Winter 1-23-2023

Draft Final 2023 Residential Metals Abatement Program (RMAP) Rocker Park Soil Remedial Action Work Plan (RAWP)

Pioneer Technical Services, Inc.

Atlantic Richfield Company

Mike Mc Anulty
Liability Manager

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Butte MT 59701
Direct (406) 782-9964
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January 23, 2023

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RE: Draft Final 2023 RMAP Rocker Park 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 RMAP Rocker Park Soil Remedial Action Work Plan (RAWP). The report and appendices may be downloaded at the following link:

https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/ErFLW3JxchZHks_PXIf3w2IB5y4A3i7hm1GUx29P13NZpA.

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

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Gary Icopini / MBMG - email
Becky Summerville / MR - email
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Karen Helfrich / Pioneer – email
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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)
Rocker Park
Soil Remedial Action Work Plan (RAWP)

Butte-Silver Bow County

and

Atlantic Richfield Company

January 23, 2023

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

Draft Final

2023 Residential Metals Abatement Program (RMAP)
Rocker Park
Soil Remedial Action Work Plan (RAWP)

Prepared for:

Butte-Silver Bow County
Superfund Division
155 W. Granite
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

January 23, 2023

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DOCUMENT MODIFICATION SUMMARY

Modification	Author	Version	Description	Date
0	Jesse Schwarzrock	Draft	Issued for Internal Review	01/18/23
1	Jesse Schwarzrock	Draft Final	Issued for Agency Review	01/23/23

1.0 INTRODUCTION

This Remedial Action Work Plan (RAWP) outlines a portion of the remedial action (RA) work resulting from the 2022 Residential Metals Abatement Program (RMAP) park soil sampling event that began in June 2022 and concluded in November 2022. The sampling event was conducted according to the *Final 2022 Residential Metals Abatement Program (RMAP) Quality Assurance Project Plan (QAPP) (Non-Residential Parcels)* (Butte-Silver Bow County and Atlantic Richfield Company, 2022a) and the *Final 2022 Residential Metals Abatement Program (RMAP) Park Soil Sampling Field Sampling Plan (FSP) Submittal #5 [Covering Longfellow Ball Fields, Peace Park, Rocker Park, Racetrack Park, C Street, JFK Park, and Rickey Park] (*Butte-Silver Bow County and Atlantic Richfield Company, 2022b).

2.0 PARK SOIL REMEDIATION SCOPE

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

- Rocker Park (see Table 1).

3.0 PARK 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 REMEDIAL ACTION WORK PLAN

4.1 Rocker Park Remedial Action

Remediation at Rocker Park consists of one polygon totaling approximately 0.04 acre. High Access Area 1 (HA1) is an earthen driveway running from the eastern property boundary to the park's asphalt parking lot.

- Polygon HA1 (1,743 square feet).

The polygon is an aggregate covered roadway (see Figure 1). The Individual Site Work Plan (ISWP) is provided in Attachment A.

4.1.1 Excavation

The remedial polygon (HA1) has lead exceedances to a depth of 12 inches. Based on this information, the removal area will be dictated by the original sampling polygon areas with the RMAP maximum removal depth of 14 inches below the existing road mix cover material (see Figure 2).

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 *Remediation Management – Control of Work Defined Practices*[1], mechanical excavation is not allowed within 2 feet of existing utilities. Therefore, any excavation work within 2 feet of the utility will be completed by hand excavation. The excavation depth will be measured from below the existing road mix cover, where applicable.

All excavated material will be disposed of within the Butte Mine Waste Repository (see Figure 3). Crews will verify the depth of the excavation area by measuring using a hand tape 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 in and around the work area. If any of this existing infrastructure is damaged, it will be replaced/repaired.

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.

4.1.2 Backfill

Once the on-site Environmental Protection Agency (EPA) representative has approved the excavation area, backfill work will begin (see 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 the 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, 6 inches of Type B fill material (see Section 5.3, Attachment D, and Attachment D-1) will be placed and compacted. Lastly, 6 inches of ¾-inch minus road mix material (see Section 5.4, Attachment E, and Attachment E-1) will be placed and compacted.

4.1.3 Revegetation

This high access area (HA1) will be surfaced with road mix material. Therefore, revegetation is not anticipated in this location.

4.2 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.

[1] This document is an internal document maintained by Remediation Management.

The contractor will be responsible for acquiring water for dust control from a source of the contractor's choice.

4.3 Best Management Practices

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

5.0 MATERIALS

5.1 Sugar Beet Lime Source

Western Sugar Cooperative in Billings, Montana, provided 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 4) in case remedial action construction activities started late in 2022. Trucks were diverted to Butte from an existing haul to the Anaconda Smelter National Priorities List (NPL) 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 Material

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

5.3 Type B Backfill Borrow Source

Type B fill material will be used for required backfill material in the 6 to 12 inch below ground surface interval within HA-1. Atlantic Richfield Company developed this fill material within the South Borrow Area of Remedial Design Unit (RDU) 8 of the Anaconda Smelter NPL Site in November 2020 (the location is shown on Figure 5) 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 Road Mix

Three-quarter-inch minus road mix material will be procured from S&N Concrete in Anaconda, Montana. Attachment E and Attachment E-1 contain 2022 metals data. These samples were collected from stockpiles present at S&N Concrete at that time. This source has been used extensively on Anaconda NPL Site projects, and metals concentrations have never been an issue.

6.0 REFERENCES

Butte-Silver Bow County and Atlantic Richfield Company, 2022a. Final 2022 Residential Metals Abatement Program (RMAP) Quality Assurance Project Plan (QAPP) (Non-Residential Parcels). Silver Bow Creek/Butte Area NPL Site Butte Priority Soils Operable Unit. June 21, 2022.

Butte-Silver Bow County and Atlantic Richfield Company, 2022b. Final 2022 Residential Metals Abatement Program (RMAP) Park Soil Sampling Field Sampling Plan (FSP) Submittal #5 [Covering Longfellow Ball Fields, Peace Park, Rocker Park, Racetrack Park, C Street, JFK Park, and Rickey Park]. Silver Bow Creek/Butte Area NPL Site Butte Priority Soils Operable Unit. June 27, 2022.

Figures

NOTES:

1. HA WILL BE REMEDIATED PER DETAILS 1 & 2 ON FIGURE 2.

2. 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

N

DISPLAYED AS:
PROJECTION/ZONE: MSP
DATUM: NAD 83
UNITS: FEET
SOURCE: PIONEER

0 25 50 100
Feet

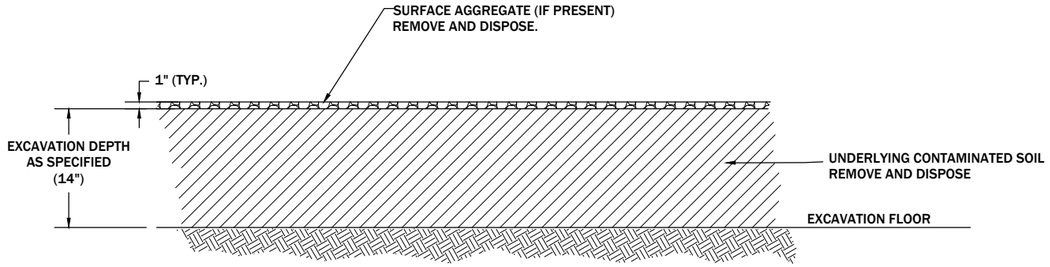
FIGURE 1

PIONEER TECHNICAL SERVICES, INC.

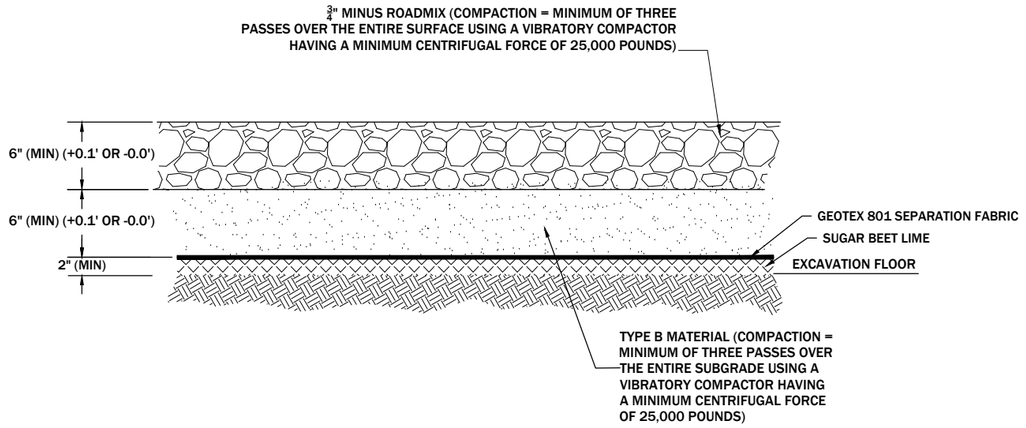
P-0026
ROCKER PARK
SITE OVERVIEW

DATE: 1/16/2023

Path: Z:\Shared\Active Projects\ARCO\BPSOU\RMAP\GIS\Parks\Park RAWP Figures\RockerPark\RAWP_RockerPark1.mxd



GENERAL EARTHEN DRIVEWAY REMOVAL DETAIL 1



14" EARTHEN DRIVEWAY REPLACEMENT DETAIL 2

DISPLAYED AS:
COORD SYS/ZONE:
DATUM:
UNITS:
SOURCE:

