026	0.028	8	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: BPSOU School Sampling

Pace Project No.: 10574177

QC Batch:	764488	Analysis Method:	EPA 6020A
QC Batch Method:	EPA 3050B	Analysis Description:	6020A Solids UPD4
		Laboratory:	Pace Analytical Services - Minneapolis
Associated Lab Samples:	10574177001, 10574177003, 10574177005, 10574177007, 10574177009, 10574177011, 10574177013, 10574177015		

METHOD BLANK:	4075056	Matrix:	Solid
Associated Lab Samples:	10574177001, 10574177003, 10574177005, 10574177007, 10574177009, 10574177011, 10574177013, 10574177015		

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/kg	<0.11	0.50	0.11	08/19/21 11:50	
Cadmium	mg/kg	<0.031	0.079	0.031	08/19/21 11:50	
Copper	mg/kg	<0.24	0.99	0.24	08/19/21 11:50	
Lead	mg/kg	<0.029	0.20	0.029	08/19/21 11:50	
Zinc	mg/kg	<0.89	5.0	0.89	08/19/21 11:50	

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	48.1	54.5	113	80-120	
Cadmium	mg/kg	48.1	56.5	118	80-120	
Copper	mg/kg	48.1	57.1	119	80-120	
Lead	mg/kg	48.1	56.3	117	80-120	
Zinc	mg/kg	48.1	55.9	116	80-120	

Parameter	Units	4075058		4075059		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Arsenic	mg/kg	26.9	48.1	47.6	82.6	82.6	116	117	75-125	0	20
Cadmium	mg/kg	0.90	48.1	47.6	58.1	57.4	119	119	75-125	1	20
Copper	mg/kg	66.9	48.1	47.6	127	124	125	119	75-125	3	20
Lead	mg/kg	29.4	48.1	47.6	85.6	85.6	117	118	75-125	0	20
Zinc	mg/kg	132	48.1	47.6	194	191	130	123	75-125	2	20 M1

Parameter	Units	10574177001		Dup Result	RPD	Max RPD	Qualifiers
		Result	Spike Conc.				
Arsenic	mg/kg	26.9	48.1	27.3	2	20	
Cadmium	mg/kg	0.90	48.1	0.94	5	20	
Copper	mg/kg	66.9	48.1	68.1	2	20	
Lead	mg/kg	29.4	48.1	30.0	2	20	
Zinc	mg/kg	132	48.1	133	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: BPSOU School Sampling

Pace Project No.: 10574177

QC Batch: 763834

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight / %M by ASTM D2974

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10574177002, 10574177004, 10574177006, 10574177008, 10574177010, 10574177012, 10574177014, 10574177016

SAMPLE DUPLICATE: 4072583

Parameter	Units	10573913001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	6.6	6.3	5	30	N2

SAMPLE DUPLICATE: 4072770

Parameter	Units	10574177014 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.4	7.9	6	30	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: BPSOU School Sampling

Pace Project No.: 10574177

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BPSOU School Sampling

Pace Project No.: 10574177

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10574177001	BPSOU-KAW-1	EPA 3050B	764488	EPA 6020A	764645
10574177003	BPSOU-KAW-2	EPA 3050B	764488	EPA 6020A	764645
10574177005	BPSOU-KAW-3	EPA 3050B	764488	EPA 6020A	764645
10574177007	BPSOU-KAW-4	EPA 3050B	764488	EPA 6020A	764645
10574177009	BPSOU-KAW-5	EPA 3050B	764488	EPA 6020A	764645
10574177011	BPSOU-KAW-6	EPA 3050B	764488	EPA 6020A	764645
10574177013	BPSOU-KAW-7	EPA 3050B	764488	EPA 6020A	764645
10574177015	BPSOU-KAW-8	EPA 3050B	764488	EPA 6020A	764645
10574177002	BPSOU-KAW-1	EPA 7471B	763252	EPA 7471B	764049
10574177004	BPSOU-KAW-2	EPA 7471B	763252	EPA 7471B	764049
10574177006	BPSOU-KAW-3	EPA 7471B	763252	EPA 7471B	764049
10574177008	BPSOU-KAW-4	EPA 7471B	763252	EPA 7471B	764049
10574177010	BPSOU-KAW-5	EPA 7471B	763252	EPA 7471B	764049
10574177012	BPSOU-KAW-6	EPA 7471B	763252	EPA 7471B	764049
10574177014	BPSOU-KAW-7	EPA 7471B	763252	EPA 7471B	764049
10574177016	BPSOU-KAW-8	EPA 7471B	763252	EPA 7471B	764049
10574177002	BPSOU-KAW-1	ASTM D2974	763834		
10574177004	BPSOU-KAW-2	ASTM D2974	763834		
10574177006	BPSOU-KAW-3	ASTM D2974	763834		
10574177008	BPSOU-KAW-4	ASTM D2974	763834		
10574177010	BPSOU-KAW-5	ASTM D2974	763834		
10574177012	BPSOU-KAW-6	ASTM D2974	763834		
10574177014	BPSOU-KAW-7	ASTM D2974	763834		
10574177016	BPSOU-KAW-8	ASTM D2974	763834		

### REPORT OF LABORATORY ANALYSIS

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# Laboratory Management Program LAMP Chain of Custody Record

Req Due Date (mm/dd/yy): \_\_\_\_\_ Rush TAT: XX No  
 Lab Work Order Number: \_\_\_\_\_

BP Site Node Path: \_\_\_\_\_  
 BP Facility No: \_\_\_\_\_



Lab Name: Pace Analytical Services	Facility Address:	Consultant/Contractor: Pioneer Technical Services
Lab Address: 1700 Elm Street Minneapolis, MN 55414	City, State, ZIP Code:	Consultant/Contractor Project No: BPSOU School Sampling
Lab PM: Jennifer Anderson	Lead Regulatory Agency:	Address: 307 E Park Suite 421, Anaconda MT, 59711
Lab Phone: 612-607-1700	California Global ID No.:	Consultant/Contractor PM: Jesse Schwarzrock
Lab Shipping Acct:	Enfos Proposal No.:	Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com
Lab Bottle Order No.:	Accounting Mode:	Email EDD To: Jesse Schwarzrock
Other Info:	Stage:	Invoice To: BP Contractor X

Lab No.	Sample Description	Date	Time	Matrix							Requested Analyses				Report Type & QC Level	
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	Standard x		Full Data Package
BPSOU-KAW-1		08/10/21	12:30	X									X	X	RUSH TURNAROUND	001
BPSOU-KAW-2		08/10/21	12:35	X									X	X	RUSH TURNAROUND	002
BPSOU-KAW-3		08/10/21	12:40	X									X	X	RUSH TURNAROUND	003
BPSOU-KAW-4		08/10/21	12:45	X									X	X	RUSH TURNAROUND	004
BPSOU-KAW-5		08/10/21	12:50	X									X	X	RUSH TURNAROUND	005
BPSOU-KAW-6		08/10/21	12:55	X									X	X	RUSH TURNAROUND	006
BPSOU-KAW-7		08/10/21	13:00	X									X	X	RUSH TURNAROUND	007
BPSOU-KAW-8		08/10/21	13:05	X									X	X	RUSH TURNAROUND	008

WO#: 10574177

Sampler's Name: Kile Denney	Relinquished By / Affiliation:	Date: 8/11/21	Time: 1600	Accepted By / Affiliation: JTB/PAE	Date: 8/12/21	Time: 850
Sampler's Company: Pioneer Technical Services	Cale McAnulty PPS					
Shipment Method: FedEx Overnight	Ship Date: 8/11/21					
Shipment Tracking No: 9950 9946 8703						
Special Instructions:						





Document Name: Sample Condition Upon Receipt (SCUR) - ESI

Document Revised: 12Aug2020

Page 1 of 1

Document No.: ENV-FRM-MIN4-0149 Rev.01

Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt - ESI Tech Specs

Client Name: BP - Pioneer

Project #: WOH# : 10574177

PM: JMA Due Date: 08/19/21 CLIENT: BP-PIONEER

Courier: Fed Ex UPS USPS Client Pace Speedee Commercial

Tracking Number: 9550 9946 8703 See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other: Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) T4(0254) T5(0489) Type of Ice: Wet Blue None Dry Melted

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 2.9 °C Average Corrected Temp (no temp blank only): °C Correction Factor: true Cooler Temp Corrected w/temp blank: 2.9 °C

USDA Regulated Soil: N/A, water sample/Other: Date/Initials of Person Examining Contents: 4/3 8/10/21 Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

Table with 2 columns: Questions and COMMENTS. Rows include Chain of Custody Present and Filled Out?, Chain of Custody Relinquished?, Sampler Name and/or Signature on COC?, Samples Arrived within Hold Time?, Short Hold Time Analysis (<72 hr)?, Rush Turn Around Time Requested?, Sufficient Sample Volume?, Triple Volume Provided for MS/MSD (if more than 10 samples)?, Correct Containers Used?, -Pace Containers Used?, Containers Intact?, Field Filtered Volume Received for Dissolved Tests?, Is sufficient information available to reconcile the samples to the COC, Matrix: Water Soil Oil Other, All containers needing acid/base preservation have been checked?, All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide), Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS \*If adding preservative to a container it must be added to associated field and equipment blanks (verify with PM first), Extra labels present on soil VOA or WIDRO containers?, Headspace in VOA Vials (greater than 6mm)?, 3 Trip Blanks Present?, Trip Blank Custody Seals Present?

Temp Log: Temp must be maintained at <6°C during login, record temp every 20 mins. Opened Time: 1145 Temp: 2.9 Corrected Temp: 2.9. Time: put in cooler. Time: 1158 Temp: 3.0 Corrected Temp: 3.0

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No Person Contacted: Date/Time: Comments/Resolution:

Project Manager Review:

Date: 08/16/2021

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Labeled by: HB (2)

# Internal Transfer Chain of Custody

40231493  
  
**Pace Analytical**  
 www.pacelabs.com

Samples Pre-Logged into eCOC.

State Of Origin: MT

Cert. Needed:  Yes  No

Workorder: 10574177 Workorder Name: BPSOU School Sampling

Owner Received Date: 8/12/2021 Results Requested By: 8/19/2021



Report To: Jennifer Anderson  
 Pace Analytical Minnesota  
 1700 Elm Street  
 Minneapolis, MN 55414  
 Phone (612)607-6436

Subcontract To: Pace Analytical Green Bay  
 1241 Bellevue Street  
 Suite 9  
 Green Bay, WI 54302  
 Phone (920)469-2436

Requested Analysis

PB

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						Other		
1	BPSOU-KAW-1	PS	8/10/2021 12:30	10574177001	Solid	1		001
2	BPSOU-KAW-2	PS	8/10/2021 12:35	10574177003	Solid	1		002
3	BPSOU-KAW-3	PS	8/10/2021 12:40	10574177005	Solid	1		003
4	BPSOU-KAW-4	PS	8/10/2021 12:45	10574177007	Solid	1		004
5	BPSOU-KAW-5	PS	8/10/2021 12:50	10574177009	Solid	1		005
6	BPSOU-KAW-6	PS	8/10/2021 12:55	10574177011	Solid	1		006
7	BPSOU-KAW-7	PS	8/10/2021 13:00	10574177013	Solid	1		007
8	BPSOU-KAW-8	PS	8/10/2021 13:05	10574177015	Solid	1		008

Air Dry & Sieve

Comments

Transfers	Released By	Date/Time	Received By	Date/Time	IR40-Rush	Include soil prep log	Follow QAPP	Samples Intact	Y or N
1	FedEx	8/13/21 0940	Menden Pace	8/13/21 0940	#60 Sieve			Y	N
2									
3									

Cooler Temperature on Receipt N/A °C Custody Seal Y or N Received on Ice Y or N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.



# Laboratory Management Program LaMP Chain of Custody Record

Source *Muhle*  
Page 1 of 1

40231403

Req Due Date (mm/dd/yy):  
Lab Work Order Number:

Rush TAT: XX No

Lab Name: Pace Analytical Services  
 Lab Address: 1700 Elm Street Minneapolis, MN 55414  
 Lab PM: Jennifer Anderson  
 Lab Phone: 612-607-1700  
 Lab Shipping Acct:  
 Lab Bottle Order No:  
 Other Info:

Facility Address:  
 City, State, ZIP Code:  
 Lead Regulatory Agency:  
 California Global ID No.:  
 Enfos Proposal No.:  
 Accounting Mode: Provision  
 Stage: Activity:

BP Project Manager (PM): Mike Mc Anulty  
 BP PM Phone: 406-723-1822  
 BP PM Email: [mcanumc@bp.com](mailto:mcanumc@bp.com)

Consultant/Contractor: Pioneer Technical Services  
 Consultant/Contractor Project No: BPSOU School Sampling  
 Address: 307 E Park Suite 421, Anaconda MT, 59711  
 Consultant/Contractor PM: Jesse Schwarzrock  
 Phone: 406-697-0949 Email: [j schwarzrock@pioneer-technical.com](mailto:j schwarzrock@pioneer-technical.com)  
 Email EDD To: Jesse Schwarzrock  
 Invoice To: BP Contractor X

Lab No.	Sample Description	Date	Time	Matrix				No. Containers / Preservative				Requested Analyses				Report Type & QC Level	Comments
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	Air dry&sieve*, 6020 (As, Cd, Cu, Pb, Zn)	7471 Mercury, dry weight		
	BPSOU-KAW-1	08/10/21	12:30	X				2					X	X		RUSH TURNAROUND	
	BPSOU-KAW-2	08/10/21	12:35	X				2					X	X		RUSH TURNAROUND	
	BPSOU-KAW-3	08/10/21	12:40	X				2					X	X		RUSH TURNAROUND	
	BPSOU-KAW-4	08/10/21	12:45	X				2					X	X		RUSH TURNAROUND	
	BPSOU-KAW-5	08/10/21	12:50	X				2					X	X		RUSH TURNAROUND	
	BPSOU-KAW-6	08/10/21	12:55	X				2					X	X		RUSH TURNAROUND	
	BPSOU-KAW-7	08/10/21	13:00	X				2					X	X		RUSH TURNAROUND	
	BPSOU-KAW-8	08/10/21	13:05	X				2					X	X		RUSH TURNAROUND	
Relinquished By / Affiliation				Date				Time				Accepted By / Affiliation				Date	
Kile Denney				8/11/21				1600				K. Bensen				8/13/21 0940	
Pioneer Technical Services				FedEx				FedEx				K. Bensen				8/13/21 0940	
Shipment Method: FedEx Overnight				Ship Date: 8/11/21													
Shipment Tracking No: 9950 9446 9537																	
<b>Special Instructions:</b>																	
THIS LINE - LAB USE ONLY: Custody Seals in Place: Yes / No																	
Temp Blank: Yes / No																	
Cooler Temp on Receipt: °F/C																	
Trip Blank: Yes / No																	
MS/MSD Sample Submitted: Yes / No																	

# Sample Preservation Receipt Form

Client Name: Pace Minn  
Project # 40231493

All containers needing preservation have been checked and noted below:  Yes  No  
Lab Lot# of pH paper: \_\_\_\_\_ Lab Std #ID of preservation (if pH adjusted): \_\_\_\_\_

Initial when completed: \_\_\_\_\_

Date/ Time: \_\_\_\_\_

Pace Lab #	Glass					Plastic					Vials					Jars					General			VOA Vials (>6mm) *	H <sub>2</sub> SO <sub>4</sub> pH ≤ 2	NaOH+Zn Act pH ≥ 9	NaOH pH ≥ 12	HNO <sub>3</sub> pH ≤ 2	pH after adjusted	Volume (mL)					
	AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU								SP5T	ZPLC	GN		
001																																			2.5/5/10
002																																		2.5/5/10	
003																																		2.5/5/10	
004																																		2.5/5/10	
005																																		2.5/5/10	
006																																		2.5/5/10	
007																																		2.5/5/10	
008																																		2.5/5/10	
009																																		2.5/5/10	
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014																																		2.5/5/10	
015																																		2.5/5/10	
016																																		2.5/5/10	
017																																		2.5/5/10	
018																																		2.5/5/10	
019																																		2.5/5/10	
020																																		2.5/5/10	

40231493

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: \_\_\_\_\_ Headspace in VOA Vials (>6mm) :  Yes  No  \*If yes look in headspace column

<p><b>AG1U</b> 1 liter amber glass</p> <p><b>BG1U</b> 1 liter clear glass</p> <p><b>AG1H</b> 1 liter amber glass HCL</p> <p><b>AG4S</b> 125 mL amber glass H<sub>2</sub>SO<sub>4</sub></p> <p><b>AG4U</b> 120 mL amber glass unpres</p> <p><b>AG5U</b> 100 mL amber glass unpres</p> <p><b>AG2S</b> 500 mL amber glass H<sub>2</sub>SO<sub>4</sub></p> <p><b>BG3U</b> 250 mL clear glass unpres</p>	<p><b>BP1U</b> 1 liter plastic unpres</p> <p><b>BP3U</b> 250 mL plastic unpres</p> <p><b>BP3B</b> 250 mL plastic NaOH</p> <p><b>BP3N</b> 250 mL plastic HNO<sub>3</sub></p> <p><b>BP3S</b> 250 mL plastic H<sub>2</sub>SO<sub>4</sub></p>	<p><b>VG9A</b> 40 mL clear ascorbic</p> <p><b>DG9T</b> 40 mL amber Na Thio</p> <p><b>VG9U</b> 40 mL clear vial unpres</p> <p><b>VG9H</b> 40 mL clear vial HCL</p> <p><b>VG9M</b> 40 mL clear vial MeOH</p> <p><b>VG9D</b> 40 mL clear vial DI</p>	<p><b>JGFU</b> 4 oz amber jar unpres</p> <p><b>JG9U</b> 9 oz amber jar unpres</p> <p><b>WGFU</b> 4 oz clear jar unpres</p> <p><b>WPFU</b> 4 oz plastic jar unpres</p> <p><b>SP5T</b> 120 mL plastic Na Thiosulfate</p> <p><b>ZPLC</b> ziploc bag</p> <p><b>GN</b></p>
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Document Name:  
**Sample Condition Upon Receipt (SCUR)**  
 Document No.:  
**ENV-FRM-GBAY-0014-Rev.00**

Document Revised: 26Mar2020  
 Author:  
 Pace Green Bay Quality Office

**Sample Condition Upon Receipt Form (SCUR)**

Project #: \_\_\_\_\_

Client Name: Pace Minn

WO#: **40231493**

Courier:  CS Logistics  Fed Ex  Speedee  UPS  Walco  
 Client  Pace Other: \_\_\_\_\_



Tracking #: 9550 9946 9537

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Custody Seal on Samples Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used SR - 90 N/A Type of Ice: Wet Blue Dry (None)  Samples on ice, cooling process has begun

Cooler Temperature Uncorr: N/A / Corr: N/A

Temp Blank Present:  yes  no Biological Tissue is Frozen:  yes  no

Person examining contents:  
 Date: 8/13/21 / Initials: HB  
 Labeled By Initials: HB

Temp should be above freezing to 6°C.  
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	4. <u>IRWD HB 8/13/21</u>
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>HB 8/13/21</u>	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>005 time 12:4 HB 8/13/21</u>
-Includes date/time/ID/Analysis Matrix: <u>S</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: \_\_\_\_\_ If checked, see attached form for additional comments   
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logir

# Internal Transfer Chain of Custody

40231493



Samples Pre-Logged into eCOC.

State Of Origin: MT

Cert. Needed:  Yes  No

Owner Received Date: 8/12/2021 Results Requested By: 8/19/2021



Workorder Name: BPSOU School Sampling

Report To: Subcontract To

Jennifer Anderson  
Pace Analytical Minnesota  
1700 Elm Street  
Minneapolis, MN 55414  
Phone (612)607-6436

Pace Analytical Green Bay  
1241 Bellevue Street  
Suite 9  
Green Bay, WI 54302  
Phone (920)469-2436

WO#: 10574177

PB

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						Other		
1	BPSOU-KAW-1	PS	8/10/2021 12:30	10574177001	Solid	1		001
2	BPSOU-KAW-2	PS	8/10/2021 12:35	10574177003	Solid	1		002
3	BPSOU-KAW-3	PS	8/10/2021 12:40	10574177005	Solid	1		003
4	BPSOU-KAW-4	PS	8/10/2021 12:45	10574177007	Solid	1		004
5	BPSOU-KAW-5	PS	8/10/2021 12:50	10574177009	Solid	1		005
6	BPSOU-KAW-6	PS	8/10/2021 12:55	10574177011	Solid	1		006
7	BPSOU-KAW-7	PS	8/10/2021 13:00	10574177013	Solid	1		007
8	BPSOU-KAW-8	PS	8/10/2021 13:05	10574177015	Solid	1		008

IR Dry & Sieve

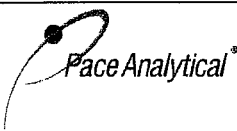
Comments

Transfers	Released By	Date/Time	Received By	Date/Time	IR40-Rush
1	FedEx	8/13/21 0940	Mendez Pace	8/13/21 0940	#60 Sieve
2	[Signature]	8/16/21 1700	Handy/Pac	8/16/21 1700	Include soil prep log
3					Follow QAPP

Cooler Temperature on Receipt: N/A °C Custody Seal  Y or  N Received on Ice  Y or  N Samples Intact  Y or  N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.



Document Name: Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 14Apr2021

Page 1 of 1

Document No.: ENV-FRM-MIN4-0150 Rev.02

Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt

Client Name:

Pace Green Bay

Project #:

WO#: 10574177

Courier:

Fed Ex, UPS, USPS, Client, Pace, Speedee, Commercial

PM: JMA Due Date: 08/19/21

CLIENT: BP-PIONEER

Tracking Number:

2937186-1

See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap, Bubble Bags, None, Other Temp Blank? Yes No

Thermometer: T1(0461), T2(1336), T3(0459), OS418-LS, T4(0254), T5(0489), 160285052 Type of Ice: Wet, Blue, None, Dry, Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: Average Corrected Temp (no temp blank only): 19.7°C See Exceptions ENV-FRM-MIN4-0142 1 Container

USDA Regulated Soil: N/A, water sample/Other: Date/Initials of Person Examining Contents: HKB 8/17/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

Table with 2 columns: Questions and COMMENTS. Contains 14 rows of questions related to sample handling, custody, and analysis.

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Comments/Resolution:

Field Data Required? Yes No

Date/Time:

Project Manager Review:

Date: 08/19/2021

Note: Whenever there is a discrepancy... a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: HKB





**SCUR Exceptions:**

**Workorder #:** 10574177

Out of Temp Sample IDs	Container Type	# of Containers	PM Notified? <input type="checkbox"/> Yes <input type="checkbox"/> No																
			If yes, indicate who was contacted/date/time. If no, indicate reason why.																
			<b>Multiple Cooler Project?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No If you answered yes, fill out information to the left.																
			<table border="1"> <thead> <tr> <th colspan="3">No Temp Blank</th> </tr> <tr> <th>Read Temp</th> <th>Corrected Temp</th> <th>Average Temp</th> </tr> </thead> <tbody> <tr> <td>19.8</td> <td>T</td> <td>19.7</td> </tr> <tr> <td>19.7</td> <td rowspan="3">↓</td> <td></td> </tr> <tr> <td>19.6</td> <td></td> </tr> <tr> <td>19.6</td> <td></td> </tr> </tbody> </table>	No Temp Blank			Read Temp	Corrected Temp	Average Temp	19.8	T	19.7	19.7	↓		19.6		19.6	
No Temp Blank																			
Read Temp	Corrected Temp	Average Temp																	
19.8	T	19.7																	
19.7	↓																		
19.6																			
19.6																			

Tracking Number/Temperature

Issue Type:	Container Type	# of Containers
Sample ID		

**pH Adjustment Log for Preserved Samples**

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition? <input type="checkbox"/> Yes <input type="checkbox"/> No	Initials
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	
								<input type="checkbox"/> Yes <input type="checkbox"/> No	

**Comments:**

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