

**TABLE 1**  
**FORMER MATTIE 1 WELLHEAD**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

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 <sup>(4)</sup> (mg/kg)
<b>Residential SSL <sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL <sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
FLR01 @ 3'	3/24/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB01 @ 6-7'	5/26/2022	6-7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

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

TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics

TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics

TEPH-ORO = Total extractable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

**TABLE 2**  
**FORMER MATTIE 1 WELLHEAD**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC COMPOUNDS**

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
<b>Soil Suitability for Reclamation Standard <sup>(1)</sup></b>			<b>6-8.3</b>	<b>&lt;4</b>	<b>&lt;6</b>	<b>2</b>
WH01 @ 2.5'	3/24/2021	2.5 ft. bgs	7.55	2.54	4.10	0.326
SB01 @ 6-7'	5/26/2022	6-7 ft. bgs	6.99	0.413	1.96	0.0742

**Notes:**

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

**TABLE 3**  
**FORMER MATTIE 1 WELLHEAD**  
**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 <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			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
SB01 @ 6-7'	5/26/2022	6-7 ft. 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:**

- Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with

COGCC = Colorado Oil and Gas Conservation Commission

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

Benzo(a) = Benzantrhacene

Benzo(a) = Benzopyrene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylnaphthalene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

**TABLE 4**  
**FORMER MATTIE 1 WELLHEAD**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
FLR01 @ 3'	3/24/2021	3 ft. bgs	40.284762	-104.803786	1.3	0.1
WH01 @ 2.5'	3/24/2021	2.5 ft. bgs	40.284753	-104.803776	1.2	0.1
WHS01-N @ 0-6"	3/24/2021	0-6 in. bgs	40.284791	-104.803800	1.3	0.2
WHS01-W @ 0-6"	3/24/2021	0-6 in. bgs	40.284744	-104.803841	1.2	0.4
WHS01-S @ 0-6"	3/24/2021	0-6 in. bgs	40.284700	-104.803791	1.1	0.3
WHS01-E @ 0-6"	3/24/2021	0-6 in. bgs	40.284733	-104.803746	1.4	0.4
BKG01 @ 2.5'	3/24/2021	2.5 ft. bgs	40.284719	-104.803848	1.1	0.3
FL01-01 @ 4'	3/24/2021	4 ft. bgs	40.284778	-104.804824	1.4	0.3
FL01-02 @ 4'	3/24/2021	4 ft. bgs	40.284802	-104.805308	1.2	0.3
FL01-03 @ 4'	3/24/2021	4 ft. bgs	40.285196	-104.805369	1.4	0.2
FL01-04 @ 4'	3/24/2021	4 ft. bgs	40.285983	-104.805301	1.2	0.2
FL01-05 @ 3'	3/24/2021	3 ft. bgs	40.286633	-104.804770	1.5	0.1
FL01-06 @ 3'	3/24/2021	3 ft. bgs	40.287321	-104.804356	1.3	0.0
FL01-07 @ 2'	3/24/2021	2 ft. bgs	40.288047	-104.804165	1.4	0.1
FL01-08 @ 5'	3/24/2021	5 ft. bgs	40.288812	-104.803762	1.3	0.0
SB01 @ 6-7'	5/26/2022	6-7 ft. bgs	40.284754	-104.803781	NC	0.5

**Notes:**

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 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

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

## Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 30, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Mattie 1 Wellhead

Work Order #2103355

Enclosed are the results of analyses for samples received by Summit Scientific on 03/24/21 17:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, flowing script.

Paul Shrewsbury

President



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLR01@3'	2103355-01	Soil	03/24/21 11:48	03/24/21 17:10
WH01@2.5'	2103355-02	Soil	03/24/21 11:50	03/24/21 17:10

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.*

# Summit Scientific

S<sub>2</sub>

2103355

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 1

Client: PDC / Tasman Project Manager: Mark Longhurst  
 Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com  
 City/State/Zip: Broomfield/ CO/ 80020  
 Phone: 303-487-1228 Project Name: Mattie 1 Wellhead  
 Sampler Name: Cody Miller Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B <sup>915</sup>	TPH - (C6 - C36) <sup>915</sup>	pH, EC, SAR <sup>915</sup>	Boron - HWS <sup>915</sup>	VOC - 915	PAH - 915	Metals - 915		
1	FLR01 @ 3'	3/24/21	1148	2			X			X				X	X					X	pH, EC, SAR by saturated paste
2	WH01 @ 2.5'	3/24/21	1150	2			X			X					X	X					
3	BKG01 @ 2.5'	3/24/21	1110	2			X			X										X	
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: Cody Miller	Date/Time: 3/24/21 1440	Received by: Tasman's Lock Box	Date/Time: 3/24/21 1440	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 3.3 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box	Date/Time: 3-24-21 17:10	Received by: [Signature]	Date/Time: 3-24-21 17:10		
Relinquished by:	Date/Time:	Received by:	Date/Time:		



# Sample Receipt Checklist

S2 Work Order 2103355

Client: PDC / TASMAN Client Project ID: MATIE 1 WELLHEAD

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: \_\_\_\_\_

☐ ☒ ☐ ☐ ☐

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

Temp (°C)	3.3
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Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? 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):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Muri P.  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

3-24-21  
Date/Time



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

**FLR01@3'**  
**2103355-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/24/21 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0484	03/29/21	03/29/21	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: **03/24/21 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/24/21 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0436	03/25/21	03/27/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/24/21 11:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		61.1 %	30-150		"	"	"	"	

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

**WH01@2.5'**  
**2103355-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/24/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.326	0.0100	mg/L	1	BEC0461	03/26/21	03/27/21	EPA 6020B	

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

Date Sampled: **03/24/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	166	0.0569	mg/L dry	1	BEC0451	03/25/21	03/27/21	EPA 6020B	
Magnesium	50.1	0.0569	"	"	"	"	"	"	
Sodium	235	0.0569	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/24/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.10	0.100	units	1	BEC0495	03/29/21	03/29/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/24/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.9		%	1	BEC0455	03/26/21	03/26/21	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/24/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.54	0.0100	mmhos/cm	1	BEC0465	03/26/21	03/26/21	EPA 120.1	

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

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

**WH01@2.5'**  
**2103355-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **03/24/21 11:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.55</b>			pH Units	1	BEC0466	03/26/21	03/26/21	EPA 9045D	

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

## 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 BEC0484 - EPA 5030 Soil MS

##### Blank (BEC0484-BLK1)

Prepared & Analyzed: 03/29/21

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	0.0373		"	0.0400		93.2	23-173			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	21-167			

##### LCS (BEC0484-BS1)

Prepared & Analyzed: 03/29/21

Benzene	0.0998	0.0020	mg/kg	0.100		99.8	70-130			
Toluene	0.0841	0.0050	"	0.100		84.1	70-130			
Ethylbenzene	0.109	0.0050	"	0.100		109	70-130			
m,p-Xylene	0.214	0.010	"	0.200		107	70-130			
o-Xylene	0.108	0.0050	"	0.100		108	70-130			
1,2,4-Trimethylbenzene	0.128	0.0050	"	0.100		128	70-130			
1,3,5-Trimethylbenzene	0.123	0.0050	"	0.100		123	70-130			
Naphthalene	0.114	0.0038	"	0.100		114	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0396		"	0.0400		98.9	23-173			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	21-167			

##### Matrix Spike (BEC0484-MS1)

Source: 2103355-01

Prepared & Analyzed: 03/29/21

Benzene	0.0996	0.0020	mg/kg	0.100	ND	99.6	70-130			
Toluene	0.0831	0.0050	"	0.100	ND	83.1	70-130			
Ethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130			
m,p-Xylene	0.211	0.010	"	0.200	0.00513	103	70-130			
o-Xylene	0.107	0.0050	"	0.100	ND	107	70-130			
1,2,4-Trimethylbenzene	0.125	0.0050	"	0.100	ND	125	70-130			
1,3,5-Trimethylbenzene	0.122	0.0050	"	0.100	ND	122	70-130			
Naphthalene	0.112	0.0038	"	0.100	ND	112	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0400		99.5	23-173			
Surrogate: Toluene-d8	0.0390		"	0.0400		97.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.3	21-167			

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

**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 BEC0484 - EPA 5030 Soil MS**

Matrix Spike Dup (BEC0484-MSD1)	Source: 2103355-01			Prepared & Analyzed: 03/29/21						
Benzene	0.0990	0.0020	mg/kg	0.100	ND	99.0	70-130	0.635	30	
Toluene	0.0831	0.0050	"	0.100	ND	83.1	70-130	0.0361	30	
Ethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130	1.99	30	
m,p-Xylene	0.205	0.010	"	0.200	0.00513	99.8	70-130	3.19	30	
o-Xylene	0.105	0.0050	"	0.100	ND	105	70-130	1.55	30	
1,2,4-Trimethylbenzene	0.124	0.0050	"	0.100	ND	124	70-130	1.13	30	
1,3,5-Trimethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130	2.89	30	
Naphthalene	0.113	0.0038	"	0.100	ND	113	70-130	1.06	30	
Surrogate: 1,2-Dichloroethane-d4	0.0413		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.1	21-167			

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

**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 BEC0436 - EPA 3550A**

**Blank (BEC0436-BLK1)**

Prepared: 03/25/21 Analyzed: 03/26/21

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

**LCS (BEC0436-BS1)**

Prepared: 03/25/21 Analyzed: 03/26/21

C10-C28 (DRO)	350	50	mg/kg	500	70.0	70-130
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**Matrix Spike (BEC0436-MS1)**

Source: 2103327-02

Prepared: 03/25/21 Analyzed: 03/26/21

C10-C28 (DRO)	454	50	mg/kg	500	13.1	88.2	70-130
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**Matrix Spike Dup (BEC0436-MSD1)**

Source: 2103327-02

Prepared: 03/25/21 Analyzed: 03/26/21

C10-C28 (DRO)	465	50	mg/kg	500	13.1	90.3	70-130	2.27	20
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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.*



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

**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 BEC0461 - EPA 3050B**

**Blank (BEC0461-BLK1)**

Prepared: 03/26/21 Analyzed: 03/27/21

Boron ND 0.0100 mg/L

**LCS (BEC0461-BS1)**

Prepared: 03/26/21 Analyzed: 03/27/21

Boron 5.39 0.0100 mg/L 5.00 108 80-120

**Duplicate (BEC0461-DUP1)**

**Source: 2103225-03**

Prepared: 03/26/21 Analyzed: 03/27/21

Boron 0.0948 0.0100 mg/L 0.101 6.41 20

**Matrix Spike (BEC0461-MS1)**

**Source: 2103225-03**

Prepared: 03/26/21 Analyzed: 03/27/21

Boron 5.36 0.0100 mg/L 5.00 0.101 105 75-125

**Matrix Spike Dup (BEC0461-MSD1)**

**Source: 2103225-03**

Prepared: 03/26/21 Analyzed: 03/27/21

Boron 4.96 0.0100 mg/L 5.00 0.101 97.1 75-125 7.85 25

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

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

**Summit Scientific**

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

**Batch BEC0451 - General Preparation**

**Blank (BEC0451-BLK1)**

Prepared: 03/25/21 Analyzed: 03/27/21

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

**LCS (BEC0451-BS1)**

Prepared: 03/25/21 Analyzed: 03/27/21

Calcium	4.62	0.0500	mg/L wet	5.00	92.4	70-130
Magnesium	5.41	0.0500	"	5.00	108	70-130
Sodium	5.28	0.0500	"	5.00	106	70-130

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

**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 BEC0455 - General Preparation**

Duplicate (BEC0455-DUP1)		Source: 2103355-02			Prepared & Analyzed: 03/26/21					
% Solids	88.1		%		87.9		0.231		20	

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

**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 BEC0465 - General Preparation**

**Blank (BEC0465-BLK1)**

Prepared & Analyzed: 03/26/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEC0465-BS1)**

Prepared & Analyzed: 03/26/21

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 90-110

**Duplicate (BEC0465-DUP1)**

**Source: 2103351-05**

Prepared & Analyzed: 03/26/21

Specific Conductance (EC) 0.384 0.0100 mmhos/cm 0.386 0.467 20

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

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

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

**Batch BEC0466 - General Preparation**

**LCS (BEC0466-BS1)**

Prepared & Analyzed: 03/26/21

pH	9.28	pH Units	9.18	101	95-105
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**Duplicate (BEC0466-DUP1)**

**Source: 2103351-05**

Prepared & Analyzed: 03/26/21

pH	8.36	pH Units	8.35	0.120	20
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Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/30/21 12:12

### 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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 13, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Mattie 1 Wellhead

Work Order #2205415

Enclosed are the results of analyses for samples received by Summit Scientific on 05/26/22 14:46. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@6-7'	2205415-01	Soil	05/26/22 13:18	05/26/22 14:46

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.*

# Summit Scientific

S<sub>2</sub>

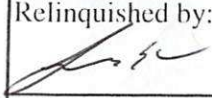
2205415

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Page 1 of 1

Client: PDC / Tasman Project Manager: Mark Longhurst  
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com  
City/State/Zip: Broomfield/ CO/ 80020  
Phone: 303-487-1228 Project Name: Maffie 1 Wellhead  
Sampler Name: Sam Anderson Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested								Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HW'S	pH, EC, SAR	PAH'S	ON HOLD		
1	SB01 e 6-7'	5/26/22	1318	3			X			X			X	X	X	X	X	X			
2	BK607 e 6-7'	↓	1248	1			X			X								X			
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 1446 5/26/22	Received by: Tasman's Lock Box	Date/Time: 1446 5/26/22	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: _____ Samples Intact: Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		



S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order#

2205405

Client: PDC ITASMAN

Client Project ID:

MAFFIE, wellhead

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

	X			
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Matrix (Check all that apply)

Air

☐

Soil/Solid

☒

Water

☐

Other

☐

Temp (°C)

Thermometer #

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

Custodian Printed Name

Date/Time

5/26/22 1845



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

**SB01@6-7'**  
**2205415-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BFE0655	05/27/22	05/28/22	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: **05/26/22 13:18**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0390	97.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0368	92.0 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0370	92.6 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BFE0656	05/27/22	05/28/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	12.1	97.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

**SB01@6-7'**  
**2205415-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFE0694	05/31/22	06/04/22	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: **05/26/22 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0248	74.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0241	72.2 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0742</b>	0.0100	mg/L	1	BFF0197	06/08/22	06/12/22	EPA 6020B	

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

Date Sampled: **05/26/22 13:18**

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

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

**SB01@6-7'**  
**2205415-01 (Soil)**

**Summit Scientific**

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

Calcium	156	0.0522	mg/L dry	1	BFF0162	06/07/22	06/11/22	EPA 6020B
Magnesium	66.2	0.0522	"	"	"	"	"	"
Sodium	116	0.0522	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.96	0.00100	units	1	BFF0319	06/12/22	06/12/22	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.8		%	1	BFF0071	06/02/22	06/03/22	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.413	0.0100	mmhos/cm	1	BFF0164	06/07/22	06/07/22	EPA 120.1	

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

Date Sampled: **05/26/22 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.99		pH Units	1	BFF0163	06/07/22	06/07/22	EPA 9045D	

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BFE0655 - EPA 5030 Soil MS

##### Blank (BFE0655-BLK1)

Prepared: 05/27/22 Analyzed: 05/28/22

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	0.0468		"	0.0400		117	50-150			
Surrogate: Toluene-d8	0.0365		"	0.0400		91.3	50-150			
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0400		91.5	50-150			

##### LCS (BFE0655-BS1)

Prepared: 05/27/22 Analyzed: 05/28/22

Benzene	0.0955	0.0020	mg/kg	0.125		76.4	70-130			
Toluene	0.0967	0.0050	"	0.125		77.3	70-130			
Ethylbenzene	0.149	0.0050	"	0.125		119	70-130			
m,p-Xylene	0.268	0.010	"	0.250		107	70-130			
o-Xylene	0.127	0.0050	"	0.125		102	70-130			
1,2,4-Trimethylbenzene	0.144	0.0050	"	0.125		115	70-130			
1,3,5-Trimethylbenzene	0.147	0.0050	"	0.125		118	70-130			
Naphthalene	0.139	0.0038	"	0.125		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0403		"	0.0400		101	50-150			
Surrogate: Toluene-d8	0.0376		"	0.0400		94.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0367		"	0.0400		91.6	50-150			

##### Matrix Spike (BFE0655-MS1)

Source: 2205415-01

Prepared: 05/27/22 Analyzed: 05/28/22

Benzene	0.0945	0.0020	mg/kg	0.125	ND	75.6	70-130			
Toluene	0.0981	0.0050	"	0.125	ND	78.5	70-130			
Ethylbenzene	0.152	0.0050	"	0.125	ND	122	70-130			
m,p-Xylene	0.272	0.010	"	0.250	ND	109	70-130			
o-Xylene	0.131	0.0050	"	0.125	ND	105	70-130			
1,2,4-Trimethylbenzene	0.149	0.0050	"	0.125	ND	119	70-130			
1,3,5-Trimethylbenzene	0.148	0.0050	"	0.125	ND	118	70-130			
Naphthalene	0.154	0.0038	"	0.125	ND	124	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0433		"	0.0400		108	50-150			
Surrogate: Toluene-d8	0.0373		"	0.0400		93.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0372		"	0.0400		93.1	50-150			

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.



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

**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 BFE0655 - EPA 5030 Soil MS**

Matrix Spike Dup (BFE0655-MSD1)		Source: 2205415-01			Prepared: 05/27/22 Analyzed: 05/28/22					
Benzene	0.0930	0.0020	mg/kg	0.125	ND	74.4	70-130	1.54	30	
Toluene	0.0976	0.0050	"	0.125	ND	78.1	70-130	0.521	30	
Ethylbenzene	0.153	0.0050	"	0.125	ND	122	70-130	0.393	30	
m,p-Xylene	0.274	0.010	"	0.250	ND	110	70-130	0.802	30	
o-Xylene	0.131	0.0050	"	0.125	ND	105	70-130	0.389	30	
1,2,4-Trimethylbenzene	0.151	0.0050	"	0.125	ND	121	70-130	1.56	30	
1,3,5-Trimethylbenzene	0.151	0.0050	"	0.125	ND	121	70-130	2.35	30	
Naphthalene	0.159	0.0038	"	0.125	ND	127	70-130	2.82	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	0.0451		"	0.0400		113	50-150			
Surrogate: Toluene-d8	0.0374		"	0.0400		93.5	50-150			
Surrogate: 4-Bromofluorobenzene	0.0365		"	0.0400		91.3	50-150			

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BFE0656 - EPA 3550A**

**Blank (BFE0656-BLK1)**

Prepared: 05/27/22 Analyzed: 05/28/22

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

**LCS (BFE0656-BS1)**

Prepared: 05/27/22 Analyzed: 05/28/22

C10-C28 (DRO)	439	50	mg/kg	70-130
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**Matrix Spike (BFE0656-MS1)**

Source: 2205415-01

Prepared: 05/27/22 Analyzed: 05/28/22

C10-C28 (DRO)	410	50	mg/kg	24.0	70-130
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**Matrix Spike Dup (BFE0656-MSD1)**

Source: 2205415-01

Prepared: 05/27/22 Analyzed: 05/28/22

C10-C28 (DRO)	461	50	mg/kg	24.0	70-130	11.7	20
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Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

## 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 BFE0694 - EPA 5030 Soil MS

##### Blank (BFE0694-BLK1)

Prepared: 05/31/22 Analyzed: 06/04/22

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	0.0368		"	0.0333		110	40-150			
Surrogate: Fluoranthene-d10	0.0353		"	0.0333		106	40-150			

##### LCS (BFE0694-BS1)

Prepared: 05/31/22 Analyzed: 06/04/22

Acenaphthene	0.0377	0.00500	mg/kg	0.0333		113	31-137			
Anthracene	0.0365	0.00500	"	0.0333		110	30-120			
Benzo (a) anthracene	0.0326	0.00500	"	0.0333		97.7	30-120			
Benzo (a) pyrene	0.0364	0.00500	"	0.0333		109	30-120			
Benzo (b) fluoranthene	0.0386	0.00500	"	0.0333		116	30-120			
Benzo (k) fluoranthene	0.0344	0.00500	"	0.0333		103	30-120			
Chrysene	0.0357	0.00500	"	0.0333		107	30-120			
Dibenz (a,h) anthracene	0.0240	0.00500	"	0.0333		71.9	30-120			
Fluoranthene	0.0382	0.00500	"	0.0333		115	30-120			
Fluorene	0.0363	0.00500	"	0.0333		109	30-120			
Indeno (1,2,3-cd) pyrene	0.0151	0.00500	"	0.0333		45.2	30-120			
Pyrene	0.0352	0.00500	"	0.0333		106	35-142			
1-Methylnaphthalene	0.0338	0.00500	"	0.0333		102	35-142			
2-Methylnaphthalene	0.0322	0.00500	"	0.0333		96.5	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0310		"	0.0333		92.9	40-150			
Surrogate: Fluoranthene-d10	0.0363		"	0.0333		109	40-150			

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BFE0694 - EPA 5030 Soil MS

##### Matrix Spike (BFE0694-MS1)

Source: 2205384-01

Prepared: 05/31/22 Analyzed: 06/04/22

Acenaphthene	0.0115	0.00500	mg/kg	0.0333	ND	34.5	31-137		
Anthracene	0.0152	0.00500	"	0.0333	ND	45.6	30-120		
Benzo (a) anthracene	0.0129	0.00500	"	0.0333	ND	38.8	30-120		
Benzo (a) pyrene	0.0135	0.00500	"	0.0333	ND	40.5	30-120		
Benzo (b) fluoranthene	0.0150	0.00500	"	0.0333	ND	45.1	30-120		
Benzo (k) fluoranthene	0.0170	0.00500	"	0.0333	ND	51.0	30-120		
Chrysene	0.0146	0.00500	"	0.0333	ND	43.7	30-120		
Dibenz (a,h) anthracene	0.0174	0.00500	"	0.0333	ND	52.1	30-120		
Fluoranthene	0.0139	0.00500	"	0.0333	ND	41.7	30-120		
Fluorene	0.0133	0.00500	"	0.0333	ND	39.8	30-120		
Indeno (1,2,3-cd) pyrene	0.0177	0.00500	"	0.0333	ND	53.2	30-120		
Pyrene	0.0160	0.00500	"	0.0333	ND	48.1	35-142		
1-Methylnaphthalene	0.0124	0.00500	"	0.0333	ND	37.2	15-130		
2-Methylnaphthalene	0.0126	0.00500	"	0.0333	ND	37.8	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0136		"	0.0333		40.8	40-150		
Surrogate: Fluoranthene-d10	0.0230		"	0.0333		68.9	40-150		

##### Matrix Spike Dup (BFE0694-MSD1)

Source: 2205384-01

Prepared: 05/31/22 Analyzed: 06/04/22

Acenaphthene	0.0106	0.00500	mg/kg	0.0333	ND	31.8	31-137	8.20	30
Anthracene	0.0135	0.00500	"	0.0333	ND	40.4	30-120	12.0	30
Benzo (a) anthracene	0.0116	0.00500	"	0.0333	ND	34.9	30-120	10.6	30
Benzo (a) pyrene	0.0122	0.00500	"	0.0333	ND	36.6	30-120	10.3	30
Benzo (b) fluoranthene	0.0150	0.00500	"	0.0333	ND	44.9	30-120	0.573	30
Benzo (k) fluoranthene	0.0167	0.00500	"	0.0333	ND	50.2	30-120	1.57	30
Chrysene	0.0130	0.00500	"	0.0333	ND	38.9	30-120	11.6	30
Dibenz (a,h) anthracene	0.0198	0.00500	"	0.0333	ND	59.3	30-120	12.9	30
Fluoranthene	0.0119	0.00500	"	0.0333	ND	35.8	30-120	15.4	30
Fluorene	0.0115	0.00500	"	0.0333	ND	34.5	30-120	14.3	30
Indeno (1,2,3-cd) pyrene	0.0168	0.00500	"	0.0333	ND	50.4	30-120	5.33	30
Pyrene	0.0142	0.00500	"	0.0333	ND	42.6	35-142	12.1	30
1-Methylnaphthalene	0.0106	0.00500	"	0.0333	ND	31.8	15-130	15.4	50
2-Methylnaphthalene	0.0104	0.00500	"	0.0333	ND	31.1	15-130	19.2	50
Surrogate: 2-Methylnaphthalene-d10	0.0215		"	0.0333		64.6	40-150		
Surrogate: Fluoranthene-d10	0.0182		"	0.0333		54.6	40-150		

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

**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 BFF0197 - EPA 3050B**

**Blank (BFF0197-BLK1)**

Prepared: 06/08/22 Analyzed: 06/12/22

Boron ND 0.0100 mg/L

**LCS (BFF0197-BS1)**

Prepared: 06/08/22 Analyzed: 06/12/22

Boron 5.61 0.0100 mg/L 5.00 112 80-120

**Duplicate (BFF0197-DUP1)**

**Source: 2205358-05**

Prepared: 06/08/22 Analyzed: 06/12/22

Boron 0.0634 0.0100 mg/L 0.0667 5.09 20

**Matrix Spike (BFF0197-MS1)**

**Source: 2205358-05**

Prepared: 06/08/22 Analyzed: 06/12/22

Boron 5.51 0.0100 mg/L 5.00 0.0667 109 75-125

**Matrix Spike Dup (BFF0197-MSD1)**

**Source: 2205358-05**

Prepared: 06/08/22 Analyzed: 06/12/22

Boron 5.56 0.0100 mg/L 5.00 0.0667 110 75-125 0.877 25

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

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

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

**Batch BFF0162 - General Preparation**

**Blank (BFF0162-BLK1)**

Prepared: 06/07/22 Analyzed: 06/11/22

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

**LCS (BFF0162-BS1)**

Prepared: 06/07/22 Analyzed: 06/11/22

Calcium	617	0.0500	mg/L wet	500	123	70-130
Magnesium	515	0.0500	"	500	103	70-130
Sodium	498	0.0500	"	500	99.7	70-130

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

**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 BFF0071 - General Preparation**

Duplicate (BFF0071-DUP1)		Source: 2205385-01			Prepared: 06/02/22 Analyzed: 06/03/22					
% Solids	79.7		%		81.0			1.65	20	

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

**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 BFF0164 - General Preparation**

**Blank (BFF0164-BLK1)**

Prepared & Analyzed: 06/07/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BFF0164-BS1)**

Prepared & Analyzed: 06/07/22

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BFF0164-DUP1)**

**Source: 2205415-01**

Prepared & Analyzed: 06/07/22

Specific Conductance (EC) 0.403 0.0100 mmhos/cm 0.413 2.65 20

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

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

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

**Batch BFF0163 - General Preparation**

**LCS (BFF0163-BS1)**

Prepared & Analyzed: 06/07/22

pH	9.07	pH Units	9.18	98.8	95-105
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**Duplicate (BFF0163-DUP1)**

Source: 2205415-01

Prepared & Analyzed: 06/07/22

pH	6.97	pH Units	6.99	0.287	20
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Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Mattie 1 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/22 13:21

### 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