

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 ⁽⁴⁾ (mg/kg)
Residential SSL^(1,2)			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
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)
Soil Suitability for Reclamation Standard ⁽¹⁾			6-8.3	<4	<6	2
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 ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
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:

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

Benzo(a) = Benzantracene

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 GUTTERSEN 32-13 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
			Latitude / Longitude			
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' ⁽³⁾	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

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', written in a cursive style.

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.

S₂

2207278

Sample Receipt Checklist

S2 Work Order#

Client: Pacific Tasmann

Client Project ID: Gutteresen 32-13 wellhead

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

-

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 ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			ON ICE
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			-	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	

Additional Comments (if any):

⁽¹⁾ 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: Guttersen 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		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 09:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
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		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 09:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	13.7	110 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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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

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
Boron	0.0404	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: Guttersen 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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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: Guttersen 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 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 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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: Guttersen 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
Boron	0.112	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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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

FLR01@4'
2207278-02 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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: Guttersen 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 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 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 13:13**

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

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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

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		"	"	"	"	

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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

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		"	"	"	"	

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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

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0377		"	0.0400		94.3	50-150				
<i>Surrogate: Toluene-d8</i>	0.0388		"	0.0400		96.9	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	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				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0332		"	0.0400		83.1	50-150				
<i>Surrogate: Toluene-d8</i>	0.0394		"	0.0400		98.6	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	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				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0319		"	0.0400		79.8	50-150				
<i>Surrogate: Toluene-d8</i>	0.0395		"	0.0400		98.8	50-150				
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0381		"	0.0400		95.2	50-150				

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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

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

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	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0339</i>		<i>"</i>	<i>0.0400</i>		<i>84.8</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>97.9</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0381</i>		<i>"</i>	<i>0.0400</i>		<i>95.2</i>	<i>50-150</i>			

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

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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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

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0404</i>		"	<i>0.0333</i>		<i>121</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0484</i>		"	<i>0.0333</i>		<i>145</i>		<i>40-150</i>		

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		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0359</i>		"	<i>0.0333</i>		<i>108</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0383</i>		"	<i>0.0333</i>		<i>115</i>		<i>40-150</i>		

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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

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

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			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0249</i>		<i>"</i>	<i>0.0333</i>		<i>74.8</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0329</i>		<i>"</i>	<i>0.0333</i>		<i>98.6</i>	<i>40-150</i>			

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		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0145</i>		<i>"</i>	<i>0.0333</i>		<i>43.5</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0155</i>		<i>"</i>	<i>0.0333</i>		<i>46.4</i>	<i>40-150</i>				

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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

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

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

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

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: 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		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

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

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

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		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

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: Guttersen 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	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BFG0433 - General Preparation

LCS (BFG0433-BS1)

Prepared & Analyzed: 07/22/22

pH 9.11 pH Units 9.18 99.2 95-105

Duplicate (BFG0433-DUP1)

Source: 2207277-01

Prepared & Analyzed: 07/22/22

pH 7.57 pH Units 7.60 0.396 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

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