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Silver Bow Creek/Butte Area Superfund Site

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Summer 8-30-2021

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

Pioneer Technical Services, Inc.

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# Atlantic Richfield Company

## Mike Mc Anulty

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August 30, 2021

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**RE: Draft Final RMAP Headstart (former Lincoln School) Soil Remedial Action Work Plan (RAWP)**

Dear Agency Representatives:

I am writing to you on behalf of Atlantic Richfield Company to submit the Draft Final RMAP Headstart (former Lincoln School) Soil Remedial Action Work Plan (RAWP). The report and appendices may be downloaded at the following link:

[https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/ErAEkhjkasRInkbW\\_gwqQzoBS6rf-tiHXzoG6ljnJ\\_zjeyA](https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/ErAEkhjkasRInkbW_gwqQzoBS6rf-tiHXzoG6ljnJ_zjeyA)

If you have any questions or comments, please call me at (907) 355-3914.

Sincerely,

*Mike McAnulty*

Mike Mc Anulty  
Liability Manager & Global Risk Champion  
Remediation Management Services Company  
An affiliate of **Atlantic Richfield Company**

# Atlantic Richfield Company

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John Davis / PRR - email  
Joe Vranka / EPA - email  
David Shanight / CDM - email  
Curt Coover / CDM - email  
James Freeman / DOJ - email  
John Sither / DOJ - email  
Jenny Chambers / DEQ - email  
Dave Bowers / DEQ - email  
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Gary Icopini / MBMG - email  
Becky Summerville / MR - email  
Kristen Stevens / UP - email  
Robert Bylsma / UP - email  
John Gilmour / Kelley Drye - email  
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A bp affiliated company

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Karen Helfrich / Pioneer - email  
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Ian Magruder/ CTEC- email  
CTEC of Butte – email  
Scott Juskiewicz / Montana Tech – email

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

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

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*Draft Final*

*2021 Residential Metals Abatement Program (RMAP)  
Headstart (former Lincoln School)  
Soil Remedial Action Work Plan (RAWP)*

*Butte-Silver Bow County*

and

*Atlantic Richfield Company*

August 30, 2021

---

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

---

***Draft Final***

***2021 Residential Metals Abatement Program (RMAP)  
Headstart (former Lincoln School)  
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

**August 30, 2021**

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## LIST OF ATTACHMENTS

- Attachment A Draft Headstart (former Lincoln School) Individual Site Work Plan (ISWP)  
Attachment B Fabric Specification Sheet  
Attachment C Type B Material Pace Analytical Data Reports

## DOCUMENT MODIFICATION SUMMARY

Modification	Author	Version	Description	Date
0	Jesse Schwarzrock	Draft Final	Issued for Agency Review	08/30/21



## **1.0 INTRODUCTION**

This Remedial Action Work Plan (RAWP) was developed to outline a portion of the remedial action (RA) work resulting from the 2021 Residential Metals Abatement Program (RMAP) school soil sampling event completed in July and August 2021. The sampling event was conducted in accordance with the *Final Residential Metals Abatement Program (RMAP) Quality Assurance Project Plan (QAPP) (Non-Residential Parcels)* (Butte-Silver Bow County and Atlantic Richfield Company, 2021).

## **2.0 SCHOOL SOIL REMEDIATION SCOPE**

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

- Headstart (former Lincoln School).

## **3.0 SCHOOL SOIL REMEDIATION SCHEDULE**

This remedial action scope of work will be completed in September 2021. The work is currently estimated to require 1 to 2 days to complete.

## **4.0 REMEDIAL ACTION WORK PLAN**

### **4.1 Headstart (former Lincoln School)**

Remediation at the Headstart facility located within the former Lincoln School site consists of a 562-square foot polygon (PA1) located in the southwest corner of the school property near the intersection of North Clark Street and West Broadway Street. This Headstart facility is currently vacant and undergoing renovation work. PA1 was a playground area at one time as evidenced by the existing 6-inch thick wood chip cover. Conversations with Headstart personnel indicate that the area will be utilized as a playground area in the future. Based on this assumption, Headstart personnel have requested that the area be surfaced with new wood chips as part of this remedial effort. The Individual Site Work Plan (ISWP) is provided in Attachment A.

#### **4.1.1 Excavation**

The PA1 polygon has lead exceedances to a depth of 12 inches. Based on this information, the removal area will be dictated by the original sampling polygon area while the removal depth will be 18 inches (in order to remove the existing 6 inch thick wood chip layer plus the maximum RMAP removal depth of 12 inches of soil below existing ground surface to ensure complete removal of the source material). All excavated material will be disposed of within the Butte Mine Waste Repository (see Figure 1). Because of the small work area involved, depth verification of the excavation area will consist of measuring using a hand tape and existing perimeter features (i.e., the elevation of the concrete curbing around the excavation perimeter).

#### **4.1.2 Backfill**

Once the on-site U.S. Environmental Protection Agency (EPA) representative has approved the excavation area, backfill work will begin. A separation fabric (see Section 5.1 and Attachment B) will be placed consistent with current RMAP practices. The separation fabric will indicate the boundary between remediated and native soils for any future excavation work in this area.

Once the separation fabric has been installed, 12 inches of Type B fill material (see Section 5.2, Tables 2 and 3, and Attachment C) will be placed. The backfill material will not be compacted to attain a specific density and moisture content but will be slightly compacted to impede future settling of the backfill material.

After placement and compaction of Type B fill material is complete, a 2<sup>nd</sup> layer of separation fabric will be placed to act as a weed barrier.

Then a 6-inch thick layer of new woodchips will be placed on top of the weed barrier.

#### **4.1.3 Revegetation**

This playground area will be surfaced with new wood chips per Headstart personnel request. Therefore, revegetation isn't applicable.

#### **4.2 Dust Control**

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

#### **4.3 Best Management Practices (BMPs)**

Given the site layout, best management practices (BMPs) are not anticipated to be necessary.

### **5.0 MATERIALS**

#### **5.1 Fabric Material**

Geotex 801 will be used for the separation fabric to provide a barrier between the native soil and newly placed Type B fill material as well as the weed barrier between the newly placed Type B fill material and the newly placed wood chip layer. The material specifications are located in Attachment B.

## **5.2 Type B Backfill Borrow Source**

Type B fill material will be utilized for all required backfill material. This fill material was developed by Atlantic Richfield Company 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 1) and screened to a 6-inch minus product. The quality assurance data are provided in Tables 2 and 3, and the corresponding laboratory reports are located in Attachment C. Because this material is fill material (not growth medium), only metals data has been provided consistent with past EPA requests in Anaconda.

## **5.3 Wood Chips Source**

Wood chips will be procured from either Sun Mountain Lumber in Deer Lodge, Montana or Western Pine in Townsend, Montana.

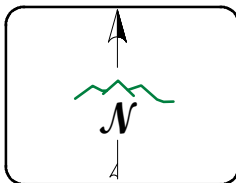
## **6.0 REFERENCES**

Butte-Silver Bow County and Atlantic Richfield Company, 2021. Silver Bow Creek/Butte Area NPL Site Butte Priority Soils Operable Unit, Final Residential Metals Abatement Program (RMAP) Quality Assurance Project Plan (QAPP). July 2021.

## FIGURES



Path: Z:\Shared\Active Projects\ARCO\BPSOVR\MAP\GIS\School\RAWP Figures\Headstart(Lincoln)\RAWP\_HeadstartLincoln2.mxd

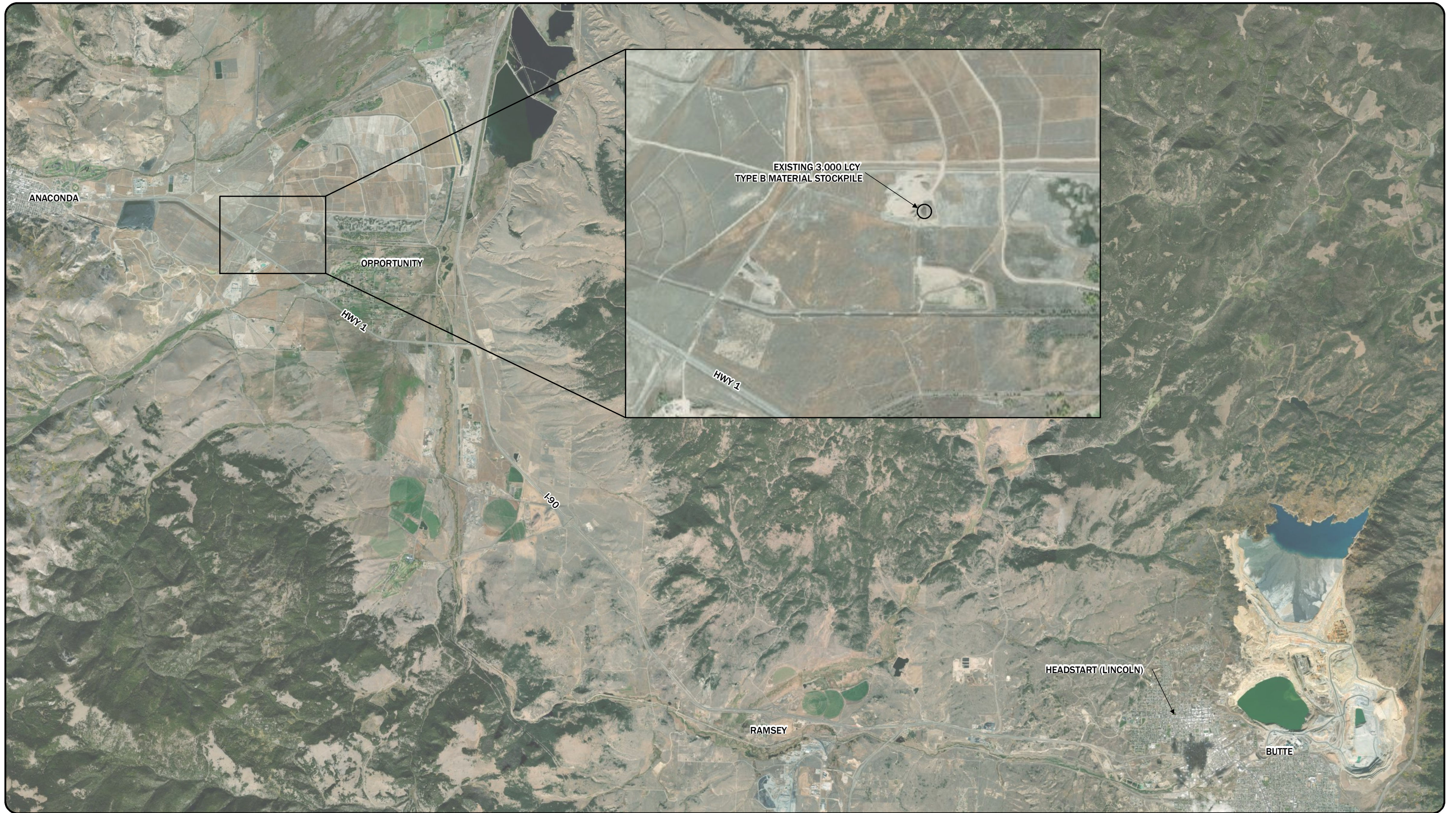


DISPLAYED AS: \_\_\_\_\_  
 PROJECTION/ZONE: MSP  
 DATUM: NAD 83  
 UNITS: FEET  
 SOURCE: PIONEER



**MINE WASTE REPOSITORY LOCATION**

DATE: 8/25/2021



EXISTING 3,000 LCY  
TYPE B MATERIAL STOCKPILE

HEADSTART (LINCOLN)

RAMSEY

BUTTE

		<p>DISPLAYED AS: _____</p> <p>PROJECTION/ZONE: MSP</p> <p>DATUM: NAD 83</p> <p>UNITS: FEET</p> <p>SOURCE: PIONEER</p> <p>0 0.75 1.5 3 Miles</p>	<p><b>FIGURE 2</b></p> <p><b>PIONEER</b> TECHNICAL SERVICES, INC.</p>	<p><b>TYPE B MATERIAL STOCKPILE LOCATION</b></p> <p>DATE: 8/25/2021</p>
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## TABLES



**TABLE 1: HEADSTART (FORMER LINCOLN SCHOOL) PROPERTY INFORMATION**

Count	Res-ID	Geocode	Name	Owner	Construction Date
1	S-0013	01119713226010000	Headstart (Lincoln)	Action, Inc.	1958

**TABLE 2: CS OU TYPE B MATERIAL STOCKPILE**  
(As, Cd, Cu, Pb, Zn Data)

Sample ID <sup>2</sup>	Volume Tested (LCY)	As < 97 mg/kg	As FLAG	Cd < 4 mg/kg	Cd FLAG	Cu < 250 mg/kg	Cu FLAG	Pb < 100 mg/kg	Pb FLAG	Zn < 250 mg/kg	Zn FLAG
1 20-CS-TypeB-1203-001	approx 6,000 LCY	5.8		0.08		10.9		4.7		21.7	
2 20-CS-TypeB-1203-002		4.5		0.10		12.3		4.9		25.8	
3 20-CS-TypeB-1203-003		3.4		ND <sup>1</sup>		8.7		4.7		19.4	
4 20-CS-TypeB-1203-004		8.3		0.13		17.2		6.3		29.7	
5 20-CS-TypeB-1203-005		7.7		0.11		16.8		7.1		29.9	
6 20-CS-TypeB-1203-006		7.8		0.10		14.6		5.9		28.2	
7 20-CS-TypeB-1203-007		10.9		0.09		13.7		5.4		25.7	
8 20-CS-TypeB-1203-008		5.0		0.11		10.5		4.8		23.5	
9 20-CS-TypeB-1203-009		10.1		0.11		18.2		6.7		31.7	
10 20-CS-TypeB-1203-010		5.7		0.09		12.6		5.5		26.2	
11 20-CS-TypeB-1203-011		3.9		ND <sup>1</sup>		8.6		4.0		20.8	
12 20-CS-TypeB-1203-012		3.8		0.09		8.9		5.3		26.7	
	MAX:	10.9		0.13		18.2		7.1		31.7	
	MIN:	3.4		0.08		8.6		4.0		19.4	
	AVE:	6.4		0.10		12.8		5.4		25.8	

<sup>1</sup> ND = Non Detect

<sup>2</sup> These 12 Community Soils samples were collected on 12/3/20 at the RDU 8 South Borrow Area stockpile.

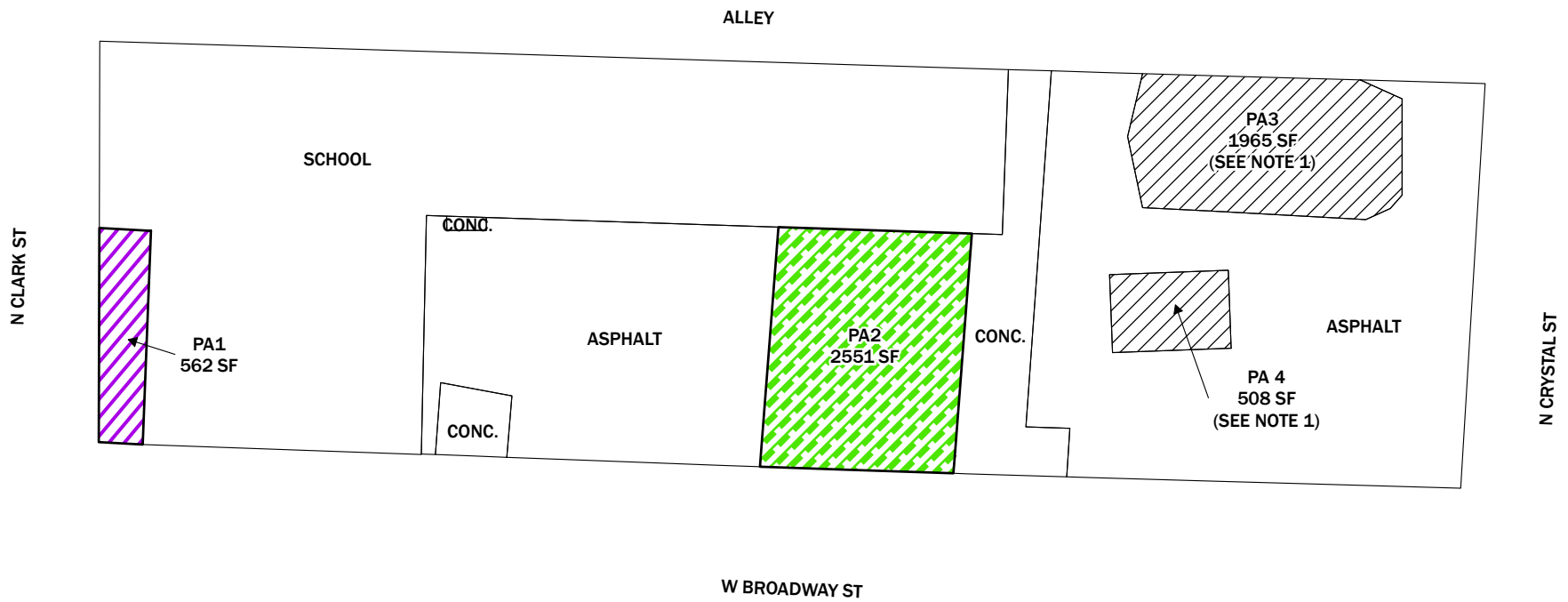
**TABLE 3: CS OU TYPE B MATERIAL STOCKPILE  
(Hg Data)**

Sample ID <sup>1</sup>	Volume Tested (LCY)	Hg < 5 mg/kg	Hg FLAG
1 21-Type B-0817-001	approx 3,000 LCY	0.02	
2 21-Type B-0817-002		0.02	
3 21-Type B-0817-003		0.01	J
4 21-Type B-0817-004		0.02	J
	MAX:	0.02	
	MIN:	0.01	
	AVE:	0.02	

<sup>1</sup> These 4 mercury samples were collected on 8/17/21 at the RDU 8 South Borrow Area stockpile.

ATTACHMENT A  
DRAFT HEADSTART (FORMER LINCOLN SCHOOL)  
INDIVIDUAL SITE WORK PLAN (ISWP)

ADDRESS: 100 N CLARK STREET  
PROPERTY ID: S-0013



S-0013

**REMEDIAL ACTION SUMMARY TABLE**

Resident ID	SAMPLING COMPONENTS	COMPONENT SURFACE AREA (Square Feet)	COMPONENT ARSENIC CONCENTRATION (mg/kg)					COMPONENT LEAD CONCENTRATION (mg/kg)					COMPONENT MERCURY CONCENTRATION (mg/kg)					ESTIMATED QUANTITIES		
			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"	Excavation (Cubic Yards)	General Backfill (Cubic Yards)	Sod (Square Feet)
S-0013-PA1	Playground Area 1 (PA1)	562	74	67	92	N/A	N/A	1,730	1,340	1,340	N/A	N/A	0.38	0.30	0.72	N/A	N/A	20.8	20.8	0
S-0013-PA2	Playground Area 2 (PA2)	2,551	68	71	57	N/A	N/A	534	619	644	N/A	N/A	0.37	0.14	0.40	N/A	N/A	0.0	0.0	0
S-0013-PA3	Playground Area 3 (PA3)	1,965	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0
S-0013-PA4	Playground Area 4 (PA4)	508	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0
																		20.8	20.8	0.0
<div style="background-color: #FF8C00; width: 20px; height: 10px; display: inline-block;"></div> Component Arsenic Concentration is $\geq 250$ mg/kg.																				
<div style="background-color: #FFD700; width: 20px; height: 10px; display: inline-block;"></div> Component Lead Concentration is $\geq 1,200$ mg/kg.																				
<div style="background-color: #90EE90; width: 20px; height: 10px; display: inline-block;"></div> Component Mercury Concentration is $\geq 147$ mg/kg.																				
N/A			= Not applicable per 2021 RMAP Quality Assurance Project Plan.																	

**LEGEND**

- No Action Required
- 12" Removal
- 24" Removal

**HEADSTART (FORMER LINCOLN)  
INDIVIDUAL SITE WORK PLAN**

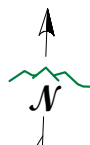
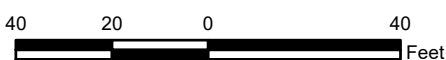
**RESIDENTIAL METALS  
ABATEMENT PROGRAM (RMAP)  
BUTTE, MONTANA  
SHEET 1 OF 1**

DRAFT  
DATA VALIDATION  
NOT YET COMPLETE

**NOTES:**

1. PA3 AND PA4 WERE UN-SAMPLABLE AREAS. THE OWNER BUILT THESE 2 AREAS BY PLACING WOODCHIPS ON TOP OF EXISTING ASPHALT. THEREFORE, THERE WAS NO SOIL TO SAMPLE.

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.



**Atlantic Richfield Company**  
A BP affiliated company

BY:



ATTACHMENT B  
FABRIC SPECIFICATION SHEET



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

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

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

**NOTES:**

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



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**Propex Operating Company, LLC** · 6025 Lee Highway, Suite 425 · PO Box 22788 · Chattanooga, TN 37422  
ph 423 899 0444 · ph 800 621 1273 · fax 423 899 7619

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ATTACHMENT C  
TYPE B MATERIAL PACE ANALYTICAL DATA REPORTS



December 11, 2020

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

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

Dear Jesse Schwarzrock:

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

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

- Pace Analytical Services - Minneapolis

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

Sincerely,



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

Enclosures

cc: Jennifer Norman, Portage Inc.



## REPORT OF LABORATORY ANALYSIS

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

## CERTIFICATIONS

Project: CS OU Borrow Development

Pace Project No.: 10541146

---

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

1700 Elm Street SE, Minneapolis, MN 55414

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

A2LA Certification #: 2926.01\*

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009\*

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014\*

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

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

Florida Certification #: E87605\*

Georgia Certification #: 959

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086\*

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064\*

Maryland Certification #: 322

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

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

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

Minnesota Petrofund Certification #: 1240\*

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081\*

New Jersey Certification #: MN002

New York Certification #: 11647\*

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507\*

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001\*

Pennsylvania Certification #: 68-00563\*

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192\*

Utah Certification #: MN00064\*

Vermont Certification #: VT-027053137

Virginia Certification #: 460163\*

Washington Certification #: C486\*

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: CS OU Borrow Development

Pace Project No.: 10541146

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**Method:** EPA 6020A

**Description:** 6020A MET ICPMS

**Client:** BPAR-PIONEER-MT

**Date:** December 11, 2020

**General Information:**

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

**Hold Time:**

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

**Sample Preparation:**

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

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

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

**Continuing Calibration:**

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

**Internal Standards:**

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

**Method Blank:**

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

**Laboratory Control Spike:**

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

**Matrix Spikes:**

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

**Additional Comments:**

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

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## ANALYTICAL RESULTS

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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

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

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: CS OU Borrow Development

Pace Project No.: 10541146

QC Batch:	714545	Analysis Method:	EPA 6020A
QC Batch Method:	EPA 3050B	Analysis Description:	6020A Solids UPD4
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10541146001, 10541146002, 10541146003, 10541146004, 10541146005, 10541146006, 10541146007, 10541146008, 10541146009, 10541146010, 10541146011, 10541146012

METHOD BLANK: 3814382 Matrix: Solid

Associated Lab Samples: 10541146001, 10541146002, 10541146003, 10541146004, 10541146005, 10541146006, 10541146007, 10541146008, 10541146009, 10541146010, 10541146011, 10541146012

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

LABORATORY CONTROL SAMPLE: 3814383

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3814384 3814385

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

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: CS OU Borrow Development

Pace Project No.: 10541146

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CS OU Borrow Development

Pace Project No.: 10541146

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

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Laboratory Management Program LaMP Chain of Custody Record

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

Lab Name: Pace Analytical Services  
 Lab Address: 1700 Elm Street Minneapolis, MN 55414  
 Lab PM: Jennifer Anderson  
 Lab Phone: 612-607-1700  
 Lab Shipping Acct:  
 Lab Bottle Order No:  
 Other Info: Profile: 35746, Line 3  
 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				No. Containers / Preservative				Requested Analyses				Report Type & QC Level	Comments
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	As, Cd, Cu, Pb, Zn by 6020	Standard		
	20-CS-TypeB-1203-001	12/03/20	10:30	X				1									
	20-CS-TypeB-1203-002	12/03/20	10:35	X				1									
	20-CS-TypeB-1203-003	12/03/20	10:40	X				1									
	20-CS-TypeB-1203-004	12/03/20	10:45	X				1									
	20-CS-TypeB-1203-005	12/03/20	10:50	X				1									
	20-CS-TypeB-1203-006	12/03/20	10:55	X				1									
	20-CS-TypeB-1203-007	12/03/20	11:00	X				1									
	20-CS-TypeB-1203-008	12/03/20	11:05	X				1									
	20-CS-TypeB-1203-009	12/03/20	11:10	X				1									
	20-CS-TypeB-1203-010	12/03/20	11:15	X				1									
	20-CS-TypeB-1203-011	12/03/20	11:20	X				1									
	20-CS-TypeB-1203-012	12/03/20	11:25	X				1									

Facility Address: \_\_\_\_\_  
 City, State, ZIP Code: \_\_\_\_\_  
 Lead Regulatory Agency: \_\_\_\_\_  
 California Global ID No.: \_\_\_\_\_  
 Emfos Proposal No.: \_\_\_\_\_  
 Accounting Mode: \_\_\_\_\_ Provision: \_\_\_\_\_  
 Stage: \_\_\_\_\_ Activity: \_\_\_\_\_  
 Consultant/Contractor: Pioneer Technical Services  
 Consultant/Contractor Project No: CS OU Borrow Development  
 Address: 307 E Park Suite 421, Anaconda MT, 59711  
 Consultant/Contractor PM: Jesse Schwarzrock  
 Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com  
 Email EDD To: Jesse Schwarzrock  
 Invoice To: BP Contractor: X

Relinquished By / Affiliation: Cole Dalassera / PTS  
 Date: 12/3/20  
 Time: 11:30  
 Accepted By / Affiliation: JRL POU  
 Date: 12/4/20  
 Time: 10:40  
 Shipper's Name: Cole Dalassera  
 Shipper's Company: Pioneer Technical Services  
 Shipment Method: FedEx Overnight  
 Ship Date: 12/3/20  
 Shipment Tracking No:  
 Special Instructions:  
 THIS LINE - LAB USE ONLY... Custody Seals In Place Yes / No  
 Temp Blank Yes / No  
 Cooler Temp on Receipt: 2.7 °F/C  
 Trip Blank: Yes / No  
 MS/MSD Sample Submitted: Yes / No  
 BP Remediation Mana

WO#: 10541146

10541146

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

**Client Name:**

**Project #:**

*BP - pioneer tech*

**WO# : 10541146**

**PM: JMA Due Date: 12/18/20**  
**CLIENT: BP-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: <i>2.5</i> °C	Average Corrected Temp (no temp blank only): _____ °C	<input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container
Correction Factor: <i>+0.2</i>	Cooler Temp Corrected w/temp blank: <i>2.7</i> °C		

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

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

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

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

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

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

August 25, 2021

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

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

Dear Jesse Schwarzrock:

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

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

- Pace Analytical Services - Minneapolis

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

1700 Elm Street SE, Minneapolis, MN 55414

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

A2LA Certification #: 2926.01\*

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009\*

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014\*

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

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

Florida Certification #: E87605\*

Georgia Certification #: 959

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086\*

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064\*

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137\*

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

Minnesota Petrofund Registration #: 1240\*

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081\*

New Jersey Certification #: MN002

New York Certification #: 11647\*

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Ohio VAP Certification (1800) #: CL110\*

Oklahoma Certification #: 9507\*

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001\*

Pennsylvania Certification #: 68-00563\*

Puerto Rico Certification #: MN00064

South Carolina Certification #:74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192\*

Utah Certification #: MN00064\*

Vermont Certification #: VT-027053137

Virginia Certification #: 460163\*

Washington Certification #: C486\*

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

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### SAMPLE ANALYTE COUNT

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: BPSOU School Sampling

Pace Project No.: 10574925

---

**Date:** August 25, 2021

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

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: BPSOU School Sampling

Pace Project No.: 10574925

---

**Method:** EPA 7471B

**Description:** 7471B Mercury

**Client:** BPAR-PIONEER-MT

**Date:** August 25, 2021

**General Information:**

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

**Hold Time:**

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

**Sample Preparation:**

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

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

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

**Continuing Calibration:**

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

**Method Blank:**

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

**Laboratory Control Spike:**

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

**Matrix Spikes:**

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

**Duplicate Sample:**

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

**Additional Comments:**

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

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

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

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

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

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

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

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: BPSOU School Sampling

Pace Project No.: 10574925

QC Batch: 765313

Analysis Method: EPA 7471B

QC Batch Method: EPA 7471B

Analysis Description: 7471B Mercury Solids

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10574925001, 10574925002, 10574925003, 10574925004

METHOD BLANK: 4079252

Matrix: Solid

Associated Lab Samples: 10574925001, 10574925002, 10574925003, 10574925004

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

LABORATORY CONTROL SAMPLE: 4079253

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4079254 4079255

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

SAMPLE DUPLICATE: 4079256

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

Associated Lab Samples: 10574925001, 10574925002, 10574925003, 10574925004

SAMPLE DUPLICATE: 4077836

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

SAMPLE DUPLICATE: 4077837

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

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

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## QUALIFIERS

Project: BPSOU School Sampling

Pace Project No.: 10574925

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

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

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BPSOU School Sampling

Pace Project No.: 10574925

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

### REPORT OF LABORATORY ANALYSIS

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# Laboratory Management Program LAMP Chain of Custody Record

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

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

Lab Name: Pace Analytical Services		Facility Address:		Consultant/Contractor: Pioneer Technical Services	
Lab Address: 1700 Elm Street Minneapolis, MN 55414		City, State, ZIP Code:		Consultant/Contractor Project No: BPSOU School Sampling	
Lab PM: Jennifer Anderson		Lead Regulatory Agency:		Address: 307 E Park Suite 421, Anaconda MT, 59711	
Lab Phone: 612-607-1700		California Global ID No.:		Consultant/Contractor PM: Jesse Schwarzrock	
Lab Shipping Acct:		Enfos Proposal No:		Phone: 406-697-0949 Email: jschwarzrock@pioneer-technical.com	
Lab Bottle Order No:		Accounting Mode:		Email EDD To: Jesse Schwarzrock	
Other Info:		Stage:		Invoice To: BP Contractor <u>X</u>	
BP Project Manager (PM): Mike McAnulty		Matrix		Requested Analyses	
BP PM Phone: 406-723-1822		Is this location a well?		Standard <u>X</u>	
BP PM Email: mcanumc@bp.com		Air / Vapor		Full Data Package <u>    </u>	
		Water / Liquid		Note: If sample not collected, indicate "N/A"	
		Soil / Solid		Comments	
Lab No.	Sample Description	Date	Time	7471 Mercury, dry weight	
	21-TypeB-0817-001	08/17/21	1120	X	RUSH TURNAROUND
	21-TypeB-0817-002	08/17/21	1130	X	RUSH TURNAROUND
	21-TypeB-0817-003	08/17/21	1140	X	RUSH TURNAROUND
	21-TypeB-0817-004	08/17/21	1150	X	RUSH TURNAROUND
				<b>WO# : 10574925</b>  <b>10574925</b>	
Sampler's Name: Molly Sprunger		Relinquished By / Affiliation		Accepted By / Affiliation	
Sampler's Company: Pioneer Technical Services		Molly Sprunger / Pioneer		Molly Sprunger / Pca	
Shipment Method: FedEx Overnight		Date: 8/17/21		Date: 8/18/21	
Shipment Tracking No: 4278 9935 1703		Time: 12:45		Time: 8:50	
<b>Special Instructions:</b>					



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

Document Revised: 12Aug2020

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

**Page 1 of 1**  
Pace Analytical Services -  
Minneapolis

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

Client Name:

Project #:

**WO# : 10574925**

PM: JMA

Due Date: 08/25/21

CLIENT: BP-PIONEER

Courier:  Fed Ex  UPS  USPS  Client  
 Pace  SpeedDee  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)  See Exceptions  
Correction Factor: True Cooler Temp Corrected w/temp blank: 5.4 °C only: \_\_\_\_\_ °C  1 Container

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

Temp Log: Temp must be maintained at <6°C during login, record temp every 20 mins	<b>CLIENT NOTIFICATION/RESOLUTION</b>	<b>Field Data Required?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
Opened Time: <u>11:30</u> Temp: <u>5.4</u> Corrected Temp: <u>5.4</u>	Person Contacted:	Date/Time:
Time: <u>11:45</u> put in cooler	Comments/Resolution:	
Time: <u>JMA 8/19/21</u> Temp: _____ Corrected Temp: _____		

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) CB Page 16 of 16