

**TABLE 1**  
**FORMER GUTTERSEN 43-18 WELLHEAD**  
**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 <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>
WH01 @ 6'	11/17/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 3'	11/17/2022	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-03 @ 3'	11/21/2022	3 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 GUTTERSEN 43-18 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 @ 6'	11/17/2022	6 ft. bgs	8.26	0.185	0.299	0.0478
FLR01 @ 3'	11/17/2022	3 ft. bgs	8.26	0.112	0.588	0.0546

**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 GUTTERSEN 43-18 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)
<b>Residential SSL <sup>(1,2)</sup></b>			<b>360</b>	<b>1,800</b>	<b>1.1</b>	<b>0.11</b>	<b>1.1</b>	<b>11</b>	<b>110</b>	<b>0.11</b>	<b>240</b>	<b>240</b>	<b>1.1</b>	<b>180</b>	<b>18</b>	<b>24</b>
<b>Protection of Groundwater SSL <sup>(1,2,3)</sup></b>			<b>0.55</b>	<b>5.8</b>	<b>0.011</b>	<b>0.24</b>	<b>0.3</b>	<b>2.9</b>	<b>9</b>	<b>0.096</b>	<b>8.9</b>	<b>0.54</b>	<b>0.98</b>	<b>1.3</b>	<b>0.006</b>	<b>0.019</b>
WH01 @ 6'	11/17/2022	6 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
FLR01 @ 3'	11/17/2022	3 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:**

1. Compounds referenced from the COGCC 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.
- COGCC = Colorado Oil and Gas Conservation Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
PAHs = Polycyclic aromatic hydrocarbons  
Benz(a) = Benzantracene  
Benzo(a) = Benzopyrene  
Benzo(b) = Benzoofluoranthene  
Benzo(k) = Benzoofluoranthene  
A,H = Dibenzoanthracene  
1,2,3-CD = Indenopyrene  
M = Methylanththalene  
mg/kg = Milligrams per kilogram  
ft. = Feet  
bgs = Below ground surface

**TABLE 4**  
**FORMER GUTTERSEN 43-18 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)
WH01 @ 6'	11/17/2022	6 ft. bgs	40.223618	-104.473566	0.9	0.0
FLR01 @ 3'	11/17/2022	3 ft. bgs	40.223612	-104.473570	1.0	0.0
WHS01-N @ 0-6"	11/17/2022	0-6 in. bgs	40.223669	-104.473569	0.8	0.1
WHS01-S @ 0-6"	11/17/2022	0-6 in. bgs	40.223596	-104.473572	0.8	0.2
WHS01-E @ 0-6"	11/17/2022	0-6 in. bgs	40.223616	-104.473521	0.8	0.1
WHS01-W @ 0-6"	11/17/2022	0-6 in. bgs	40.223627	-104.473648	0.9	0.1
FL01-01 @ 3'	11/21/2022	3 ft. bgs	40.223614	-104.474163	0.9	0.1
FL01-02 @ 3'	11/21/2022	3 ft. bgs	40.223613	-104.475014	0.8	0.0
FL01-03 @ 3'	11/21/2022	3 ft. bgs	40.223608	-104.475938	0.7	0.2
FL01-04 @ 3'	11/21/2022	3 ft. bgs	40.223603	-104.476861	0.7	0.1
FL01-05 @ 3'	11/21/2022	3 ft. bgs	40.223589	-104.477850	0.7	0.0
BKG01 @ 3'	11/17/2022	3 ft. bgs	40.223491	-104.473671	0.8	0.1
BKG01 @ 6'	11/17/2022	6 ft. bgs	40.223491	-104.473671	0.8	0.1

**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

## **ATTACHMENT A**

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 28, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Guttersen 43-18 Wellhead

Work Order #2211315

Enclosed are the results of analyses for samples received by Summit Scientific on 11/17/22 17:06. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mikayla Axtell".

Mikayla Axtell For Paul Shrewsbury  
President



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

Project: Guttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2211315-01	Soil	11/17/22 08:59	11/17/22 17:06
FLR01@3'	2211315-02	Soil	11/17/22 08:53	11/17/22 17:06

Summit Scientific

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# Summit Scientific

S<sub>2</sub>


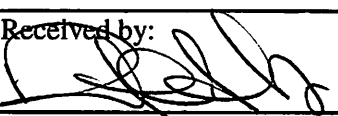
2211315

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:	Guttersen 43-18 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 - HWS	pH, EC, SAR	PAHs	Metals	DN H <sub>2</sub> O			
1	Whole 6'	11/17/22	859	3			X			X				X	X	X	X	X				pH, EC, SAR by saturated paste	
2	FLR 01 3'		853	3										X	X	X	X	X					
3	BK 601 3'		917	1																X			
4	BK 601 6'		922	1																X			
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
	11/17/22 1250	Tasman's Lock Box	11/17/22 1250	Same Day	72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
Tasman's Lock Box	11/17/22 1706		11/17/22 1706	48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
				Temperature Upon Receipt: 6.8		
				Samples Intact: Yes No		



S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2211315Client: PPC TrusmanClient Project ID: Gulfasen 43-18 wellheadShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐

Airbill #: \_\_\_\_\_

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☐

Other

☐

Temp (°C)

6.8

Thermometer #

1

	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>antae</u>
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 <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<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"/>	
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"/>	
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"/>	
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"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<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, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<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.				

Custodian Printed Name

Date/Time

11.17.22



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

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**WH01@6'**  
**2211315-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFK0484	11/18/22	11/20/22	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: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		75.8 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		107 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0485	11/18/22	11/19/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.4 %	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: Gutttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**WH01@6'**  
**2211315-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFK0541	11/21/22	11/22/22	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: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		60.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		70.2 %	40-150		"	"	"	"	

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

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0478</b>	0.0100	mg/L	1	BFK0523	11/19/22	11/21/22	EPA 6020B	

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

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**WH01@6'**  
**2211315-01 (Soil)**

**Summit Scientific**

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

Calcium	93.5	0.0520	mg/L dry	1	BFK0536	11/19/22	11/22/22	EPA 6020B
Magnesium	18.6	0.0520	"	"	"	"	"	"
Sodium	12.1	0.0520	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.299	0.00100	units	1	BFK0574	11/22/22	11/22/22	Calculation	

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

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.2		%	1	BFK0537	11/20/22	11/21/22	Calculation	

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

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.185	0.0100	mmhos/cm	1	BFK0539	11/20/22	11/20/22	EPA 120.1	

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

Date Sampled: **11/17/22 08:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.26		pH Units	1	BFK0538	11/20/22	11/20/22	EPA 9045D	

Summit Scientific

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

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**FLR01@3'**  
**2211315-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFK0484	11/18/22	11/20/22	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: **11/17/22 08:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		75.4 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.1 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0485	11/18/22	11/19/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		101 %	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: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**FLR01@3'**  
**2211315-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFK0541	11/21/22	11/22/22	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: **11/17/22 08:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		52.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		65.5 %	40-150		"	"	"	"	

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

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0546</b>	0.0100	mg/L	1	BFK0523	11/19/22	11/21/22	EPA 6020B	

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

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**FLR01@3'**  
**2211315-02 (Soil)**

**Summit Scientific**

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

Calcium	10.3	0.0519	mg/L dry	1	BFK0536	11/19/22	11/22/22	EPA 6020B
Magnesium	56.6	0.0519	"	"	"	"	"	"
Sodium	21.7	0.0519	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.588	0.00100	units	1	BFK0574	11/22/22	11/22/22	Calculation	

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

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.4		%	1	BFK0537	11/20/22	11/21/22	Calculation	

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

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.112	0.0100	mmhos/cm	1	BFK0539	11/20/22	11/20/22	EPA 120.1	

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

Date Sampled: **11/17/22 08:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.26		pH Units	1	BFK0538	11/20/22	11/20/22	EPA 9045D	

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

Project: Gutttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

## 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 BFK0484 - EPA 5030 Soil MS

##### Blank (BFK0484-BLK1)

Prepared: 11/18/22 Analyzed: 11/20/22

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	0.0266		"	0.0400		66.5	50-150			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	50-150			

##### LCS (BFK0484-BS1)

Prepared: 11/18/22 Analyzed: 11/20/22

Benzene	0.0714	0.0020	mg/kg	0.0750		95.2	70-130			
Toluene	0.0685	0.0050	"	0.0750		91.4	70-130			
Ethylbenzene	0.0732	0.0050	"	0.0750		97.6	70-130			
m,p-Xylene	0.152	0.010	"	0.150		102	70-130			
o-Xylene	0.0770	0.0050	"	0.0750		103	70-130			
1,2,4-Trimethylbenzene	0.0853	0.0050	"	0.0750		114	70-130			
1,3,5-Trimethylbenzene	0.0820	0.0050	"	0.0750		109	70-130			
Naphthalene	0.0933	0.0038	"	0.0750		124	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0305		"	0.0400		76.2	50-150			
Surrogate: Toluene-d8	0.0422		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400		101	50-150			

##### Matrix Spike (BFK0484-MS1)

Source: 2211294-01

Prepared: 11/18/22 Analyzed: 11/20/22

Benzene	0.0694	0.0020	mg/kg	0.0750	ND	92.6	70-130			
Toluene	0.0687	0.0050	"	0.0750	ND	91.6	70-130			
Ethylbenzene	0.0698	0.0050	"	0.0750	ND	93.0	70-130			
m,p-Xylene	0.145	0.010	"	0.150	ND	96.8	70-130			
o-Xylene	0.0758	0.0050	"	0.0750	ND	101	70-130			
1,2,4-Trimethylbenzene	0.0839	0.0050	"	0.0750	ND	112	70-130			
1,3,5-Trimethylbenzene	0.0796	0.0050	"	0.0750	ND	106	70-130			
Naphthalene	0.0785	0.0038	"	0.0750	ND	105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0314		"	0.0400		78.5	50-150			
Surrogate: Toluene-d8	0.0430		"	0.0400		108	50-150			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	50-150			

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

Project: Gutttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**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 BFK0484 - EPA 5030 Soil MS**

Matrix Spike Dup (BFK0484-MSD1)	Source: 2211294-01			Prepared: 11/18/22 Analyzed: 11/20/22						
Benzene	0.0652	0.0020	mg/kg	0.0750	ND	87.0	70-130	6.28	30	
Toluene	0.0640	0.0050	"	0.0750	ND	85.4	70-130	6.96	30	
Ethylbenzene	0.0683	0.0050	"	0.0750	ND	91.0	70-130	2.13	30	
m,p-Xylene	0.141	0.010	"	0.150	ND	94.1	70-130	2.85	30	
o-Xylene	0.0739	0.0050	"	0.0750	ND	98.6	70-130	2.52	30	
1,2,4-Trimethylbenzene	0.0808	0.0050	"	0.0750	ND	108	70-130	3.83	30	
1,3,5-Trimethylbenzene	0.0774	0.0050	"	0.0750	ND	103	70-130	2.71	30	
Naphthalene	0.0745	0.0038	"	0.0750	ND	99.3	70-130	5.29	30	
Surrogate: 1,2-Dichloroethane-d4	0.0296		"	0.0400		73.9	50-150			
Surrogate: Toluene-d8	0.0426		"	0.0400		106	50-150			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	50-150			

Summit Scientific

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

Project: Gutttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**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 BFK0485 - EPA 3550A**

**Blank (BFK0485-BLK1)**

Prepared: 11/18/22 Analyzed: 11/19/22

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.0		"	12.5		104	30-150			

**LCS (BFK0485-BS1)**

Prepared: 11/18/22 Analyzed: 11/19/22

C10-C28 (DRO)	506	50	mg/kg	500		101	70-130			
Surrogate: o-Terphenyl	12.8		"	12.5		102	30-150			

**Matrix Spike (BFK0485-MS1)**

Source: 2211294-01

Prepared: 11/18/22 Analyzed: 11/19/22

C10-C28 (DRO)	494	50	mg/kg	500	28.2	93.1	70-130			
Surrogate: o-Terphenyl	12.4		"	12.5		99.4	30-150			

**Matrix Spike Dup (BFK0485-MSD1)**

Source: 2211294-01

Prepared: 11/18/22 Analyzed: 11/19/22

C10-C28 (DRO)	456	50	mg/kg	500	28.2	85.6	70-130	7.91	20	
Surrogate: o-Terphenyl	12.9		"	12.5		103	30-150			

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

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

## 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

#### Batch BFK0541 - EPA 5030 Soil MS

##### Blank (BFK0541-BLK1)

Prepared & Analyzed: 11/21/22

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	0.0187		"	0.0333		56.1		40-150			
Surrogate: Fluoranthene-d10	0.0232		"	0.0333		69.6		40-150			

##### LCS (BFK0541-BS1)

Prepared & Analyzed: 11/21/22

Acenaphthene	0.0327	0.00500	mg/kg	0.0333		98.0		31-137			
Anthracene	0.0329	0.00500	"	0.0333		98.7		30-120			
Benzo (a) anthracene	0.0307	0.00500	"	0.0333		92.0		30-120			
Benzo (a) pyrene	0.0298	0.00500	"	0.0333		89.5		30-120			
Benzo (b) fluoranthene	0.0314	0.00500	"	0.0333		94.1		30-120			
Benzo (k) fluoranthene	0.0335	0.00500	"	0.0333		100		30-120			
Chrysene	0.0345	0.00500	"	0.0333		103		30-120			
Dibenz (a,h) anthracene	0.0303	0.00500	"	0.0333		91.0		30-120			
Fluoranthene	0.0322	0.00500	"	0.0333		96.5		30-120			
Fluorene	0.0326	0.00500	"	0.0333		97.8		30-120			
Indeno (1,2,3-cd) pyrene	0.0284	0.00500	"	0.0333		85.1		30-120			
Pyrene	0.0341	0.00500	"	0.0333		102		35-142			
1-Methylnaphthalene	0.0262	0.00500	"	0.0333		78.6		35-142			
2-Methylnaphthalene	0.0244	0.00500	"	0.0333		73.2		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0274		"	0.0333		82.2		40-150			
Surrogate: Fluoranthene-d10	0.0323		"	0.0333		96.8		40-150			

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

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

## 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 BFK0541 - EPA 5030 Soil MS

Matrix Spike (BKF0541-MS1)			Source: 2211211-02		Prepared & Analyzed: 11/21/22					
Acenaphthene	0.0140	0.00500	mg/kg	0.0333	ND	41.9	31-137			
Anthracene	0.0137	0.00500	"	0.0333	ND	41.2	30-120			
Benzo (a) anthracene	0.0157	0.00500	"	0.0333	ND	47.0	30-120			
Benzo (a) pyrene	0.0136	0.00500	"	0.0333	ND	40.8	30-120			
Benzo (b) fluoranthene	0.0139	0.00500	"	0.0333	ND	41.6	30-120			
Benzo (k) fluoranthene	0.0143	0.00500	"	0.0333	ND	42.8	30-120			
Chrysene	0.0150	0.00500	"	0.0333	ND	45.1	30-120			
Dibenz (a,h) anthracene	0.0161	0.00500	"	0.0333	ND	48.4	30-120			
Fluoranthene	0.0144	0.00500	"	0.0333	ND	43.3	30-120			
Fluorene	0.0134	0.00500	"	0.0333	ND	40.2	30-120			
Indeno (1,2,3-cd) pyrene	0.0153	0.00500	"	0.0333	ND	46.0	30-120			
Pyrene	0.0156	0.00500	"	0.0333	ND	46.9	35-142			
1-Methylnaphthalene	0.0145	0.00500	"	0.0333	ND	43.4	15-130			
2-Methylnaphthalene	0.0345	0.00500	"	0.0333	ND	104	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0134		"	0.0333		40.2	40-150			
Surrogate: Fluoranthene-d10	0.0151		"	0.0333		45.2	40-150			

Matrix Spike Dup (BKF0541-MSD1)			Source: 2211211-02		Prepared & Analyzed: 11/21/22					
Acenaphthene	0.0147	0.00500	mg/kg	0.0333	ND	44.1	31-137	5.25	30	
Anthracene	0.0141	0.00500	"	0.0333	ND	42.4	30-120	2.76	30	
Benzo (a) anthracene	0.0163	0.00500	"	0.0333	ND	49.0	30-120	4.14	30	
Benzo (a) pyrene	0.0139	0.00500	"	0.0333	ND	41.8	30-120	2.31	30	
Benzo (b) fluoranthene	0.0140	0.00500	"	0.0333	ND	42.0	30-120	1.01	30	
Benzo (k) fluoranthene	0.0144	0.00500	"	0.0333	ND	43.2	30-120	1.01	30	
Chrysene	0.0156	0.00500	"	0.0333	ND	47.0	30-120	4.10	30	
Dibenz (a,h) anthracene	0.0140	0.00500	"	0.0333	ND	41.9	30-120	14.3	30	
Fluoranthene	0.0145	0.00500	"	0.0333	ND	43.6	30-120	0.861	30	
Fluorene	0.0141	0.00500	"	0.0333	ND	42.4	30-120	5.38	30	
Indeno (1,2,3-cd) pyrene	0.0144	0.00500	"	0.0333	ND	43.3	30-120	6.09	30	
Pyrene	0.0154	0.00500	"	0.0333	ND	46.3	35-142	1.20	30	
1-Methylnaphthalene	0.0244	0.00500	"	0.0333	ND	73.2	15-130	51.0	50	QR-02
2-Methylnaphthalene	0.0301	0.00500	"	0.0333	ND	90.4	15-130	13.6	50	
Surrogate: 2-Methylnaphthalene-d10	0.0158		"	0.0333		47.5	40-150			
Surrogate: Fluoranthene-d10	0.0160		"	0.0333		48.1	40-150			

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

Project: Gutttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**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 BFK0523 - EPA 3050B**

**Blank (BFK0523-BLK1)**

Prepared: 11/19/22 Analyzed: 11/21/22

Boron ND 0.0100 mg/L

**LCS (BFK0523-BS1)**

Prepared: 11/19/22 Analyzed: 11/21/22

Boron 4.65 0.0100 mg/L 5.00 92.9 80-120

**Duplicate (BFK0523-DUP1)**

Source: 2210524-01

Prepared: 11/19/22 Analyzed: 11/21/22

Boron 0.453 0.0100 mg/L 0.476 4.92 20

**Matrix Spike (BFK0523-MS1)**

Source: 2210524-01

Prepared: 11/19/22 Analyzed: 11/21/22

Boron 4.42 0.0100 mg/L 5.00 0.476 79.0 75-125

**Matrix Spike Dup (BFK0523-MSD1)**

Source: 2210524-01

Prepared: 11/19/22 Analyzed: 11/21/22

Boron 4.55 0.0100 mg/L 5.00 0.476 81.4 75-125 2.68 25

Summit Scientific

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

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**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 BFK0536 - General Preparation**

**Blank (BFK0536-BLK1)**

Prepared: 11/19/22 Analyzed: 11/22/22

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

**LCS (BFK0536-BS1)**

Prepared: 11/19/22 Analyzed: 11/22/22

Calcium	6.32	0.0500	mg/L wet	5.00	126	70-130
Magnesium	4.70	0.0500	"	5.00	94.0	70-130
Sodium	4.63	0.0500	"	5.00	92.6	70-130

Summit Scientific

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

Project: Guttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**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 BFK0537 - General Preparation**

Duplicate (BFK0537-DUP1)		Source: 2211165-01		Prepared: 11/20/22 Analyzed: 11/21/22	
% Solids	83.0		%	83.7	0.771 20

Summit Scientific

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

Project: Guttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**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 BFK0539 - General Preparation**

**Blank (BFK0539-BLK1)**

Prepared & Analyzed: 11/20/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BFK0539-BS1)**

Prepared & Analyzed: 11/20/22

Specific Conductance (EC) 0.146 0.0100 mmhos/cm 0.150 97.3 95-105

**Duplicate (BFK0539-DUP1)**

**Source: 2211223-05**

Prepared & Analyzed: 11/20/22

Specific Conductance (EC) 0.273 0.0100 mmhos/cm 0.272 0.366 20

Summit Scientific

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

Project: Guttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

**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 BFK0538 - General Preparation**

**LCS (BFK0538-BS1)**

Prepared & Analyzed: 11/20/22

pH	9.17	pH Units	9.18	99.9	95-105
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**Duplicate (BFK0538-DUP1)**

Source: 2211223-05

Prepared & Analyzed: 11/20/22

pH	8.14	pH Units	8.10	0.493	20
----	------	----------	------	-------	----

Summit Scientific

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

Project: Guttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/28/22 15:39

### Notes and Definitions

QR-02      The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

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

November 29, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Guttersen 43-18 Wellhead

Work Order #2211364

Enclosed are the results of analyses for samples received by Summit Scientific on 11/21/22 17:19. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mikayla Axtell". The signature is fluid and cursive, written on a light gray rectangular background.

Mikayla Axtell For Paul Shrewsbury  
President



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

Project: Guttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/29/22 13:03

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-03@3'	2211364-01	Soil	11/21/22 10:55	11/21/22 17:19

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>


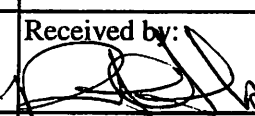
4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

2211364

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: Gufferson 43-18 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 - HWS	pH, EC, SAR	PAHs	Metals		
1	Flot-03 C3'	11/21/22	1055	2			X			X				X	X	X					pH, EC, SAR by saturated paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 11/21/22 1300	Received by: Tasman's Lock Box	Date/Time: 11/21/22 1300	<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: 7.9 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box	Date/Time: 11/21/22 1719	Received by: 	Date/Time: 11/21/22 1719		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 221364Client: Pactasman Client Project ID: Guttarsen 43-18Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply) Air ☐ Soil/Solid ☐ Water ☐ Other ☐Temp (°C) 7.9Thermometer # 1

	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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 <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<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"/>	
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"/>	
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"/>	
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"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation <b>(excluding cooling)</b> ? <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.	<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.

Custodian Printed Name

Date/Time

11-21-22



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

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/29/22 13:03

**FL01-03@3'**  
**2211364-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **11/21/22 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFK0584	11/23/22	11/24/22	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: **11/21/22 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		89.3 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		102 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.0 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **11/21/22 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0586	11/23/22	11/23/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/21/22 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		90.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Gutttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/29/22 13:03

## 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 BFK0584 - EPA 5030 Soil MS

##### Blank (BFK0584-BLK1)

Prepared: 11/23/22 Analyzed: 11/24/22

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	0.0470		"	0.0400		118	50-150			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.7	50-150			

##### LCS (BFK0584-BS1)

Prepared: 11/23/22 Analyzed: 11/24/22

Benzene	0.0749	0.0020	mg/kg	0.100		74.9	70-130			
Toluene	0.0762	0.0050	"	0.100		76.2	70-130			
Ethylbenzene	0.0733	0.0050	"	0.100		73.3	70-130			
m,p-Xylene	0.144	0.010	"	0.200		72.1	70-130			
o-Xylene	0.0713	0.0050	"	0.100		71.3	70-130			
1,2,4-Trimethylbenzene	0.0730	0.0050	"	0.100		73.0	70-130			
1,3,5-Trimethylbenzene	0.0725	0.0050	"	0.100		72.5	70-130			
Naphthalene	0.0897	0.0038	"	0.100		89.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0441		"	0.0400		110	50-150			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	50-150			

##### Matrix Spike (BFK0584-MS1)

Source: 2211363-01

Prepared: 11/23/22 Analyzed: 11/24/22

Benzene	0.0788	0.0020	mg/kg	0.100	ND	78.8	70-130			
Toluene	0.0799	0.0050	"	0.100	ND	79.9	70-130			
Ethylbenzene	0.0769	0.0050	"	0.100	ND	76.9	70-130			
m,p-Xylene	0.151	0.010	"	0.200	ND	75.5	70-130			
o-Xylene	0.0754	0.0050	"	0.100	ND	75.4	70-130			
1,2,4-Trimethylbenzene	0.0779	0.0050	"	0.100	ND	77.9	70-130			
1,3,5-Trimethylbenzene	0.0769	0.0050	"	0.100	ND	76.9	70-130			
Naphthalene	0.0983	0.0038	"	0.100	ND	98.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0427		"	0.0400		107	50-150			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	50-150			

Summit Scientific

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

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/29/22 13:03

**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 BFK0584 - EPA 5030 Soil MS**

Matrix Spike Dup (BFK0584-MSD1)		Source: 2211363-01			Prepared: 11/23/22 Analyzed: 11/24/22					
Benzene	0.0775	0.0020	mg/kg	0.100	ND	77.5	70-130	1.69	30	
Toluene	0.0792	0.0050	"	0.100	ND	79.2	70-130	0.905	30	
Ethylbenzene	0.0774	0.0050	"	0.100	ND	77.4	70-130	0.622	30	
m,p-Xylene	0.154	0.010	"	0.200	ND	76.8	70-130	1.64	30	
o-Xylene	0.0761	0.0050	"	0.100	ND	76.1	70-130	0.871	30	
1,2,4-Trimethylbenzene	0.0776	0.0050	"	0.100	ND	77.6	70-130	0.463	30	
1,3,5-Trimethylbenzene	0.0777	0.0050	"	0.100	ND	77.7	70-130	1.05	30	
Naphthalene	0.0994	0.0038	"	0.100	ND	99.4	70-130	1.12	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	50-150			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400		99.8	50-150			

Summit Scientific

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

Project: Gutttersen 43-18 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/29/22 13:03

**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 BFK0586 - EPA 3550A**

**Blank (BFK0586-BLK1)**

Prepared & Analyzed: 11/23/22

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	13.1		"	12.5	105	30-150				

**LCS (BFK0586-BS1)**

Prepared & Analyzed: 11/23/22

C10-C28 (DRO)	388	50	mg/kg	500	77.5	70-130				
Surrogate: o-Terphenyl	12.8		"	12.5	103	30-150				

**Matrix Spike (BFK0586-MS1)**

Source: 2211363-01

Prepared & Analyzed: 11/23/22

C10-C28 (DRO)	423	50	mg/kg	500	29.3	78.7	70-130			
Surrogate: o-Terphenyl	12.2		"	12.5	97.7	30-150				

**Matrix Spike Dup (BFK0586-MSD1)**

Source: 2211363-01

Prepared & Analyzed: 11/23/22

C10-C28 (DRO)	396	50	mg/kg	500	29.3	73.3	70-130	6.64	20	
Surrogate: o-Terphenyl	12.4		"	12.5	99.6	30-150				

Summit Scientific

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

Project: Guttersen 43-18 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/29/22 13:03

### 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