

**TABLE 1**  
**FORMER GUTTERSEN 32-13 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)
Residential SSL <sup>(1,2)</sup>			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
WH01 @ 6'	7/19/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FLR01 @ 4'	7/19/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-02 @ 4'	7/19/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-03 @ 4'	7/19/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
FL01-04 @ 4'	7/19/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

**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.
4. 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 32-13 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'	7/19/2022	6 ft. bgs	7.56	0.284	0.188	0.0404
FLR01 @ 4'	7/19/2022	4 ft. bgs	7.64	0.268	0.202	0.112

**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 = Milligrams per liter

ft. = Feet

bgs = Below ground surface

**TABLE 3**  
**FORMER GUTTERSEN 32-13 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
WH01 @ 6'	7/19/2022	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 @ 4'	7/19/2022	4 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 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) = Benzo(a)fluoranthene

Benzo(k) = Benzo(a)fluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylanthracene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

**TABLE 4**  
**FORMER GUTTERSEN 32-13 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)
BKG01 @ 4'	7/19/2022	4 ft. bgs	40.227391	-104.496661	0.8	0.0
BKG01 @ 6'	7/19/2022	6 ft. bgs	40.227391	-104.496661	0.8	0.0
WH01 @ 6'	7/19/2022	6 ft. bgs	NC	NC	NC	0.0
FLR01 @ 4'	7/19/2022	4 ft. bgs	40.227385	-104.496821	0.8	0.0
WHS01-N @ 0-6"	7/19/2022	0-6 in. bgs	40.227425	-104.496815	0.9	0.0
WHS01-W @ 0-6"	7/19/2022	0-6 in. bgs	40.227363	-104.496873	0.9	0.0
WHS01-S @ 0-6"	7/19/2022	0-6 in. bgs	40.227292	-104.496803	0.8	0.0
WHS01-E @ 0-6"	7/19/2022	0-6 in. bgs	40.227363	-104.496758	0.8	0.0
FL01-01 @ 4'	7/19/2022	4 ft. bgs	40.227872	-104.496197	0.9	0.0
FL01-02 @ 4'	7/19/2022	4 ft. bgs	40.228371	-104.495602	0.9	0.0
FL01-03 @ 4'	7/19/2022	4 ft. bgs	40.228888	-104.494998	1.0	0.0
FL01-04 @ 4'	7/19/2022	4 ft. bgs	40.228951	-104.494800	0.9	0.0
SEP01-FL @ 4' <sup>(3)</sup>	7/19/2022	4 ft. bgs	40.228969	-104.494592	1.1	0.4

**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).
3. Sample included for reference only, sample collected during associated tank battery decommissioning.

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

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 26, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Guttersen 32-13 Wellhead

Work Order #2207278

Enclosed are the results of analyses for samples received by Summit Scientific on 07/19/22 16:00. 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: Guttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2207278-01	Soil	07/19/22 09:30	07/19/22 16:00
FLR01@4'	2207278-02	Soil	07/19/22 09:35	07/19/22 16:00
FL01-02@4'	2207278-05	Soil	07/19/22 13:13	07/19/22 16:00
FL01-03@4'	2207278-06	Soil	07/19/22 13:20	07/19/22 16:00
FL01-04@4'	2207278-07	Soil	07/19/22 13:25	07/19/22 16:00

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.*

2207278

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](mailto:mark.longhurst@PDCE.com)

City/State/Zip: Broomfield/ CO/ 80020


Phone: 303-487-1228

Project Name: Gutfersen 32-13 Wellhead

Sampler Name: David Vigil

Project Number:

Sample Description					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Date Sampled	Time Sampled	# of containers		HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	TMBs (1,2,4)&(1,3,5)	PAH - 915	Metals - 915	P104	
1	Wt0106'	7/19/22	930	3			X			X			X	X	X	X	X	X			
2	FLR0104'		935	3			X			X			X	X	X	X	X	X			
3	BKG0104'		920	1			X			X										X	
4	BKG0106'		925	1			X			X										X	
5	FL01-0204'		1313	2			X			X			X	X	X						
6	FL01-0304'		1320	2			X			X			X	X	X						
7	FL01-0404'	✓	1325	2			X			X			X	X	X						
8																					
9																					
10																					

Relinquished by: 

Date/Time: 7/19/22 1530

Received by: Tasman's Lock Box

Date/Time: 7/19/22 1530

Turn Around Time (Check)

Same Day — 72 hours

24 hours — Standard ☒

48 hours —

Sample Integrity:


Temperature Upon Receipt: 6.3

Samples Intact: ☒ Yes ☐ No

Notes:

Relinquished by: Tasman's Lock Box

Date/Time: 7/19/22 1600

Received by: 

Date/Time: 7/19/22 1600

Relinquished by:

Date/Time:

Received by:

Date/Time:



S<sub>2</sub>

2207278

## Sample Receipt Checklist

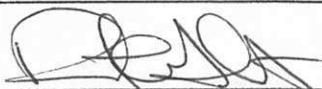
S2 Work Order#

Client: Pac/TasmanClient Project ID: Guthersen 32-13 wellheadShipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: \_\_\_\_\_

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Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 6.3Thermometer # 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"/>	<u>on ICE</u>
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 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"/>	
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? <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"/>	
<u>Additional Comments (if any):</u>				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				



Custodian Printed Name

7/19/22

Date/Time



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

Project: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**WH01@6'**  
**2207278-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFG0355	07/20/22	07/21/22	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: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0414	104 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0591	148 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0465	116 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0357	07/20/22	07/21/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	13.7	110 %	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 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**WH01@6'**  
**2207278-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFG0350	07/20/22	07/20/22	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: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0248	74.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0288	86.4 %	40-150		"	"	"	"	

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

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0404</b>	0.0100	mg/L	1	BFG0352	07/20/22	07/21/22	EPA 6020B	

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

Date Sampled: **07/19/22 09:30**

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: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**WH01@6'**  
**2207278-01 (Soil)**

**Summit Scientific**

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

Calcium	27.0	0.0525	mg/L dry	1	BFG0396	07/21/22	07/22/22	EPA 6020B
Magnesium	9.03	0.0525	"	"	"	"	"	"
Sodium	4.42	0.0525	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.188	0.00100	units	1	BFG0450	07/25/22	07/25/22	Calculation	

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

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.3		%	1	BFG0379	07/20/22	07/21/22	Calculation	

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

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.284	0.0100	mmhos/cm	1	BFG0434	07/22/22	07/22/22	EPA 120.1	

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

Date Sampled: **07/19/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.56		pH Units	1	BFG0433	07/22/22	07/22/22	EPA 9045D	

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

Project: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**FLR01@4'**  
**2207278-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFG0355	07/20/22	07/21/22	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: **07/19/22 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0412	103 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0565	141 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0461	115 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0357	07/20/22	07/21/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	14.1	113 %	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 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**FLR01@4'**  
**2207278-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFG0350	07/20/22	07/20/22	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: **07/19/22 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0299	89.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0380	114 %	40-150		"	"	"	"	

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

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.112</b>	0.0100	mg/L	1	BFG0352	07/20/22	07/21/22	EPA 6020B	

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

Date Sampled: **07/19/22 09:35**

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: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**FLR01@4'**  
**2207278-02 (Soil)**

**Summit Scientific**

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

Calcium	16.1	0.0514	mg/L dry	1	BFG0396	07/21/22	07/22/22	EPA 6020B
Magnesium	3.74	0.0514	"	"	"	"	"	"
Sodium	3.46	0.0514	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.202	0.00100	units	1	BFG0450	07/25/22	07/25/22	Calculation	

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

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.3		%	1	BFG0379	07/20/22	07/21/22	Calculation	

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

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.268	0.0100	mmhos/cm	1	BFG0434	07/22/22	07/22/22	EPA 120.1	

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

Date Sampled: **07/19/22 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.64		pH Units	1	BFG0433	07/22/22	07/22/22	EPA 9045D	

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

Project: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**FL01-02@4'**  
**2207278-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/19/22 13:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFG0355	07/20/22	07/21/22	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: **07/19/22 13:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0375	93.8 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0569	142 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0472	118 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/19/22 13:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0357	07/20/22	07/21/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/22 13:13**

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

Summit Scientific

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

Project: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**FL01-03@4'**  
**2207278-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/19/22 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFG0355	07/20/22	07/21/22	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: **07/19/22 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0404	101 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0555	139 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0462	116 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/19/22 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0357	07/20/22	07/21/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/22 13:20**

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

Summit Scientific

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

Project: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**FL01-04@4'**  
**2207278-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/19/22 13:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFG0355	07/20/22	07/21/22	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: **07/19/22 13:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0374	93.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0579	145 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0457	114 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/19/22 13:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFG0357	07/20/22	07/21/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/19/22 13:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	13.9	111 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Gutttersen 32-13 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

## 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 BFG0355 - EPA 5030 Soil MS

##### Blank (BFG0355-BLK1)

Prepared: 07/20/22 Analyzed: 07/23/22

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	0.0377		"	0.0400		94.3	50-150			
Surrogate: Toluene-d8	0.0388		"	0.0400		96.9	50-150			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		99.9	50-150			

##### LCS (BFG0355-BS1)

Prepared: 07/20/22 Analyzed: 07/23/22

Benzene	0.0711	0.0020	mg/kg	0.100		71.1	70-130			
Toluene	0.0744	0.0050	"	0.100		74.4	70-130			
Ethylbenzene	0.0772	0.0050	"	0.100		77.2	70-130			
m,p-Xylene	0.153	0.010	"	0.200		76.5	70-130			
o-Xylene	0.0750	0.0050	"	0.100		75.0	70-130			
1,2,4-Trimethylbenzene	0.0821	0.0050	"	0.100		82.1	70-130			
1,3,5-Trimethylbenzene	0.0812	0.0050	"	0.100		81.2	70-130			
Naphthalene	0.0957	0.0038	"	0.100		95.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0332		"	0.0400		83.1	50-150			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		99.9	50-150			

##### Matrix Spike (BFG0355-MS1)

Source: 2207243-01

Prepared: 07/20/22 Analyzed: 07/23/22

Benzene	0.0776	0.0020	mg/kg	0.100	ND	77.6	70-130			
Toluene	0.0723	0.0050	"	0.100	ND	72.3	70-130			
Ethylbenzene	0.0785	0.0050	"	0.100	ND	78.5	70-130			
m,p-Xylene	0.158	0.010	"	0.200	ND	78.9	70-130			
o-Xylene	0.0746	0.0050	"	0.100	ND	74.6	70-130			
1,2,4-Trimethylbenzene	0.0835	0.0050	"	0.100	ND	83.5	70-130			
1,3,5-Trimethylbenzene	0.0829	0.0050	"	0.100	ND	82.9	70-130			
Naphthalene	0.111	0.0038	"	0.100	ND	111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0319		"	0.0400		79.8	50-150			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0400		95.2	50-150			

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

Project: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**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 BFG0355 - EPA 5030 Soil MS**

Matrix Spike Dup (BFG0355-MSD1)	Source: 2207243-01			Prepared: 07/20/22 Analyzed: 07/23/22						
Benzene	0.0774	0.0020	mg/kg	0.100	ND	77.4	70-130	0.271	30	
Toluene	0.0731	0.0050	"	0.100	ND	73.1	70-130	1.07	30	
Ethylbenzene	0.0779	0.0050	"	0.100	ND	77.9	70-130	0.805	30	
m,p-Xylene	0.156	0.010	"	0.200	ND	78.0	70-130	1.09	30	
o-Xylene	0.0750	0.0050	"	0.100	ND	75.0	70-130	0.602	30	
1,2,4-Trimethylbenzene	0.0846	0.0050	"	0.100	ND	84.6	70-130	1.25	30	
1,3,5-Trimethylbenzene	0.0826	0.0050	"	0.100	ND	82.6	70-130	0.326	30	
Naphthalene	0.123	0.0038	"	0.100	ND	123	70-130	10.4	30	
Surrogate: 1,2-Dichloroethane-d4	0.0339		"	0.0400		84.8	50-150			
Surrogate: Toluene-d8	0.0392		"	0.0400		97.9	50-150			
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0400		95.2	50-150			

Summit Scientific

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

Project: Guttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**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 BFG0357 - EPA 3550A**

**Blank (BFG0357-BLK1)**

Prepared & Analyzed: 07/20/22

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

**LCS (BFG0357-BS1)**

Prepared & Analyzed: 07/20/22

C10-C28 (DRO)	450	50	mg/kg	500	90.1	70-130
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**Matrix Spike (BFG0357-MS1)**

Source: 2207243-01

Prepared & Analyzed: 07/20/22

C10-C28 (DRO)	421	50	mg/kg	500	9.07	82.3	70-130
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Summit Scientific

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

Project: Gutttersen 32-13 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

## 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 BFG0350 - EPA 5030 Soil MS

##### Blank (BFG0350-BLK1)

Prepared & Analyzed: 07/20/22

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	0.0404	"	0.0333	121	40-150
Surrogate: Fluoranthene-d10	0.0484	"	0.0333	145	40-150

##### LCS (BFG0350-BS1)

Prepared & Analyzed: 07/20/22

Acenaphthene	0.0341	0.00500	mg/kg	0.0333	102	31-137
Anthracene	0.0376	0.00500	"	0.0333	113	30-120
Benzo (a) anthracene	0.0373	0.00500	"	0.0333	112	30-120
Benzo (a) pyrene	0.0358	0.00500	"	0.0333	107	30-120
Benzo (b) fluoranthene	0.0390	0.00500	"	0.0333	117	30-120
Benzo (k) fluoranthene	0.0367	0.00500	"	0.0333	110	30-120
Chrysene	0.0374	0.00500	"	0.0333	112	30-120
Dibenz (a,h) anthracene	0.0379	0.00500	"	0.0333	114	30-120
Fluoranthene	0.0328	0.00500	"	0.0333	98.3	30-120
Fluorene	0.0323	0.00500	"	0.0333	96.8	30-120
Indeno (1,2,3-cd) pyrene	0.0384	0.00500	"	0.0333	115	30-120
Pyrene	0.0370	0.00500	"	0.0333	111	35-142
1-Methylnaphthalene	0.0372	0.00500	"	0.0333	112	35-142
2-Methylnaphthalene	0.0302	0.00500	"	0.0333	90.6	35-142

Surrogate: 2-Methylnaphthalene-d10	0.0359	"	0.0333	108	40-150
Surrogate: Fluoranthene-d10	0.0383	"	0.0333	115	40-150

Summit Scientific

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

Project: Gutttersen 32-13 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

## 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 BFG0350 - EPA 5030 Soil MS

##### Matrix Spike (BFG0350-MS1)

Source: 2207243-01

Prepared & Analyzed: 07/20/22

Acenaphthene	0.0233	0.00500	mg/kg	0.0333	ND	70.0	31-137		
Anthracene	0.0310	0.00500	"	0.0333	ND	92.9	30-120		
Benzo (a) anthracene	0.0292	0.00500	"	0.0333	ND	87.6	30-120		
Benzo (a) pyrene	0.0307	0.00500	"	0.0333	ND	92.0	30-120		
Benzo (b) fluoranthene	0.0314	0.00500	"	0.0333	ND	94.2	30-120		
Benzo (k) fluoranthene	0.0349	0.00500	"	0.0333	ND	105	30-120		
Chrysene	0.0304	0.00500	"	0.0333	ND	91.2	30-120		
Dibenz (a,h) anthracene	0.0302	0.00500	"	0.0333	ND	90.5	30-120		
Fluoranthene	0.0355	0.00500	"	0.0333	ND	106	30-120		
Fluorene	0.0234	0.00500	"	0.0333	ND	70.3	30-120		
Indeno (1,2,3-cd) pyrene	0.0275	0.00500	"	0.0333	ND	82.4	30-120		
Pyrene	0.0312	0.00500	"	0.0333	ND	93.6	35-142		
1-Methylnaphthalene	0.0265	0.00500	"	0.0333	ND	79.5	15-130		
2-Methylnaphthalene	0.0254	0.00500	"	0.0333	ND	76.2	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0249		"	0.0333		74.8	40-150		
Surrogate: Fluoranthene-d10	0.0329		"	0.0333		98.6	40-150		

##### Matrix Spike Dup (BFG0350-MSD1)

Source: 2207243-01

Prepared & Analyzed: 07/20/22

QR-02

Acenaphthene	0.0151	0.00500	mg/kg	0.0333	ND	45.3	31-137	42.8	30
Anthracene	0.0173	0.00500	"	0.0333	ND	52.0	30-120	56.4	30
Benzo (a) anthracene	0.0130	0.00500	"	0.0333	ND	39.1	30-120	76.7	30
Benzo (a) pyrene	0.0139	0.00500	"	0.0333	ND	41.7	30-120	75.2	30
Benzo (b) fluoranthene	0.0138	0.00500	"	0.0333	ND	41.5	30-120	77.6	30
Benzo (k) fluoranthene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	71.6	30
Chrysene	0.0148	0.00500	"	0.0333	ND	44.4	30-120	69.1	30
Dibenz (a,h) anthracene	0.0119	0.00500	"	0.0333	ND	35.8	30-120	86.6	30
Fluoranthene	0.0127	0.00500	"	0.0333	ND	38.1	30-120	94.7	30
Fluorene	0.0124	0.00500	"	0.0333	ND	37.2	30-120	61.6	30
Indeno (1,2,3-cd) pyrene	0.0111	0.00500	"	0.0333	ND	33.4	30-120	84.7	30
Pyrene	0.0144	0.00500	"	0.0333	ND	43.1	35-142	73.9	30
1-Methylnaphthalene	0.00700	0.00500	"	0.0333	ND	21.0	15-130	116	50
2-Methylnaphthalene	0.00825	0.00500	"	0.0333	ND	24.7	15-130	102	50
Surrogate: 2-Methylnaphthalene-d10	0.0145		"	0.0333		43.5	40-150		
Surrogate: Fluoranthene-d10	0.0155		"	0.0333		46.4	40-150		

Summit Scientific

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

Project: Gutttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**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 BFG0352 - EPA 3050B**

**Blank (BFG0352-BLK1)**

Prepared: 07/20/22 Analyzed: 07/21/22

Boron ND 0.0100 mg/L

**LCS (BFG0352-BS1)**

Prepared: 07/20/22 Analyzed: 07/21/22

Boron 4.95 0.0100 mg/L 5.00 99.0 80-120

**Duplicate (BFG0352-DUP1)**

**Source: 2207268-02**

Prepared: 07/20/22 Analyzed: 07/21/22

Boron 0.0418 0.0100 mg/L 0.0531 23.8 20 QR-03

**Matrix Spike (BFG0352-MS1)**

**Source: 2207268-02**

Prepared: 07/20/22 Analyzed: 07/21/22

Boron 5.63 0.0100 mg/L 5.00 0.0531 112 75-125

**Matrix Spike Dup (BFG0352-MSD1)**

**Source: 2207268-02**

Prepared: 07/20/22 Analyzed: 07/21/22

Boron 5.01 0.0100 mg/L 5.00 0.0531 99.2 75-125 11.5 25

Summit Scientific

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

Project: Guttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

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

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

**Batch BFG0396 - General Preparation**

**Blank (BFG0396-BLK1)**

Prepared: 07/21/22 Analyzed: 07/22/22

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

**LCS (BFG0396-BS1)**

Prepared: 07/21/22 Analyzed: 07/22/22

Calcium	4.96	0.0500	mg/L wet	70-130
Magnesium	4.81	0.0500	"	70-130
Sodium	4.47	0.0500	"	70-130

Summit Scientific

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

Project: Guttersen 32-13 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**  
**Summit Scientific**

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

**Batch BFG0379 - General Preparation**

Duplicate (BFG0379-DUP1)		Source: 2206376-13		Prepared: 07/20/22 Analyzed: 07/21/22	
% Solids	88.7		%	88.5	0.249 20

Summit Scientific

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

Project: Guttersen 32-13 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**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 BFG0434 - General Preparation**

**Blank (BFG0434-BLK1)**

Prepared & Analyzed: 07/22/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BFG0434-BS1)**

Prepared & Analyzed: 07/22/22

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 95-105

**Duplicate (BFG0434-DUP1)**

**Source: 2207277-01**

Prepared & Analyzed: 07/22/22

Specific Conductance (EC) 0.293 0.0100 mmhos/cm 0.302 3.16 20

Summit Scientific

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

Project: Gutttersen 32-13 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

**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 BFG0433 - General Preparation**

**LCS (BFG0433-BS1)**

Prepared & Analyzed: 07/22/22

pH	9.11	pH Units	9.18	99.2	95-105
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**Duplicate (BFG0433-DUP1)**

Source: 2207277-01

Prepared & Analyzed: 07/22/22

pH	7.57	pH Units	7.60	0.396	20
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Summit Scientific

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

Project: Guttersen 32-13 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/26/22 12:03

### Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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