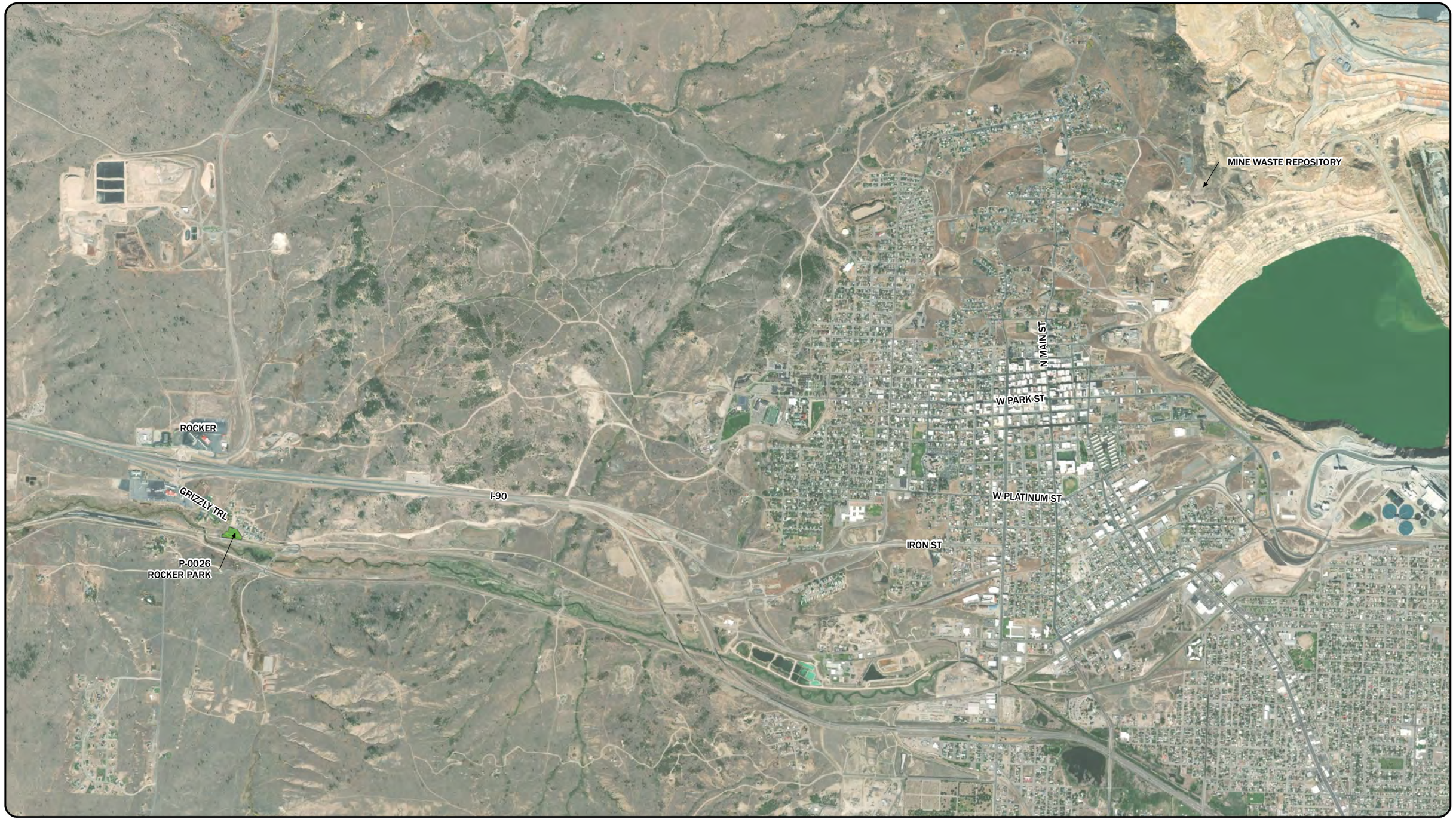
SCALE IN FEET
0 NTS NTS

FIGURE 2

PIONEER TECHNICAL SERVICES, INC.

REMOVAL CROSS SECTIONS

DATE: 1/16/2023



DISPLAYED AS:
PROJECTION/ZONE: MSP
DATUM: NAD 83
UNITS: FEET
SOURCE: PIONEER

0 1,000 2,000 4,000
Feet

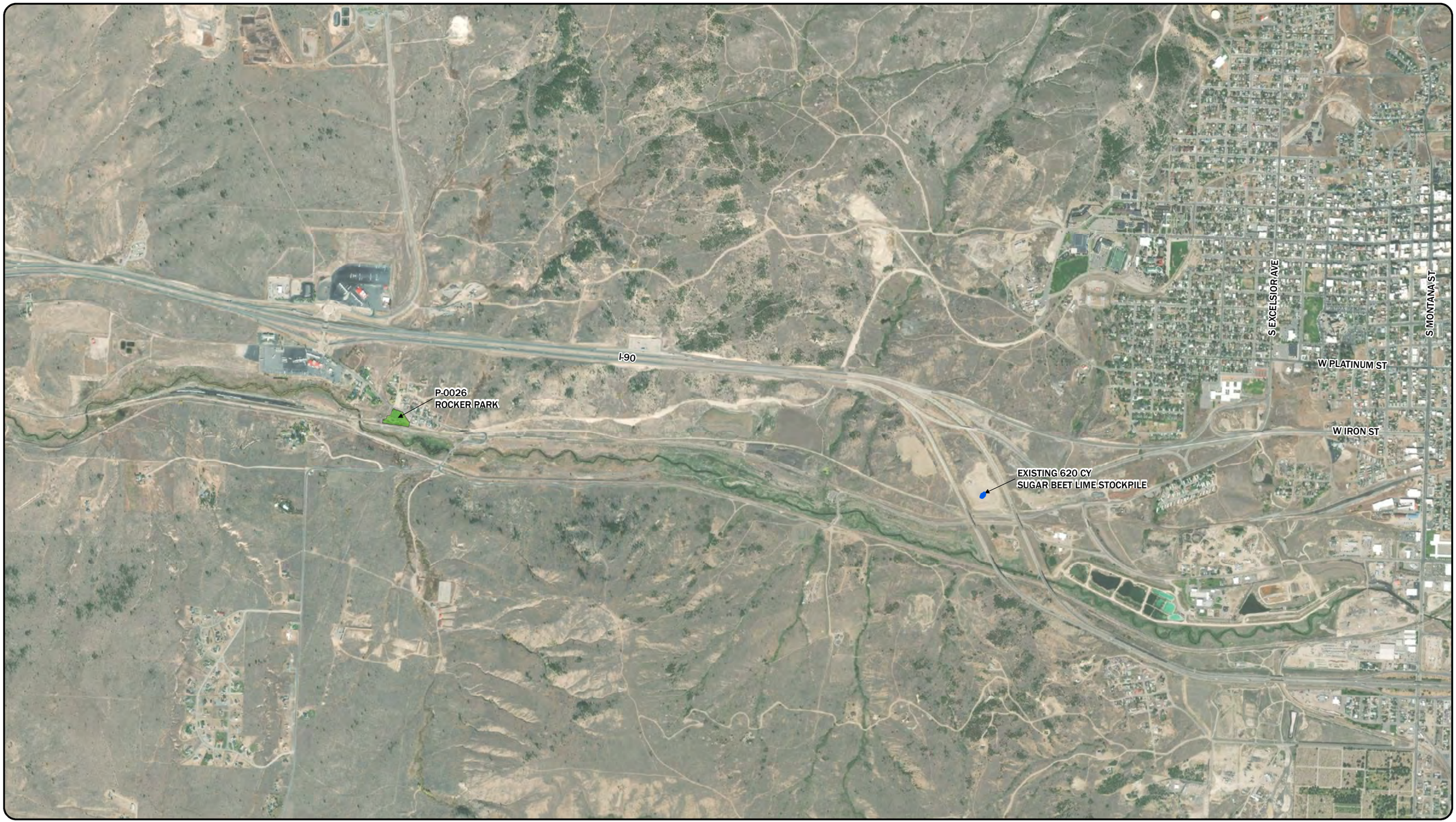
FIGURE 3

MINE WASTE REPOSITORY LOCATION

PIONEER TECHNICAL SERVICES, INC.

DATE: 1/16/2023

Path: Z:\Shared\Active Projects\ARCO\BPSOU\RMAP\GIS\Parks\Park RAWP Figures\RockerPark\RAWP_RockerPark3.mxd



DISPLAYED AS:
PROJECTION/ZONE: MSP
DATUM: NAD 83
UNITS: FEET
SOURCE: PIONEER

0 750 1,500 3,000
Feet

FIGURE 4

SUGAR BEET LIME STOCKPILE LOCATION

PIONEER TECHNICAL SERVICES, INC.

DATE: 1/16/2023

Path: Z:\Shared\Active Projects\ARCO\BPSOU\RMAP\GIS\Parks\Park RAWP Figures\RockerPark\RAWP_RockerPark4.mxd

DISPLAYED AS:
PROJECTION/ZONE: MSP
DATUM: NAD 83
UNITS: FEET
SOURCE: PIONEER

0 0.75 1.5 3
Miles

FIGURE 5

TYPE B BORROW STOCKPILE LOCATION

PIONEER TECHNICAL SERVICES, INC.

DATE: 1/16/2023

Path: Z:\Shared\Active Projects\ARCO\BPSOU\RMAP\GIS\Parks\Park RAWP Figures\RockerPark\RAWP_RockerPark5.mxd

Tables

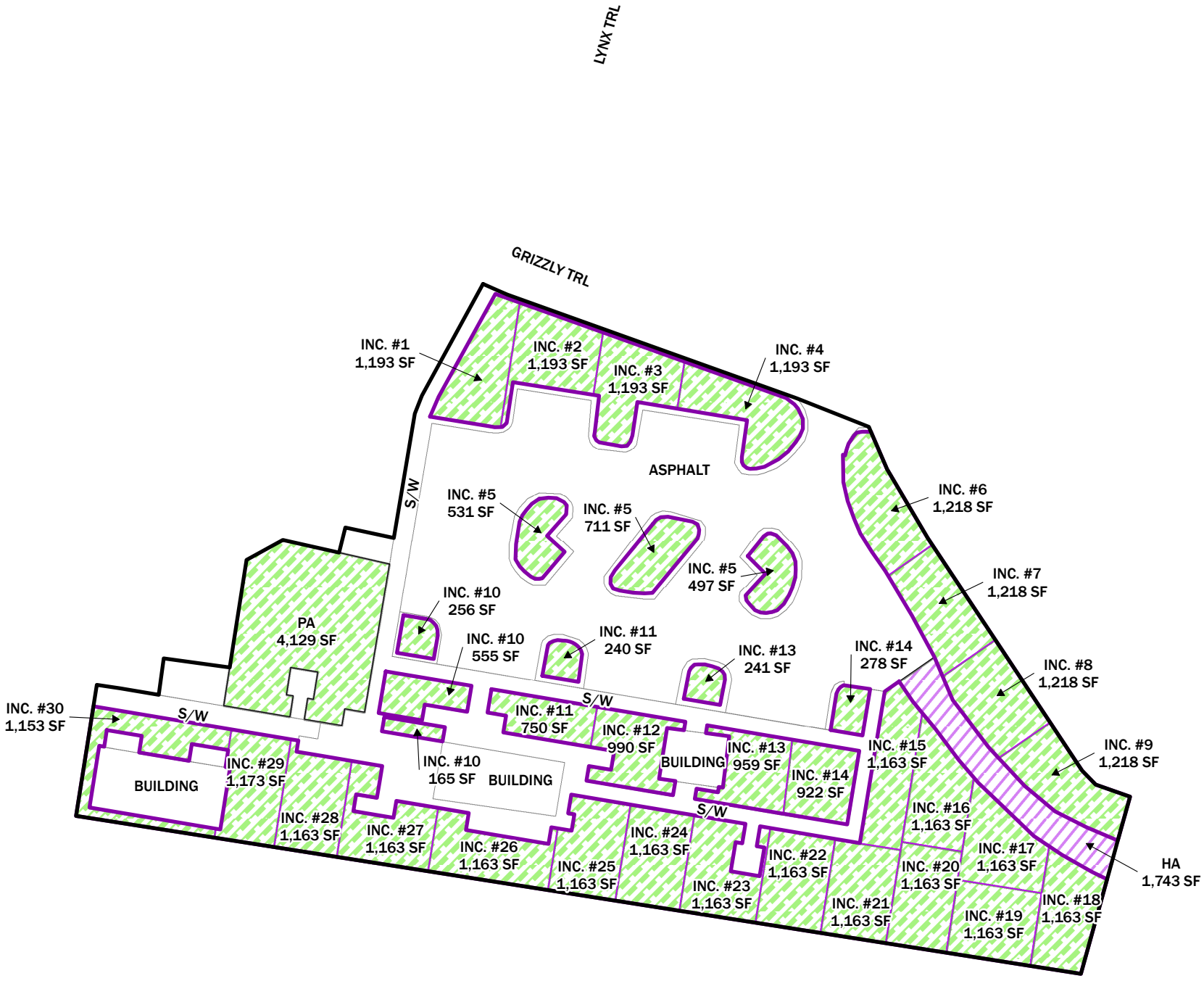
Table 1. Rocker Park Property Information

TABLE 1: ROCKER PARK PROPERTY INFORMATION

Count	Res-ID	Geocode	Name	Owner
1	P-0026	0111972149001BHRR	Rocker Park	BSB

Attachment A
Draft Rocker Individual Site Work Plan (ISWP)

GEOCODE: 0111972149001BHRR
PROPERTY ID: P-0026



P-0026

LEGEND

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

NOTES:

1. LOOK ON BACK OF SHEET FOR DATA TABLE.

ROCKER PARK
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.

N

60 30 0 60
Feet

Atlantic Richfield Company
A BP affiliated company

BY: PIONEER TECHNICAL SERVICES, INC.

Date: 8/17/2022
Revision#: 0
File Name: RMAP_ISWP_RockerPark

REMEDIAL ACTION SUMMARY TABLE

COMPOSITE SAMPLING DATA SUMMARY

Resident ID	SAMPLING COMPONENTS	COMPONENT SURFACE AREA	COMPOSITE ARSENIC					COMPOSITE LEAD					COMPOSITE MERCURY				
P-0026			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-0026-PA1	Playground Area 1 (PA1)	4,129	24	24	36	N/A	N/A	68	67	93	N/A	N/A	0.06	0.45	0.21	N/A	N/A
P-0026-PA1-D-3	Play Area 1 (PA1) Duplicate	-	N/A	N/A	33	N/A	N/A	N/A	N/A	85	N/A	N/A	N/A	N/A	0.14	N/A	N/A
P-0026-HA1	High Access Area 1 (HA1)	1,743	37	52	296	N/A	N/A	96	77	237	N/A	N/A	0.04	0.06	0.47	N/A	N/A
		Max:	37	52	296	0	0	96	77	237	0	0	0.06	0.45	0.47	0.00	0.00

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

ISM SAMPLING DATA SUMMARY

Resident ID	SAMPLING COMPONENTS	COMPONENT SURFACE AREA	ISM ARSENIC		ISM LEAD		ISM MERCURY	
P-0026			0-2"	2-12"	0-2"	2-12"	0-2"	2-12"
P-0026-IS1	ISM Replicate A	35,347	76	78	115	150	0.14	0.25
P-0026-IS1	ISM Replicate B		37	81	94	122	0.06	0.20
P-0026-IS1	ISM Replicate C		108	74	161	214	0.07	0.17
		95% UCL:	163	84	210	281	0.20	0.27

ISM Arsenic 95% UCL is ≥ 250 mg/kg.
ISM Lead 95% UCL is ≥ 1,200 mg/kg.
ISM Mercury 95% UCL is ≥ 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			
P-0026			Excavation (Cubic Yards)	Lime (Cubic Yards)	General Backfill (Cubic Yards)	Road Mix (Cubic Yards)
P-0026-PA1	Playground Area 1 (PA1)	4,129	0	0	0	0
P-0026-HA1	High Access Area 1 (HA1)	1,743	75	11	32	32
P-0026-IS1	ISM Polygon	35,347	0	0	0	0
		41,219	**75**	**11**	**32**	**32**

ROCKER PARK
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: PIONEER TECHNICAL SERVICES, INC.

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 $CaCO_3$	% 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
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	28.6	wt%		0.2		D2974	06/21/22 10:09 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	78.4	%		0.1		USDA23c	06/28/22 07:52 / srm
SIEVE ANALYSIS							
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
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	28.8	wt%		0.2		D2974	06/21/22 10:09 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	77.4	%		0.1		USDA23c	06/28/22 07:52 / srm
SIEVE ANALYSIS							
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 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: 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
DateReceived: 06/15/22
Matrix: Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	27.5	wt%		0.2		D2974	06/21/22 10:09 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	76.9	%		0.1		USDA23c	06/28/22 07:52 / srm
SIEVE ANALYSIS							
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 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 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
Method: **USDA23c**									Batch: R383791
Lab ID: **B22061398-001A DUP**	Sample Duplicate				Run: MISC-SOIL_220628A				06/28/22 07:52
Lime as CaCO3	78.4	%	0.10				0.0	30	
Lab ID: **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\lcadreau
Received by: srg
Reviewed Date: 6/19/2022
Carrier name: Return-FedEx Ground

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

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	Project Name, PWS, Permit, Etc.: ARWW&S, RDU3, 0232257.03	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address (Required): 1015 S Montana St Suite C, Butte MT, 59701 ☒ No Hard Copy Email: gcraig@woodardcurran.com	Contact Name: Garrett Craig; Phone/Fax: (406)291-2617; Cell: (406)291-2617		Sampler: (Please Print) Kristopher Bosch
	Invoice Contact & Phone: Kevin Bethke (406)586-8364	Purchase Order:	Quote/Bottle Order:
Invoice Address (Required): 1800 Koch Suite A, Bozeman MT, 59715 ☐ No Hard Copy Email: kbethke@woodardcurran.com			

Special Report/Formats:
☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other D DW - Drinking Water

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	B5361 - Lime Quality	SEE ATTACHED
1	22RDU3_SBL_011	06/13/2022	14:45	S	✔	
2	22RDU3_SBL_012	06/13/2022	14:50	S	✔	
3	22RDU3_SBL_013	06/13/2022	14:55	S	✔	
4						
5						
6						
7						
8						
9						
10						

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

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

LABORATORY USE ONLY B22061398

Custody Record MUST be Signed

	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	Kristopher Bosch	06/13/2022 17:30				
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
				Received by Laboratory: Staci Gotlob	Date/Time: 6/15/22 09:20	Signature: Staci Gotlob

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 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
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	23.8	wt%		0.2		D2974	07/08/22 10:15 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	77.9	%		0.1		USDA23c	07/13/22 15:11 / srm
SIEVE ANALYSIS							
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
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	22.3	wt%		0.2		D2974	07/08/22 10:15 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	78.4	%		0.1		USDA23c	07/13/22 15:11 / srm
SIEVE ANALYSIS							
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 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 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
Method: **USDA23c**									Batch: R384614
Lab ID: **B22070163-001A DUP**	Sample Duplicate				Run: MISC-SOIL_220713B				07/13/22 15:11
Lime as CaCO3	78.4	%	0.10				0.6	30	
Lab ID: **LCS-2207131511**	Laboratory Control Sample				Run: MISC-SOIL_220713B				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 ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	25.3°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

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:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
Woodard & Curran	ARWW&S 0232257.04	State: MT	Yes ☐ No ☐

Report Mail Address (Required):	Contact Name:	Phone/Fax:	Cell:	Sampler: (Please Print)
1015 S Montana St Suite C, Butte MT, 59701 ☒ No Hard Copy Email: gcraig@woodardcurran.com	Garrett Craig	(406)291-2617	(406)291-2617	Shyla Wesely

Invoice Address (Required):	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:
1800 Koch Suite A, Bozeman MT, 59715 ☐ No Hard Copy Email: kbethke@woodardcurran.com	Kevin Bethke (406)586-8364		

Special Report/Formats:
☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	B5361 - Lime Quality	SEE ATTACHED
1 22RDU3_SBL_014	6/29/22	1700	S	✔	
2 22RDU3_SBL_15	6/29/22	1710	S	✔	
3					
4					
5					
6					
7					
8					
9					
10					

Standard Turnaround (TAT)

→ R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

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

LABORATORY USE ONLY B2207063

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Shyla Wesely	6/29/22				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Dylan Chirico	Date/Time: 7/5/22 11:15	Signature:

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 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
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	25.7	wt%		0.2		D2974	07/19/22 09:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	76.4	%		0.1		USDA23c	07/20/22 15:36 / srm
SIEVE ANALYSIS							
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
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	25.9	wt%		0.2		D2974	07/19/22 09:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	78.8	%		0.1		USDA23c	07/20/22 15:36 / srm
SIEVE ANALYSIS							
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 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 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
Method: USDA23c									Batch: R384936
Lab ID: B22070686-001A DUP	Sample Duplicate				Run: MISC-SOIL_220720B				07/20/22 15:36
Lime as CaCO3	75.9	%	0.10				0.7	30	
Lab ID: 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

B22070686

Login completed by: Dylan A. Chirrick
Reviewed by: BL2000\lcadreau
Reviewed Date: 7/12/2022
Date Received: 7/11/2022
Received by: dac
Carrier name: Return-FedEx Ground

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

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

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Woodard & Curran	Project Name, PWS, Permit, Etc.: ARWW&S, RDU3, 0232257.03	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address (Required): 1015 S Montana St Suite C, Butte MT, 59701 ☑ No Hard Copy Email: gcraig@woodardcurran.com	Contact Name: Garrett Craig; Phone/Fax: (406)291-2617; Cell: (406)291-2617		Sampler: (Please Print) Kristopher Bosch
	Invoice Contact & Phone: Kevin Bethke (406)586-8364	Purchase Order:	Quote/Bottle Order:
Invoice Address (Required): 1800 Koch Suite A, Bozeman MT, 59715 ❑ No Hard Copy Email: kbethke@woodardcurran.com			

Special Report/Formats:
☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____ ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	B5361 - Lime Quality	SEE ATTACHED
1	22RDU3_SBL_016	07/07/2022	11:20	S	✓	
2	22RDU3_SBL_017	07/07/2022	11:25	S	✓	
3						
4						
5						
6						
7						
8						
9						
10						

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

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

LABORATORY USE ONLY B22070686

Custody Record MUST be Signed

Relinquished by (print): Hannah Foster	Date/Time: 07/08/22 12:00	Signature: Hannah Foster 7/8/22 12:00pm	Received by (print):
Relinquished by (print):	Date/Time:	Signature:	Received by (print):
Sample Disposal: Return to Client: _____ Lab Disposal: ✓			Received by Laboratory: Date/Time: 7/11/22 11:15 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 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
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	23.4	wt%		0.2		D2974	07/19/22 09:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	77.9	%		0.1		USDA23c	07/20/22 15:36 / srm
SIEVE ANALYSIS							
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
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	31.7	wt%		0.2		D2974	07/19/22 09:43 / srm
CHEMICAL CHARACTERISTICS							
Lime as CaCO3	77.4	%		0.1		USDA23c	07/20/22 15:36 / srm
SIEVE ANALYSIS							
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 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 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
Method: USDA23c									Batch: R384936
Lab ID: B22070686-001A DUP	Sample Duplicate				Run: MISC-SOIL_220720B				07/20/22 15:36
Lime as CaCO3	75.9	%	0.10				0.7	30	
Lab ID: 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 ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	22.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

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	Project Name, PWS, Permit, Etc.: ARWW&S, RDU3, 0232257.03	Sample Origin: State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address (Required): 1015 S Montana St Suite C, Butte MT, 59701	Contact Name: Garrett Craig / Phone/Fax: (406)291-2617	Cell: (406)291-2617	Sampler: (Please Print) Kristopher Bosch
☒ No Hard Copy Email: gcraig@woodardcurran.com	Invoice Contact & Phone: Kevin Bethke (406)586-8364	Purchase Order:	Quote/Bottle Order:
Invoice Address (Required): 1800 Koch Suite A, Bozeman MT, 59715			
☐ No Hard Copy Email: kbethke@woodardcurran.com			

Special Report/Formats:
☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____ ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	B5361 - Lime Quality	SEE ATTACHED
1	22RDU3_SBL_018	07/12/2022	15:00	S	✔	
2	22RDU3_SBL_019	07/12/2022	15:05	S	✔	
3						
4						
5						
6						
7						
8						
9						
10						

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

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

LABORATORY USE ONLY B22071162

Custody Record MUST be Signed

Relinquished by (print): Hannah Foster	Date/Time: 07/13/22 12:00	Signature: Hannah Foster 7/13/22 12:00	Received by (print):	Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time: / Signature:
Sample Disposal: Return to Client: _____	Lab Disposal: ✔		Received by Laboratory: Tabitha Edwards	Date/Time: 7-14-22 0915 / 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 for additional information, downloadable fee schedule, forms, and links.

Attachment C
Fabric Specification Sheet

GEOTEX® BY PROPEX

Product Data
GEOTEX® 801

GEOTEX® 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 needled 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[1]. 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.

PROPERTY	TEST METHOD	MARV[2] ENGLISH	MARV[2] METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured Inputs		100%	100%
% U.S. Manufactured		100%	100%
MECHANICAL			
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
ENDURANCE			
UV Resistance % Retained at 500 hrs	ASTM D-4355	70%	70%
HYDRAULIC			
Apparent Opening Size (AOS)[3]	ASTM D-4751	80 US Std. Sieve	0.180 mm
Permittivity	ASTM D-4491	1.5 sec^{-1}	1.5 sec^{-1}
Water Flow Rate	ASTM D-4491	110 gpm/ft^2	4482 $l/min/m^2$

ROLL SIZES	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.

Propex™ Geotextile Systems

TESTED. PROVEN. TRUSTED.
www.geotextile.com

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

Attachment D
Type B Borrow Material Stockpile Data

Attachment D-1 Pace Analytical Services, LLC Data Reports

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

	Sample ID	Date Collected	Butte Hill Reveg Spec:	As < 97 mg/kg	Cd < 4 mg/kg	Cu < 250 mg/kg	Pb < 100 mg/kg	Zn < 250 mg/kg	Hg < 5 mg/kg
1	20-CS-Type B-1203-001	12/03/20		5.8	0.08	10.9	4.7	21.7	-
2	20-CS-Type B-1203-002	12/03/20		4.5	0.10	12.3	4.9	25.8	-
3	20-CS-Type B-1203-003	12/03/20		3.4	Non Detect	8.7	4.7	19.4	-
4	20-CS-Type B-1203-004	12/03/20		8.3	0.13	17.2	6.3	29.7	-
5	20-CS-Type B-1203-005	12/03/20		7.7	0.11	16.8	7.1	29.9	-
6	20-CS-Type B-1203-006	12/03/20		7.8	0.10	14.6	5.9	28.2	-
7	20-CS-Type B-1203-007	12/03/20	Volume Tested:	10.9	0.09	13.7	5.4	25.7	-
8	20-CS-Type B-1203-008	12/03/20	Approximatley	5.0	0.11	10.5	4.8	23.5	-
9	20-CS-Type B-1203-009	12/03/20	5,000 cy	10.1	0.11	18.2	6.7	31.7	-
10	20-CS-Type B-1203-010	12/03/20		5.7	0.09	12.6	5.5	26.2	-
11	20-CS-Type B-1203-011	12/03/20		3.9	Non Detect	8.6	4.0	20.8	-
12	20-CS-Type B-1203-012	12/03/20		3.8	0.09	8.9	5.3	26.7	-
13	21-TypeB-0817-001	08/17/21		-	-	-	-	-	0.02
14	21-TypeB-0817-002	08/17/21		-	-	-	-	-	0.02
15	21-TypeB-0817-003	08/17/21		-	-	-	-	-	0.01
16	21-TypeB-0817-004	08/17/21		-	-	-	-	-	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

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

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.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

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 Certifcation #: 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 (*).

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

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

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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

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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(612)607-1700

PROJECT NARRATIVE

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

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.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**5.8**	mg/kg	0.49	20	12/08/20 16:12	12/10/20 14:13	7440-38-2	
Cadmium	**0.081**	mg/kg	0.078	20	12/08/20 16:12	12/10/20 14:13	7440-43-9	
Copper	**10.9**	mg/kg	0.98	20	12/08/20 16:12	12/10/20 14:13	7440-50-8	
Lead	**4.7**	mg/kg	0.20	20	12/08/20 16:12	12/10/20 14:13	7439-92-1	
Zinc	**21.7**	mg/kg	4.9	20	12/08/20 16:12	12/10/20 14:13	7440-66-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**4.5**	mg/kg	0.46	20	12/08/20 16:12	12/10/20 14:29	7440-38-2	
Cadmium	**0.10**	mg/kg	0.074	20	12/08/20 16:12	12/10/20 14:29	7440-43-9	
Copper	**12.3**	mg/kg	0.93	20	12/08/20 16:12	12/10/20 14:29	7440-50-8	
Lead	**4.9**	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:29	7439-92-1	
Zinc	**25.8**	mg/kg	4.6	20	12/08/20 16:12	12/10/20 14:29	7440-66-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**3.4**	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	**8.7**	mg/kg	0.98	20	12/08/20 16:12	12/10/20 14:32	7440-50-8	
Lead	**4.7**	mg/kg	0.20	20	12/08/20 16:12	12/10/20 14:32	7439-92-1	
Zinc	**19.4**	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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**8.3**	mg/kg	0.47	20	12/08/20 16:12	12/10/20 14:41	7440-38-2	
Cadmium	**0.13**	mg/kg	0.075	20	12/08/20 16:12	12/10/20 14:41	7440-43-9	
Copper	**17.2**	mg/kg	0.94	20	12/08/20 16:12	12/10/20 14:41	7440-50-8	
Lead	**6.3**	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:41	7439-92-1	
Zinc	**29.7**	mg/kg	4.7	20	12/08/20 16:12	12/10/20 14:41	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-1203-005 **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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**7.7**	mg/kg	0.47	20	12/08/20 16:12	12/10/20 14:45	7440-38-2	
Cadmium	**0.11**	mg/kg	0.075	20	12/08/20 16:12	12/10/20 14:45	7440-43-9	
Copper	**16.8**	mg/kg	0.93	20	12/08/20 16:12	12/10/20 14:45	7440-50-8	
Lead	**7.1**	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:45	7439-92-1	
Zinc	**29.9**	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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**7.8**	mg/kg	0.48	20	12/08/20 16:12	12/10/20 14:48	7440-38-2	
Cadmium	**0.10**	mg/kg	0.077	20	12/08/20 16:12	12/10/20 14:48	7440-43-9	
Copper	**14.6**	mg/kg	0.96	20	12/08/20 16:12	12/10/20 14:48	7440-50-8	
Lead	**5.9**	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:48	7439-92-1	
Zinc	**28.2**	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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**10.9**	mg/kg	0.49	20	12/08/20 16:12	12/10/20 14:51	7440-38-2	
Cadmium	**0.091**	mg/kg	0.078	20	12/08/20 16:12	12/10/20 14:51	7440-43-9	
Copper	**13.7**	mg/kg	0.98	20	12/08/20 16:12	12/10/20 14:51	7440-50-8	
Lead	**5.4**	mg/kg	0.20	20	12/08/20 16:12	12/10/20 14:51	7439-92-1	
Zinc	**25.7**	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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**5.0**	mg/kg	0.47	20	12/08/20 16:12	12/10/20 14:54	7440-38-2	
Cadmium	**0.11**	mg/kg	0.075	20	12/08/20 16:12	12/10/20 14:54	7440-43-9	
Copper	**10.5**	mg/kg	0.94	20	12/08/20 16:12	12/10/20 14:54	7440-50-8	
Lead	**4.8**	mg/kg	0.19	20	12/08/20 16:12	12/10/20 14:54	7439-92-1	
Zinc	**23.5**	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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**10.1**	mg/kg	0.46	20	12/08/20 16:12	12/10/20 14:57	7440-38-2	
Cadmium	**0.11**	mg/kg	0.073	20	12/08/20 16:12	12/10/20 14:57	7440-43-9	
Copper	**18.2**	mg/kg	0.92	20	12/08/20 16:12	12/10/20 14:57	7440-50-8	
Lead	**6.7**	mg/kg	0.18	20	12/08/20 16:12	12/10/20 14:57	7439-92-1	
Zinc	**31.7**	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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**5.7**	mg/kg	0.48	20	12/08/20 16:12	12/10/20 15:00	7440-38-2	
Cadmium	**0.094**	mg/kg	0.076	20	12/08/20 16:12	12/10/20 15:00	7440-43-9	
Copper	**12.6**	mg/kg	0.95	20	12/08/20 16:12	12/10/20 15:00	7440-50-8	
Lead	**5.5**	mg/kg	0.19	20	12/08/20 16:12	12/10/20 15:00	7439-92-1	
Zinc	**26.2**	mg/kg	4.8	20	12/08/20 16:12	12/10/20 15:00	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-1203-011 **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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**3.9**	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	**8.6**	mg/kg	0.97	20	12/08/20 16:12	12/10/20 15:03	7440-50-8	
Lead	**4.0**	mg/kg	0.19	20	12/08/20 16:12	12/10/20 15:03	7439-92-1	
Zinc	**20.8**	mg/kg	4.9	20	12/08/20 16:12	12/10/20 15:03	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-1203-012 **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
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis							
Arsenic	**3.8**	mg/kg	0.48	20	12/08/20 16:12	12/10/20 15:06	7440-38-2	
Cadmium	**0.094**	mg/kg	0.077	20	12/08/20 16:12	12/10/20 15:06	7440-43-9	
Copper	**8.9**	mg/kg	0.96	20	12/08/20 16:12	12/10/20 15:06	7440-50-8	
Lead	**5.3**	mg/kg	0.19	20	12/08/20 16:12	12/10/20 15:06	7439-92-1	
Zinc	**26.7**	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
QC Batch Method: EPA 3050B
Analysis Method: EPA 6020A
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	10541146001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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.

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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

bp rm

Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: _____ Req Due Date (mm/dd/yy): _____ Rush TAT: X No ___

BP Facility No: _____ Lab Work Order Number: _____

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: CS OU Borrow Development
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 Accnt:	Enfos Proposal No:	Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com
Lab Bottle Order No:	Accounting Mode: Provision ___ ___ ___	Email EDD To: Jesse Schwarzrock
Other Info: Profile: 35746, Line 3	Stage: Activity:	Invoice To: BP ___ Contractor X

BP Project Manager (PM): Luke Pokorny

BP PM Phone: 406-723-1832

BP PM Email: luke.pokorny@bp.com

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

		Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name:	Cole Dallaserra						
Sampler's Company:	Pioneer Technical Services	Cole Dallaserra / PTS	12/3/20	11:30	KBL PAL	12/4/20	1040
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

WO# : 10541146

10541146

Pace Analytical®	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 tech

Project #: **WO#: 10541146**

PM: JMA Due Date: 12/18/20

CLIENT: BP-PIONEER

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ 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:** 2.5 °C **Average Corrected Temp (no temp blank only):** _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

Correction Factor: +0.2 **Cooler Temp Corrected w/temp blank:** 2.7 °C

USDA Regulated Soil: (☐ N/A, water sample/Other:_____) **Date/Initials of Person Examining Contents:** KBR 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?	☒ Yes	☐ No		1.
Chain of Custody Relinquished?	☒ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☒ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐
Rush Turn Around Time Requested?	☒ Yes	☐ No		6.
Sufficient Sample Volume?	☒ Yes	☐ No		
Triple Volume Provided for MS/MSD (if more than 10 samples)?	☐ Yes	☐ No	☒ N/A	7.
Correct Containers Used?	☒ Yes	☐ No		8. plastic bags
-Pace Containers Used?	☐ Yes	☒ No		
Containers Intact?	☒ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC	☒ Yes	☐ No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐ **ENV-FRM-MIN4-0142**
Matrix: ☐ Water ☒ Soil ☐ Oil ☐ Other_____				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☒ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☒ N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
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)	☐ Yes	☐ No	☒ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** **See Exception** ☐ **ENV-FRM-MIN4-0142**
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Extra labels present on soil VOA or WIDRO contaners?	☐ Yes	☐ No	☒ N/A	13. **See Exception** ☐ **ENV-FRM-MIN4-0140**
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☒ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	Pace Trip Blank Lot # (if purchased):_____

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

Project Manager Review: _____ **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)

Labeled by: TMC (3)

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

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.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: BPSOU School Sampling
Pace Project No.: 10574925

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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1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

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

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: BPSOU School Sampling
Pace Project No.: 10574925

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.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

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.

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

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
7471B Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	**0.018**	mg/kg	0.018	0.0077	1	08/23/21 17:49	08/25/21 14:51	7439-97-6	
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	**0.99**	%	0.10	0.10	1		08/20/21 13:56		N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: BPSOU School Sampling
Pace Project No.: 10574925

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
7471B Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	**0.017**	mg/kg	0.017	0.0073	1	08/23/21 17:49	08/25/21 14:57	7439-97-6	
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	**1.4**	%	0.10	0.10	1		08/20/21 13:56		N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

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
7471B Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	**0.013J**	mg/kg	0.020	0.0088	1	08/23/21 17:49	08/25/21 14:59	7439-97-6	
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	**1.1**	%	0.10	0.10	1		08/20/21 13:56		N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

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
7471B Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	**0.018J**	mg/kg	0.020	0.0088	1	08/23/21 17:49	08/25/21 15:01	7439-97-6	
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	**1.1**	%	0.10	0.10	1		08/20/21 13:57		N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: BPSOU School Sampling
Pace Project No.: 10574925

QC Batch: 765313
QC Batch Method: EPA 7471B
Analysis 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

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: BPSOU School Sampling
Pace Project No.: 10574925

QC Batch: 764856
QC Batch Method: ASTM D2974
Analysis 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

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: BPSOU School Sampling
Pace Project No.: 10574925

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.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

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		

bp rm 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: 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 Accnt:	Enfos Proposal No:	Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com
Lab Bottle Order No:	Accounting Mode: Provision	Email EDD To: Jesse Schwarzrock
Other Info:	Stage: Activity:	Invoice To: BP Contractor X

BP Project Manager (PM): Mike Mc Anulty

BP PM Phone: 406-723-1822

BP PM Email: mcanumc@bp.com

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix: Is this location a well?	No. Containers / Preservative: Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	Requested Analyses: Air dry&sieve*, 6020 (As, Cd, Cu, Pb, Zn)	Requested Analyses: 7471 Mercury, dry weight	Comments
	21-TypeB-0817-001	08/17/21	1120	X				1							X	RUSH TURNAROUND
	21-TypeB-0817-002	08/17/21	1130	X				1							X	RUSH TURNAROUND
	21-TypeB-0817-003	08/17/21	1140	X				1							X	RUSH TURNAROUND
	21-TypeB-0817-004	08/17/21	1150	X				1							X	RUSH TURNAROUND

Report Type & QC Level: Standard x; Full Data Package

Note: If sample not collected, indicate "No

WO#: 10574925

10574925

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	1245	[signature] / Pace	8/18/21	8:50
Shipment Method: FedEx Overnight Ship Date: 8/17/2021						
Shipment Tracking No: 4278 9935 1703						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 5.4 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

Pace Analytical®	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

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 only):** _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

Correction Factor: True **Cooler Temp Corrected w/temp blank :** 5.4 °C

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.

				COMMENTS:
Chain of Custody Present and Filled Out?	☒ Yes	☐ No		1.
Chain of Custody Relinquished?	☒ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☒ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐
Rush Turn Around Time Requested?	☒ Yes	☐ No		6.
Sufficient Sample Volume?	☒ Yes	☐ No		
Triple Volume Provided for MS/MSD (if more than 10 samples)?	☐ Yes	☐ No	☒ N/A	7.
Correct Containers Used?	☒ Yes	☐ No		8.
-Pace Containers Used?	☒ Yes	☐ No		
Containers Intact?	☒ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC	☒ Yes	☐ No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐ ENV-FRM-MIN4-0142
Matrix: ☐ Water ☒ Soil ☐ Oil ☐ Other _____				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☒ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☒ N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
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)	☐ Yes	☐ No	☒ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** **See Exception** ☐ ENV-FRM-MIN4-0142
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Extra labels present on soil VOA or WIDRO contaners?	☐ Yes	☐ No	☒ N/A	13. **See Exception** ☐ ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☒ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	Pace Trip Blank Lot # (if purchased): _____

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) CD

Attachment E
¾-inch Minus Road Mix Quality Assurance Data

Attachment E-1 Pace Analytical Services, LLC Data Reports

APPENDIX E - 3/4" MINUS ROAD MIX QUALITY ASSURANCE DATA
(August 2022)

	Sample ID	Butte Hill Reveg Spec:	As < 97 mg/kg	Cd < 4 mg/kg	Cu < 250 mg/kg	Pb < 100 mg/kg	Zn < 250 mg/kg	Hg < 5 mg/kg
1	22-RMAP-SNROAD-1	Roadmix Sample #1	8.1	0.13	36.1	10.0	89.4	0.009
2	22-RMAP-SNROAD-2	Roadmix Sample #2	7.4	0.11	32.1	9.0	82.0	0.010
3	22-RMAP-SNPIT1	Pitrun Material #1	9.2	0.15	45.0	10.9	102.0	0.010
4	22-RMAP-SNPIT2	Pitrun Material #2	8.3	0.15	42.7	9.8	96.1	0.011
		MAX:	9.2	0.15	45.0	10.9	102.0	0.011
		MIN:	7.4	0.11	32.1	9.0	82.0	0.009
		AVE:	8.3	0.14	39.0	9.9	92.4	0.010

Attachment E-1
Pace Analytical Services, LLC Data Reports

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

August 16, 2022

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

RE: Project: BPSOU Park Sampling
Pace Project No.: 10618818

Dear Jesse Schwarzrock:

Enclosed are the analytical results for sample(s) received by the laboratory on July 28, 2022. 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
BPEquis UploadEmail, BP EQUIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

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 (A2LA) #: R-036
North Dakota Certification (MN) #: 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 (*).

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10618818001	**22-RMAP-SNROAD-1**	Solid	07/27/22 08:00	07/28/22 08:50
10618818002	**22-RMAP-SNROAD-1**	Solid	07/27/22 08:00	07/28/22 08:50
10618818003	**22-RMAP-SNROAD-2**	Solid	07/27/22 08:05	07/28/22 08:50
10618818004	**22-RMAP-SNROAD-2**	Solid	07/27/22 08:05	07/28/22 08:50
10618818005	**22-RMAP-SNPIT-1**	Solid	07/27/22 08:15	07/28/22 08:50
10618818006	**22-RMAP-SNPIT-1**	Solid	07/27/22 08:15	07/28/22 08:50
10618818007	**22-RMAP-SNPIT-2**	Solid	07/27/22 08:20	07/28/22 08:50
10618818008	**22-RMAP-SNPIT-2**	Solid	07/27/22 08:20	07/28/22 08:50

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10618818001	**22-RMAP-SNROAD-1**	EPA 6020A	NN2	5	PASI-M
10618818002	**22-RMAP-SNROAD-1**	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10618818003	**22-RMAP-SNROAD-2**	EPA 6020A	NN2	5	PASI-M
10618818004	**22-RMAP-SNROAD-2**	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10618818005	**22-RMAP-SNPIT-1**	EPA 6020A	NN2	5	PASI-M
10618818006	**22-RMAP-SNPIT-1**	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10618818007	**22-RMAP-SNPIT-2**	EPA 6020A	NN2	5	PASI-M
10618818008	**22-RMAP-SNPIT-2**	EPA 7471B	LMW	1	PASI-M
		ASTM D2974	JDL	1	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Date: August 16, 2022

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

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Method: **EPA 6020A**
Description: 6020A MET ICPMS
Client: BPAR-PIONEER-MT
Date: August 16, 2022

General Information:
4 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.

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

Additional Comments:

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Method: **EPA 7471B**
Description: 7471B Mercury
Client: BPAR-PIONEER-MT
Date: August 16, 2022

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.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Sample: 22-RMAP-SNROAD-1 **Lab ID: 10618818001** Collected: 07/27/22 08:00 Received: 07/28/22 08:50 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	**8.1**	mg/kg	0.49	0.14	1	08/11/22 18:24	08/16/22 00:15	7440-38-2	
Cadmium	**0.13**	mg/kg	0.078	0.029	1	08/11/22 18:24	08/16/22 00:15	7440-43-9	
Copper	**36.1**	mg/kg	0.97	0.30	1	08/11/22 18:24	08/16/22 00:15	7440-50-8	
Lead	**10**	mg/kg	2.4	0.45	5	08/11/22 18:24	08/12/22 19:48	7439-92-1	
Zinc	**89.4**	mg/kg	4.9	1.1	1	08/11/22 18:24	08/16/22 00:15	7440-66-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Sample: 22-RMAP-SNROAD-1 **Lab ID: 10618818002** Collected: 07/27/22 08:00 Received: 07/28/22 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
7471B Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	**<0.0087**	mg/kg	0.020	0.0087	1	08/09/22 14:37	08/10/22 15:32	7439-97-6	
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	**0.63**	%	0.10	0.10	1		08/04/22 13:09		N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Sample: 22-RMAP-SNROAD-2 **Lab ID: 10618818003** Collected: 07/27/22 08:05 Received: 07/28/22 08:50 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	**7.4**	mg/kg	0.46	0.13	1	08/11/22 18:24	08/16/22 00:18	7440-38-2	
Cadmium	**0.11**	mg/kg	0.074	0.027	1	08/11/22 18:24	08/16/22 00:18	7440-43-9	
Copper	**32.1**	mg/kg	0.93	0.28	1	08/11/22 18:24	08/16/22 00:18	7440-50-8	
Lead	**9.0**	mg/kg	2.3	0.43	5	08/11/22 18:24	08/12/22 19:52	7439-92-1	
Zinc	**82.0**	mg/kg	4.6	1.1	1	08/11/22 18:24	08/16/22 00:18	7440-66-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Sample: 22-RMAP-SNROAD-2 **Lab ID: 10618818004** Collected: 07/27/22 08:05 Received: 07/28/22 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
7471B Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	**0.010J**	mg/kg	0.018	0.0080	1	08/09/22 14:37	08/10/22 15:33	7439-97-6	
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	**0.78**	%	0.10	0.10	1		08/04/22 13:09		N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Sample: 22-RMAP-SNPIT-1 **Lab ID: 10618818005** Collected: 07/27/22 08:15 Received: 07/28/22 08:50 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	**9.2**	mg/kg	0.46	0.13	1	08/11/22 18:24	08/16/22 00:22	7440-38-2	
Cadmium	**0.15**	mg/kg	0.074	0.027	1	08/11/22 18:24	08/16/22 00:22	7440-43-9	
Copper	**45.0**	mg/kg	0.93	0.28	1	08/11/22 18:24	08/16/22 00:22	7440-50-8	
Lead	**10.9**	mg/kg	2.3	0.43	5	08/11/22 18:24	08/12/22 19:55	7439-92-1	
Zinc	**102**	mg/kg	4.6	1.1	1	08/11/22 18:24	08/16/22 00:22	7440-66-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Sample: 22-RMAP-SNPIT-1 **Lab ID: 10618818006** Collected: 07/27/22 08:15 Received: 07/28/22 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
7471B Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	**0.0096J**	mg/kg	0.019	0.0084	1	08/09/22 14:37	08/10/22 15:35	7439-97-6	
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	**3.7**	%	0.10	0.10	1		08/04/22 13:10		N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Sample: 22-RMAP-SNPIT-2 **Lab ID: 10618818007** Collected: 07/27/22 08:20 Received: 07/28/22 08:50 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020A MET ICPMS	Analytical Method: EPA 6020A Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Arsenic	**8.3**	mg/kg	0.49	0.14	1	08/11/22 18:24	08/16/22 00:25	7440-38-2	
Cadmium	**0.15**	mg/kg	0.078	0.029	1	08/11/22 18:24	08/16/22 00:25	7440-43-9	
Copper	**42.7**	mg/kg	0.98	0.30	1	08/11/22 18:24	08/16/22 00:25	7440-50-8	
Lead	**9.8**	mg/kg	2.5	0.46	5	08/11/22 18:24	08/12/22 19:59	7439-92-1	
Zinc	**96.1**	mg/kg	4.9	1.2	1	08/11/22 18:24	08/16/22 00:25	7440-66-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Sample: 22-RMAP-SNPIT-2 **Lab ID: 10618818008** Collected: 07/27/22 08:20 Received: 07/28/22 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
7471B Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B Pace Analytical Services - Minneapolis								
Mercury	**0.011J**	mg/kg	0.018	0.0079	1	08/09/22 14:37	08/10/22 15:36	7439-97-6	
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	**2.9**	%	0.10	0.10	1		08/04/22 13:10		N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
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QUALITY CONTROL DATA

Project: BPSOU Park Sampling
Pace Project No.: 10618818

QC Batch: 832541
QC Batch Method: EPA 7471B
Analysis Method: EPA 7471B
Analysis Description: 7471B Mercury Solids
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10618818002, 10618818004, 10618818006, 10618818008

METHOD BLANK: 4409993 Matrix: Solid
Associated Lab Samples: 10618818002, 10618818004, 10618818006, 10618818008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/kg	<0.0085	0.020	0.0085	08/09/22 18:40	

LABORATORY CONTROL SAMPLE: 4409994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.49	0.51	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4409996 4409997

Parameter	Units	10618797002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.027	0.65	0.68	0.81	0.81	120	114	80-120	1	20	

SAMPLE DUPLICATE: 4409995

Parameter	Units	10618797002 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	mg/kg	0.027	0.028	4	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

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: BPSOU Park Sampling
Pace Project No.: 10618818

QC Batch: 832536
QC Batch Method: EPA 3050B
Analysis Method: EPA 6020A
Analysis Description: 6020A Solids UPD4
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10618818001, 10618818003, 10618818005, 10618818007

METHOD BLANK: 4409975 Matrix: Solid
Associated Lab Samples: 10618818001, 10618818003, 10618818005, 10618818007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/kg	<0.14	0.50	0.14	08/12/22 18:21	
Cadmium	mg/kg	<0.029	0.080	0.029	08/12/22 18:21	
Copper	mg/kg	<0.31	1.0	0.31	08/12/22 18:21	
Lead	mg/kg	<0.093	0.50	0.093	08/12/22 18:21	
Zinc	mg/kg	1.4J	5.0	1.2	08/12/22 18:21	

LABORATORY CONTROL SAMPLE: 4409976

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	50	52.7	105	80-120	
Cadmium	mg/kg	50	52.7	105	80-120	
Copper	mg/kg	50	54.4	109	80-120	
Lead	mg/kg	50	56.4	113	80-120	
Zinc	mg/kg	50	53.0	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4409978 4409979

Parameter	Units	10618797001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	22.9	50	48.1	72.0	73.0	98	104	75-125	2	20	
Cadmium	mg/kg	0.83	50	48.1	50.7	51.5	100	105	75-125	2	20	
Copper	mg/kg	79.5	50	48.1	129	134	98	113	75-125	4	20	
Lead	mg/kg	29.8	50	48.1	84.4	88.8	109	123	75-125	5	20	
Zinc	mg/kg	184	50	48.1	226	235	83	106	75-125	4	20	

SAMPLE DUPLICATE: 4409977

Parameter	Units	10618797001 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	mg/kg	22.9	23.3	2	20	
Cadmium	mg/kg	0.83	0.90	8	20	
Copper	mg/kg	79.5	81.8	3	20	
Lead	mg/kg	29.8	32.0	7	20	
Zinc	mg/kg	184	188	2	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

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: BPSOU Park Sampling
Pace Project No.: 10618818

QC Batch: 832300
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight / %M by ASTM D2974
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10618818002, 10618818004, 10618818006, 10618818008

SAMPLE DUPLICATE: 4408950

Parameter	Units	10618818002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	0.63	0.61	2	30	N2

SAMPLE DUPLICATE: 4408951

Parameter	Units	10618144001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	41.9	43.3	3	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

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: BPSOU Park Sampling
Pace Project No.: 10618818

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BPSOU Park Sampling
Pace Project No.: 10618818

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10618818001	**22-RMAP-SNROAD-1**	EPA 3050B	832536	EPA 6020A	834148
10618818003	**22-RMAP-SNROAD-2**	EPA 3050B	832536	EPA 6020A	834148
10618818005	**22-RMAP-SNPIT-1**	EPA 3050B	832536	EPA 6020A	834148
10618818007	**22-RMAP-SNPIT-2**	EPA 3050B	832536	EPA 6020A	834148
10618818002	**22-RMAP-SNROAD-1**	EPA 7471B	832541	EPA 7471B	833446
10618818004	**22-RMAP-SNROAD-2**	EPA 7471B	832541	EPA 7471B	833446
10618818006	**22-RMAP-SNPIT-1**	EPA 7471B	832541	EPA 7471B	833446
10618818008	**22-RMAP-SNPIT-2**	EPA 7471B	832541	EPA 7471B	833446
10618818002	**22-RMAP-SNROAD-1**	ASTM D2974	832300		
10618818004	**22-RMAP-SNROAD-2**	ASTM D2974	832300		
10618818006	**22-RMAP-SNPIT-1**	ASTM D2974	832300		
10618818008	**22-RMAP-SNPIT-2**	ASTM D2974	832300		

bp rm

Laboratory Management Program LaMP Chain of Custody Record

S2N Hg

BP Site Node Path: _____ Req Due Date (mm/dd/yy): _____ Rush TAT: XX No ____

BP Facility No: _____ Lab Work Order Number: _____

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 Park 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 Accnt:	Enfos Proposal No:	Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com
Lab Bottle Order No:	Accounting Mode: Provision — — —	Email EDD To: Jesse Schwarzrock
Other Info:	Stage: Activity:	Invoice To: BP — Contractor — X

BP Project Manager (PM): Mike Mc Anulty

BP PM Phone: 406-723-1822

BP PM Email: mcanumc@bp.com

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix: Is this location a well?	No. Containers / Preservative: Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	Requested Analyses: Air dry&sieve*, 6020 (As, Cd, Cu, Pb, Zn)	7471 Mercury, dry weight	Report Type & QC Level
	22-RMAP-SNROAD-1	07/27/22	8:00 AM	X				2						X	X	RUSH TURNAROUND
	22-RMAP-SNROAD-2	07/27/22	8:05 AM	X				2						X	X	RUSH TURNAROUND
	22-RMAP-SNPIT-1	07/27/22	8:15 AM	X				2						X	X	RUSH TURNAROUND
	22-RMAP-SNPIT-2	07/27/22	8:20	X				2						X	X	RUSH TURNAROUND

Standard — x

Full Data Package —

WO#: 10618818

10618818

Sampler's Name: Cole Dallaserra	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Pioneer Technical Services	Cole Dallaserra / PTS	7/27/22	1600	MMusel/PACE	7/28/22	8:50
Shipment Method: FedEx Overnight Ship Date: 7/27/2022						
Shipment Tracking No: 5405 1821 0385						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: (Yes) / No | Temp Blank: (Yes) / No | Cooler Temp on Receipt: 0.4 °F/C | Trip Blank: Yes / (No) | MS/MSD Sample Submitted: Yes / (No)

Page 1 of 2

DC#_Title: ENV-FRM-MIN4-0149 v03_Sample Condition Upon Receipt (SCUR) - ESI

Effective Date: 04/12/2022

Sample Condition Upon Receipt – ESI Tech Specs

Client Name: BP-Pioneer

Project #: **WO#: 10618818**

PM: JMA **Due Date: 08/04/22**

CLIENT: BP-PIONEER

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: 540518210385 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) ☐ T6(0235) ☐ T7(0042) **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 0.4 °C

Correction Factor: True **Cooler Temp Corrected w/temp blank:** 0.4 °C

Average Corrected Temp (no temp blank only): _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: (☐ N/A, water sample/Other: _____)

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

Date/Initials of Person Examining Contents: PMM 7/28/22

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 (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☒ Yes	☐ No		1.
Chain of Custody Relinquished?	☒ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☒ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other_____
Rush Turn Around Time Requested?	☒ Yes	☐ No		6.
Sufficient Sample Volume?	☒ Yes	☐ No		
Triple Volume Provided for MS/MSD (if more than 10 samples)?	☐ Yes	☐ No	☒ N/A	7.
Correct Containers Used?	☒ Yes	☐ No		8.
-Pace Containers Used?	☒ Yes	☐ No		
Containers Intact?	☒ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC?	☒ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: See Exception ☐ ENV-FRM-MIN4-0142
Matrix: ☐ Water ☒ Soil ☐ Oil ☐ Other_____				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☒ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☒ N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
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)	☐ Yes	☐ No	☒ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# See Exception ☐ ENV-FRM-MIN4-0142
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☒ N/A	13. See Exception ☐ ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☒ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	Pace Trip Blank Lot # (if purchased): _____

Temp Log: Temp must be maintained at <6°C during login, record temp every 20 mins		
Opened Time: 10:15	Temp: 0.4	Corrected Temp: 0.4
Time: 10:35	put in cooler	
Time:	Temp:	Corrected Temp:

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: _____ **Date:** 08/01/2022

Note: Whenever there is a discrepancy affecting NC 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: _____

PMM (2)

Qualtrax ID: 52738

Page 1 of 1

Internal Transfer Chain of Custody

4224895

Pace Analytical®
www.pacelabs.com

[x] Samples Pre-Logged into eCOC.

State Of Origin: MT
Cert. Needed: [ ] Yes [x] No

Workorder: 10618818 Workorder Name: BPSOU Park Sampling

Owner Received Date: 7/28/2022 Results Requested By: 8/4/2022

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

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	PB					Requested Analysis: Air Dry & Sieve												LAB USE ONLY
1	22-RMAP-SNROAD-1	PS	7/27/2022 08:00	10618818001	Solid	1						X												001
2	22-RMAP-SNROAD-2	PS	7/27/2022 08:05	10618818003	Solid	1						X												002
3	22-RMAP-SNPIT-1	PS	7/27/2022 08:15	10618818005	Solid	1						X												003
4	22-RMAP-SNPIT-2	PS	7/27/2022 08:20	10618818007	Solid	1						X												004
5																								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Fedex	7/29/22 1015	[signature]	7/29/22 1015
2				
3				

Comments

IR40-Rush Normal processing
#60 Sieve
Include soil prep log
Follow QAPP

Cooler Temperature on Receipt NA °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.*

bp rm

Laboratory Management Program LaMP Chain of Custody Record

4024955 STM metals

Page 1 of 1

BP Site Node Path: _____ Req Due Date (mm/dd/yy): _____ Rush TAT: XX No ___

BP Facility No: _____ Lab Work Order Number: _____

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 Park 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 Accnt:	Enfos Proposal No:	Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com
Lab Bottle Order No:	Accounting Mode: Provision — — —	Email EDD To: Jesse Schwarzrock
Other Info:	Stage: Activity:	Invoice To: BP — Contractor — X

BP Project Manager (PM): Mike Mc Anulty

BP PM Phone: 406-723-1822

BP PM Email: mcanumc@bp.com

Report Type & QC Level: Standard — x; Full Data Package —

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix: Is this location a well?	No. Containers / Preservative: Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol		Requested Analyses: Air dry&sieve*, 6020 (As, Cd, Cu, Pb, Zn)	Requested Analyses: 7471 Mercury, dry weight									Comments
001	22-RMAP-SNROAD-1	07/27/22	8:00 AM	X				2							X	X									RUSH TURNAROUND
002	22-RMAP-SNROAD-2	07/27/22	8:05 AM	X				2							X	X									RUSH TURNAROUND
003	22-RMAP-SNPIT-1	07/27/22	8:15 AM	X				2							X	X									RUSH TURNAROUND
004	22-RMAP-SNPIT-2	07/27/22	8:20	X				2							X	X									RUSH TURNAROUND

Sampler's Name: Cole Dallaserra	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Pioneer Technical Services	[signature] IPTS	7/28/22	600			
Shipment Method: FedEx Overnight Ship Date: 7/27/2022	Fedex	7/29/22	1015	[signature] Pace	7/29/22	1015
Shipment Tracking No: 5150 1602 9976						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: NA °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

Sample Preservation Receipt Form

Client Name: Pace MN

Project # A0248955

All containers needing preservation have been checked and noted below: ☐Yes ☐No ☒N/A

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									
	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	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001																									1								2.5 / 5 / 10
002																									1								2.5 / 5 / 10
003																									1								2.5 / 5 / 10
004																									1								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
010																																	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

7/29/22 up

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

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9A	40 mL clear ascorbic	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG5U	100 mL amber glass unpres			VG9D	40 mL clear vial DI	ZPLC	ziploc bag
AG2S	500 mL amber glass H2SO4					GN	
BG3U	250 mL clear glass unpres						

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: Pace MN

WO# : 40248955

40248955

Courier: ☐ CS Logistics ☒ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other:

Tracking #: 5150 1602 9976/5150 1602 998

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 - 107 **Type of Ice:** Wet Blue Dry (None) ☐ Samples on ice, cooling process has begun

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

Person examining contents:

Temp Blank Present: ☐ yes ☒ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Date: 7/29/22 Initials: MP

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

Labeled By Initials:

Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☐No ☒N/A	4. IRWO 7/29/22 MP
Samples Arrived within Hold Time:	☒Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☒No	6.
Rush Turn Around Time Requested:	☒Yes ☐No	7/29/22 MP
Sufficient Volume:		8.
For Analysis: ☒Yes ☐No MS/MSD:	☐Yes ☒No ☐N/A	
Correct Containers Used:	☒Yes ☐No	9.
-Pace Containers Used:	☐Yes ☒No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☒N/A	
Containers Intact:	☒Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix:	5	
Trip Blank Present:	☐Yes ☐No ☒N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☒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 login

Internal Transfer Chain of Custody

4324895

Pace Analytical
www.pacelabs.com

[x] Samples Pre-Logged into eCOC.

State Of Origin: MT
Cert. Needed: [ ] Yes [x] No
Owner Received Date: 7/28/2022 Results Requested By: 8/4/2022

Workorder: 10618818 Workorder Name: BPSOU Park Sampling

WO# : 10618818

10618818

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

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	PB					Air Dry & Sieve											LAB USE ONLY
1	22-RMAP-SNROAD-1	PS	7/27/2022 08:00	10618818001	Solid	1						X											001
2	22-RMAP-SNROAD-2	PS	7/27/2022 08:05	10618818003	Solid	1						X											002
3	22-RMAP-SNPIT-1	PS	7/27/2022 08:15	10618818005	Solid	1						X											003
4	22-RMAP-SNPIT-2	PS	7/27/2022 08:20	10618818007	Solid	1						X											004
5																							

Transfers	Released By	Date/Time	Received By	Date/Time
1	Fedex	7/29/22 10:15	[signature]	7/29/22 1015
2	[signature] pace	8/1/22 16:00	[signature] Pace	8/3/22 0913
3				

Comments
IR40-Rush Normal processing
#60 Sieve
Include soil prep log
Follow QAPP

Cooler Temperature on Receipt — °C | Custody Seal Y or (N) | Received on Ice Y or (N) | Samples Intact Y or N

JMA 8/16/22

***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.

Pace ANALYTICAL SERVICES	**DC#_Title: ENV-FRM-MIN4-0150 v05_Sample Condition Upon Receipt (SCUR)**
	Effective Date: 04/12/2022

Sample Condition Upon Receipt

Client Name: Pace-Green Bay

Project #:

WO#: 10618818

PM: JMA **Due Date: 08/04/22**

CLIENT: BP-PIONEER

Courier: ☐Fed Ex ☐UPS ☒USPS ☐Client ☐Pace ☐SpeeDee ☒Commercial

See Exceptions ☐ENV-FRM-MIN4-0142

Tracking Number:

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) ☐T6(0235) ☐T7 (0042) ☐01339252/1710 ☐122639816 ☐140792808 **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:** AMB °C

Correction Factor: — **Cooler Temp Corrected w/temp blank:** AMB °C

Average Corrected Temp (no temp blank only): °C ☐See Exceptions ENV-FRM-MIN4-0142 ☐1 Container

USDA Regulated Soil: (☐ N/A, water sample/Other:)

Date/Initials of Person Examining Contents: 08/3/22

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 ENV-FRM-MIN4-0154 and include with SCUR/COC paperwork.

Location (check one): ☐ Duluth ☒ Minneapolis ☐ Virginia

				COMMENTS:
Chain of Custody Present and Filled Out?	☒Yes	☐No		1.
Chain of Custody Relinquished?	☒Yes	☐No		2.
Sampler Name and/or Signature on COC?	☐Yes	☐No	☒N/A	3.
Samples Arrived within Hold Time?	☒Yes	☐No		4. If Fecal: ☐<8 hrs ☐>8hr, <24 hrs, ☐>24 hrs
Short Hold Time Analysis (<72 hr)?	☐Yes	☒No		5. ☐Fecal Coliform ☐HPC ☐Total Coliform/E coli ☐BOD/cBOD ☐Hex Chrome ☐Turbidity ☐Nitrate ☐Nitrite ☐Orthophos ☐Other
Rush Turn Around Time Requested?	☒Yes	☐No		6.
Sufficient Volume?	☒Yes	☐No		7.
Correct Containers Used?	☒Yes	☐No		8.
-Pace Containers Used?	☐Yes	☒No		
Containers Intact?	☒Yes	☐No		9.
Field Filtered Volume Received for Dissolved Tests?	☐Yes	☐No	☒N/A	10. Is sediment visible in the dissolved container? ☐Yes ☐No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☐Water ☒Soil ☐Oil ☐Other-	☒Yes	☐No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐ **ENV-FRM-MIN4-0142**
All containers needing acid/base preservation have been checked?	☐Yes	☐No	☒N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐Yes	☐No	☒N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐Yes	☐No	☒N/A	Positive for Res. Chlorine? ☐Yes ☐No **pH Paper Lot#** **See Exception** ☐ **ENV-FRM-MIN4-0142**
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in Methyl Mercury Container?	☐Yes	☐No	☒N/A	
Extra labels present on soil VOA or WIDRO containers?	☐Yes	☐No	☒N/A	13. **See Exception** ☐ **ENV-FRM-MIN4-0140**
Headspace in VOA Vials (greater than 6mm)?	☐Yes	☐No	☒N/A	
Trip Blank Present?	☐Yes	☐No	☒N/A	14.
Trip Blank Custody Seals Present?	☐Yes	☐No	☒N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: **Date:** 08/16/2022

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 container).

Labeled by: