

TABLE 1
FORMER IKENOUYE F29-22, 23 TANK BATTERY - SOUTHERN AST
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH ⁽⁴⁾ (mg/kg)
Residential SSL ^(1,2)			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL ^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
AST03 @ 0-6"	10/30/2023	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	0.038	<0.0038	3.1

Notes:

- 1. Compounds referenced from the ECMC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- 2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- 3. SSLs are applicable if a pathway for communication with groundwater is present.
- 4. Value calculated by adding TPH-GRO, TPH-DRO, and TPH-ORO concentrations.

ECMC = Colorado Energy & Carbon Management Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

TPH-ORO = Total petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

in. = Inches

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

TABLE 2
FORMER IKENOUYE F29-22, 23 TANK BATTERY - SOUTHERN AST
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
AST03 @ 0-6"	10/30/2023	0-6 in. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Notes:
1. Compounds referenced from the ECMC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.
ECMC = Colorado Energy & Carbon Management Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
PAHs = Polycyclic aromatic hydrocarbons
Benz(a) = Benzanthracene
Benzo(a) = Benzopyrene
Benzo(b) = Benzofluoranthene
Benzo(k) = Benzofluoranthene
A,H = Dibenzoanthracene
1,2,3-CD = Indenopyrene
M = Methylnaphthalene
mg/kg = Milligrams per kilogram
in. = Inches
bgs = Below ground surface

TABLE 3
FORMER IKENOUYE F29-22, 23 TANK BATTERY - SOUTHERN AST
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
AST03 @ 0-6"	10/30/2023	0-6 in. bgs	40.367777	-104.682182	1.0	0.9

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

in. = Inches

bgs = Below ground surface

ATTACHMENT A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 10, 2023

Mark Longhurst

Tasman Geosciences

6855 W. 119th Ave.

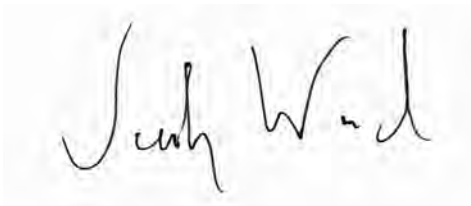
Broomfield, CO 80020

RE: PDC - Ikenouye F29-22, 23 Tank Battery

Work Order #2310584

Enclosed are the results of analyses for samples received by Summit Scientific on 10/30/23 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood", is written on a light gray rectangular background.

Jacob Wood For Paul Shrewsbury

President



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:

11/10/23 13:18

ANALYTICAL REPORT FOR SAMPLES

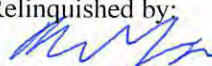
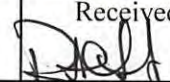
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2310584-01	Soil	10/30/23 12:44	10/30/23 17:40
AST02@0-6"	2310584-02	Soil	10/30/23 12:42	10/30/23 17:40
AST03@0-6"	2310584-03	Soil	10/30/23 12:40	10/30/23 17:40
SEP01-FL@4'	2310584-04	Soil	10/30/23 13:46	10/30/23 17:40
SEP02-FL@4'	2310584-05	Soil	10/30/23 13:52	10/30/23 17:40
SEP01-DL@4'	2310584-06	Soil	10/30/23 13:49	10/30/23 17:40
SEP02-DL@4'	2310584-07	Soil	10/30/23 13:55	10/30/23 17:40

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client: PDC / Tasman		Send Data To: Project Manager: Mark Longhurst		Send Invoice To: Company: PDC Energy	
Address: 6855 W 119th Ave		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
City/State/Zip: Broomfield / CO / 80020				AFE#:	
Phone: 303-487-1228		Project Name: Ikenouye F29-22,23 Facility		PO/Billing Codes:	
Sampler Name: R. Yavinsky		Project Number: Tank Battery		Contact: Mark Longhurst	

				Preservative				Matrix				Analysis Requested				Special Instructions			
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAHs	
1	AST01@0-6"	10/30/23	1244	2			X			X			X	X	X			X	
2	AST02@0-6"		1242																
3	AST03@0-6"		1240																
4	SEP01-FL@4'		1346										X	X	X	X	X	X	
5	SEP02-FL@4'		1352																
6	SEP01-DL@4'		1349																
7	SEP02-DL@4'		1355																
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

Relinquished by: 	Date/Time: 10/30/23 1640	Received by: Tasman Lockbox	Date/Time: 10/30/23 1640	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 10/30/23 1740	Received by: 	Date/Time: 10/30/23 1740	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 8.1	Corrected Temperature: 8	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2310584Client: RodriguezClient Project ID: Ikanduye F29-22,23Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

--	--	--	--	--

Matrix (Check all that apply)

Air

☐

Soil/Solid

☒

Water

☐

Other

☐

Temp (°C)

8.1

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	an ice
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.AS
Custodian Printed Name10/30/23
Date/Time



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

AST01@0-6"
2310584-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/23 12:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGK0022	11/01/23	11/02/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0436	109 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0449	112 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0407	102 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/23 12:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0023	11/01/23	11/02/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.7	102 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

AST01@0-6"
2310584-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/30/23 12:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGK0010	11/01/23	11/01/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0143	42.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0166	49.9 %	40-150		"	"	"	"	

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Tasman Geosciences
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Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

AST02@0-6"
2310584-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/23 12:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGK0022	11/01/23	11/02/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0432	108 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0440	110 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0440	110 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/23 12:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0023	11/01/23	11/02/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	14.8	119 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

AST02@0-6"
2310584-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/30/23 12:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGK0010	11/01/23	11/01/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.00714	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.00852	0.00500	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0153	46.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0162	48.7 %	40-150		"	"	"	"	

Summit Scientific

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6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

AST03@0-6"
2310584-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/23 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGK0022	11/01/23	11/02/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.038	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3.1	0.50	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0446	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0428	107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0425	106 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/23 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0023	11/01/23	11/02/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.3	106 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

AST03@0-6"
2310584-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/30/23 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0010	11/01/23	11/01/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/30/23 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0137	41.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0158	47.4 %	40-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP01-FL@4'
2310584-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGK0022	11/01/23	11/02/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0458	114 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0422	106 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0439	110 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0023	11/01/23	11/02/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.7	85.4 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP01-FL@4'
2310584-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0010	11/01/23	11/01/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.00553	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.00608	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.00649	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0159	47.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0153	45.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0215	11/07/23	11/08/23	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP01-FL@4'
2310584-04 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Calcium	36.8	0.0500	mg/L dry	1	BGK0171	11/06/23	11/08/23	EPA 6020B
Magnesium	8.81	0.0500	"	"	"	"	"	"
Sodium	4.50	0.0500	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.173	0.00100	units	1	BGK0345	11/09/23	11/09/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	81.2		%	1	BGK0166	11/06/23	11/07/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.230	0.0100	mmhos/cm	1	BGK0191	11/07/23	11/07/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/30/23 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.97		pH Units	1	BGK0190	11/07/23	11/07/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP02-FL@4'
2310584-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGK0022	11/01/23	11/02/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0518	130 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0452	113 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0390	97.5 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0023	11/01/23	11/02/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.9	87.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP02-FL@4'
2310584-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0010	11/01/23	11/01/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.00812	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.00805	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.00949	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.00719	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0114	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	0.00520	0.00500	"	"	"	"	"	"	
Pyrene	0.0135	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0148	44.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0138	41.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0215	11/07/23	11/08/23	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP02-FL@4'
2310584-05 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Calcium	46.5	0.0500	mg/L dry	1	BGK0171	11/06/23	11/08/23	EPA 6020B
Magnesium	14.5	0.0500	"	"	"	"	"	"
Sodium	23.3	0.0500	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.765	0.00100	units	1	BGK0345	11/09/23	11/09/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	81.0		%	1	BGK0166	11/06/23	11/07/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.524	0.0100	mmhos/cm	1	BGK0191	11/07/23	11/07/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/30/23 13:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.84		pH Units	1	BGK0190	11/07/23	11/07/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP01-DL@4'
2310584-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGK0022	11/01/23	11/02/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0448	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0430	107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0427	107 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0023	11/01/23	11/02/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.58	76.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP01-DL@4'
2310584-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0010	11/01/23	11/01/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0143	43.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0139	41.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0215	11/07/23	11/08/23	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP01-DL@4'
2310584-06 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Calcium	32.8	0.0500	mg/L dry	1	BGK0171	11/06/23	11/08/23	EPA 6020B
Magnesium	10.2	0.0500	"	"	"	"	"	"
Sodium	4.87	0.0500	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.190	0.00100	units	1	BGK0345	11/09/23	11/09/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.5		%	1	BGK0166	11/06/23	11/07/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.197	0.0100	mmhos/cm	1	BGK0191	11/07/23	11/07/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/30/23 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.10		pH Units	1	BGK0190	11/07/23	11/07/23	EPA 9045D	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP02-DL@4'
2310584-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGK0022	11/01/23	11/02/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0427	107 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0418	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0409	102 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGK0023	11/01/23	11/02/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.96	79.7 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP02-DL@4'
2310584-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGK0010	11/01/23	11/02/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	0.00525	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	0.00621	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.00708	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.00765	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0170	50.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0154	46.3 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGK0215	11/07/23	11/08/23	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

SEP02-DL@4'
2310584-07 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Calcium	27.3	0.0500	mg/L dry	1	BGK0171	11/06/23	11/08/23	EPA 6020B
Magnesium	12.7	0.0500	"	"	"	"	"	"
Sodium	6.03	0.0500	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.239	0.00100	units	1	BGK0345	11/09/23	11/09/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	81.5		%	1	BGK0166	11/06/23	11/07/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.193	0.0100	mmhos/cm	1	BGK0191	11/07/23	11/07/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/30/23 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.23		pH Units	1	BGK0190	11/07/23	11/07/23	EPA 9045D	

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Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0022 - EPA 5030 Soil MS

Blank (BGK0022-BLK1)

Prepared & Analyzed: 11/01/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0399		"	0.0400		99.8	50-150			
Surrogate: Toluene-d8	0.0459		"	0.0400		115	50-150			
Surrogate: 4-Bromofluorobenzene	0.0407		"	0.0400		102	50-150			

LCS (BGK0022-BS1)

Prepared & Analyzed: 11/01/23

Benzene	0.124	0.0020	mg/kg	0.100		124	70-130			
Toluene	0.130	0.0050	"	0.100		130	70-130			
Ethylbenzene	0.115	0.0050	"	0.100		115	70-130			
m,p-Xylene	0.224	0.010	"	0.200		112	70-130			
o-Xylene	0.105	0.0050	"	0.100		105	70-130			
1,2,4-Trimethylbenzene	0.110	0.0050	"	0.100		110	70-130			
1,3,5-Trimethylbenzene	0.110	0.0050	"	0.100		110	70-130			
Naphthalene	0.110	0.0038	"	0.100		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0410		"	0.0400		103	50-150			
Surrogate: Toluene-d8	0.0449		"	0.0400		112	50-150			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.8	50-150			

Matrix Spike (BGK0022-MS1)

Source: 2310583-01

Prepared & Analyzed: 11/01/23

Benzene	0.108	0.0020	mg/kg	0.100	ND	108	70-130			
Toluene	0.111	0.0050	"	0.100	ND	111	70-130			
Ethylbenzene	0.0992	0.0050	"	0.100	ND	99.2	70-130			
m,p-Xylene	0.193	0.010	"	0.200	ND	96.6	70-130			
o-Xylene	0.0941	0.0050	"	0.100	ND	94.1	70-130			
1,2,4-Trimethylbenzene	0.0941	0.0050	"	0.100	ND	94.1	70-130			
1,3,5-Trimethylbenzene	0.0945	0.0050	"	0.100	ND	94.5	70-130			
Naphthalene	0.118	0.0038	"	0.100	ND	118	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0407		"	0.0400		102	50-150			
Surrogate: Toluene-d8	0.0435		"	0.0400		109	50-150			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	50-150			

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Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0022 - EPA 5030 Soil MS

Matrix Spike Dup (BGK0022-MSD1)	Source: 2310583-01			Prepared & Analyzed: 11/01/23						
Benzene	0.109	0.0020	mg/kg	0.100	ND	109	70-130	0.749	30	
Toluene	0.115	0.0050	"	0.100	ND	115	70-130	3.63	30	
Ethylbenzene	0.0998	0.0050	"	0.100	ND	99.8	70-130	0.573	30	
m,p-Xylene	0.192	0.010	"	0.200	ND	95.9	70-130	0.701	30	
o-Xylene	0.0919	0.0050	"	0.100	ND	91.9	70-130	2.32	30	
1,2,4-Trimethylbenzene	0.0923	0.0050	"	0.100	ND	92.3	70-130	1.87	30	
1,3,5-Trimethylbenzene	0.0939	0.0050	"	0.100	ND	93.9	70-130	0.605	30	
Naphthalene	0.119	0.0038	"	0.100	ND	119	70-130	0.758	30	
Surrogate: 1,2-Dichloroethane-d4	0.0413		"	0.0400		103	50-150			
Surrogate: Toluene-d8	0.0443		"	0.0400		111	50-150			
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0400		100	50-150			

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Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0023 - EPA 3550A

Blank (BGK0023-BLK1)

Prepared & Analyzed: 11/01/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	15.6		"	12.5		125	30-150			

LCS (BGK0023-BS1)

Prepared & Analyzed: 11/01/23

C10-C28 (DRO)	378	50	mg/kg	500		75.6	70-130			
Surrogate: o-Terphenyl	10.6		"	12.5		84.5	30-150			

Matrix Spike (BGK0023-MS1)

Source: 2310583-01

Prepared & Analyzed: 11/01/23

C10-C28 (DRO)	404	50	mg/kg	500	ND	80.9	70-130			
Surrogate: o-Terphenyl	11.4		"	12.5		91.3	30-150			

Matrix Spike Dup (BGK0023-MSD1)

Source: 2310583-01

Prepared & Analyzed: 11/01/23

C10-C28 (DRO)	470	50	mg/kg	500	ND	93.9	70-130	14.9	20	
Surrogate: o-Terphenyl	12.3		"	12.5		98.7	30-150			

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Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Reporting				Spike	Source	%REC			RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0010 - EPA 5030 Soil MS

Blank (BGK0010-BLK1)

Prepared & Analyzed: 11/01/23

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0346		"	0.0333		104	40-150			
Surrogate: Fluoranthene-d10	0.0246		"	0.0333		73.9	40-150			

LCS (BGK0010-BS1)

Prepared & Analyzed: 11/01/23

Acenaphthene	0.0233	0.00500	mg/kg	0.0333	70.0	31-137
Anthracene	0.0248	0.00500	"	0.0333	74.5	30-120
Benzo (a) anthracene	0.0235	0.00500	"	0.0333	70.5	30-120
Benzo (a) pyrene	0.0208	0.00500	"	0.0333	62.5	30-120
Benzo (b) fluoranthene	0.0227	0.00500	"	0.0333	68.1	30-120
Benzo (k) fluoranthene	0.0240	0.00500	"	0.0333	71.9	30-120
Chrysene	0.0250	0.00500	"	0.0333	74.9	30-120
Dibenz (a,h) anthracene	0.0192	0.00500	"	0.0333	57.5	30-120
Fluoranthene	0.0248	0.00500	"	0.0333	74.3	30-120
Fluorene	0.0236	0.00500	"	0.0333	70.7	30-120
Indeno (1,2,3-cd) pyrene	0.0251	0.00500	"	0.0333	75.2	30-120
Pyrene	0.0253	0.00500	"	0.0333	75.9	35-142
1-Methylnaphthalene	0.0273	0.00500	"	0.0333	81.8	35-142
2-Methylnaphthalene	0.0284	0.00500	"	0.0333	85.3	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0186		"	0.0333	55.7	40-150
Surrogate: Fluoranthene-d10	0.0242		"	0.0333	72.7	40-150

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Tasman Geosciences
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Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0010 - EPA 5030 Soil MS

Matrix Spike (BGK0010-MS1)

Source: 2310583-01

Prepared & Analyzed: 11/01/23

Acenaphthene	0.0140	0.00500	mg/kg	0.0333	ND	42.0	31-137		
Anthracene	0.0162	0.00500	"	0.0333	ND	48.5	30-120		
Benzo (a) anthracene	0.0168	0.00500	"	0.0333	ND	50.4	30-120		
Benzo (a) pyrene	0.0144	0.00500	"	0.0333	ND	43.3	30-120		
Benzo (b) fluoranthene	0.0144	0.00500	"	0.0333	ND	43.3	30-120		
Benzo (k) fluoranthene	0.0145	0.00500	"	0.0333	ND	43.4	30-120		
Chrysene	0.0157	0.00500	"	0.0333	ND	47.1	30-120		
Dibenz (a,h) anthracene	0.0144	0.00500	"	0.0333	ND	43.4	30-120		
Fluoranthene	0.0165	0.00500	"	0.0333	ND	49.4	30-120		
Fluorene	0.0173	0.00500	"	0.0333	ND	51.8	30-120		
Indeno (1,2,3-cd) pyrene	0.0173	0.00500	"	0.0333	ND	52.0	30-120		
Pyrene	0.0168	0.00500	"	0.0333	ND	50.5	35-142		
1-Methylnaphthalene	0.0188	0.00500	"	0.0333	ND	56.4	15-130		
2-Methylnaphthalene	0.0206	0.00500	"	0.0333	ND	61.7	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0134		"	0.0333		40.1	40-150		
Surrogate: Fluoranthene-d10	0.0166		"	0.0333		49.9	40-150		

Matrix Spike Dup (BGK0010-MSD1)

Source: 2310583-01

Prepared & Analyzed: 11/01/23

Acenaphthene	0.0158	0.00500	mg/kg	0.0333	ND	47.3	31-137	12.0	30
Anthracene	0.0149	0.00500	"	0.0333	ND	44.7	30-120	8.02	30
Benzo (a) anthracene	0.0153	0.00500	"	0.0333	ND	45.9	30-120	9.53	30
Benzo (a) pyrene	0.0152	0.00500	"	0.0333	ND	45.5	30-120	4.97	30
Benzo (b) fluoranthene	0.0135	0.00500	"	0.0333	ND	40.6	30-120	6.42	30
Benzo (k) fluoranthene	0.0141	0.00500	"	0.0333	ND	42.4	30-120	2.12	30
Chrysene	0.0143	0.00500	"	0.0333	ND	43.0	30-120	9.10	30
Dibenz (a,h) anthracene	0.0147	0.00500	"	0.0333	ND	44.0	30-120	1.47	30
Fluoranthene	0.0150	0.00500	"	0.0333	ND	45.1	30-120	9.08	30
Fluorene	0.0150	0.00500	"	0.0333	ND	45.0	30-120	13.9	30
Indeno (1,2,3-cd) pyrene	0.0152	0.00500	"	0.0333	ND	45.5	30-120	13.2	30
Pyrene	0.0150	0.00500	"	0.0333	ND	45.1	35-142	11.3	30
1-Methylnaphthalene	0.0166	0.00500	"	0.0333	ND	49.9	15-130	12.1	50
2-Methylnaphthalene	0.0184	0.00500	"	0.0333	ND	55.2	15-130	11.2	50
Surrogate: 2-Methylnaphthalene-d10	0.0144		"	0.0333		43.2	40-150		
Surrogate: Fluoranthene-d10	0.0153		"	0.0333		45.9	40-150		

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Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0215 - EPA 3050B

Blank (BGK0215-BLK1)

Prepared: 11/07/23 Analyzed: 11/08/23

Boron ND 2.00 mg/L

LCS (BGK0215-BS1)

Prepared: 11/07/23 Analyzed: 11/08/23

Boron 5.95 2.00 mg/L 5.00 119 80-120

Duplicate (BGK0215-DUP1)

Source: 2310322-03

Prepared: 11/07/23 Analyzed: 11/08/23

Boron 0.449 2.00 mg/L 0.454 1.17 20

Matrix Spike (BGK0215-MS1)

Source: 2310322-03

Prepared: 11/07/23 Analyzed: 11/10/23

Boron 4.96 2.00 mg/L 5.00 0.454 90.1 75-125

Matrix Spike Dup (BGK0215-MSD1)

Source: 2310322-03

Prepared: 11/07/23 Analyzed: 11/10/23

Boron 4.74 2.00 mg/L 5.00 0.454 85.7 75-125 4.57 25

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Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0171 - General Preparation

Blank (BGK0171-BLK1)

Prepared: 11/06/23 Analyzed: 11/08/23

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BGK0171-BS1)

Prepared: 11/06/23 Analyzed: 11/08/23

Calcium	4.72	0.0500	mg/L wet	5.00	94.5	70-130
Magnesium	5.09	0.0500	"	5.00	102	70-130
Sodium	5.44	0.0500	"	5.00	109	70-130

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Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0166 - General Preparation

Duplicate (BGK0166-DUP1)

Source: 2310572-01

Prepared: 11/06/23 Analyzed: 11/07/23

% Solids	86.6	%	86.3	0.347	20
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6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGK0191 - General Preparation

Blank (BGK0191-BLK1)

Prepared & Analyzed: 11/07/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGK0191-BS1)

Prepared & Analyzed: 11/07/23

Specific Conductance (EC) 0.157 0.0100 mmhos/cm 0.150 104 95-105

Duplicate (BGK0191-DUP1)

Source: 2310582-01

Prepared & Analyzed: 11/07/23

Specific Conductance (EC) 0.0446 0.0100 mmhos/cm 0.0446 0.00 20

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
11/10/23 13:18

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			%REC	Limits	RPD	Limit	

Batch BGK0190 - General Preparation

LCS (BGK0190-BS1)

Prepared & Analyzed: 11/07/23

pH	9.07	pH Units	9.18	98.8	95-105
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Duplicate (BGK0190-DUP1)

Source: 2310582-01

Prepared & Analyzed: 11/07/23

pH	6.77	pH Units	6.77	0.00	20
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Summit Scientific

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Broomfield CO, 80020

Project: PDC - Ikenouye F29-22, 23 Tank Battery

Project Number: [none]
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Reported:
11/10/23 13:18

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference