

TABLE 1
FORMER GREEN 13-24 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH ⁽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
FLR01 @ 3'	3/17/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB01 @ 6-7'	11/15/2021	6-7 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 extactable petroleum hydrocarbons - oil range organics
mg/kg = Milligrams per kilogram
TMB = Trimethylbenzene
ft. = Feet
bgs = Below ground surface

TABLE 2
FORMER GREEN 13-24 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 @ 2.5'	3/17/2021	2.5 ft. bgs	8.15	1.40	1.03	0.182
SB01 @ 6-7'	11/15/2021	6-7 ft. bgs	8.27	6.86	21.6	0.444
BKG01 @ 6-7'	11/15/2021	6-7 ft. bgs	NA	4.91	13.6	NA

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

NA = Constituent not analyzed

TABLE 3
FORMER GREEN 13-24 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
SB01 @ 6-7'	11/15/2021	6-7 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

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

TABLE 4
FORMER GREEN 13-24 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
WH01 @ 2.5'	3/17/2021	2.5 ft. bgs	40.557370	-104.618125	1.1	0.2
FLR01 @ 3'	3/17/2021	3 ft. bgs	40.557370	-104.618105	1.1	1.4
WHS01-N @ 0-6"	3/17/2021	0-6 in. bgs	40.557390	-104.618117	1.1	0.1
WHS01-E @ 0-6"	3/17/2021	0-6 in. bgs	40.557362	-104.618070	1.1	0.1
WHS01-S @ 0-6"	3/17/2021	0-6 in. bgs	40.557339	-104.618096	1.1	0.0
WHS01-W @ 0-6"	3/17/2021	0-6 in. bgs	40.557371	-104.618159	1.1	0.1
FL01-01 @ 3'	3/17/2021	3 ft. bgs	40.557400	-104.619200	0.9	0.1
FL01-02 @ 3'	3/17/2021	3 ft. bgs	40.557424	-104.620206	0.9	0.2
FL01-03 @ 4'	3/17/2021	4 ft. bgs	40.556654	-104.620214	1.0	0.1
FL01-04 @ 4'	3/17/2021	4 ft. bgs	40.556340	-104.620237	1.0	0.3
BKG01 @ 2.5'	3/17/2021	2.5 ft. bgs	NC	NC	NC	0.1
SB01 @ 6-7'	11/15/2021	6-7 ft. bgs	40.557376	-104.618103	NC	0.7
BKG02 @ 6-7'	11/15/2021	6-7 ft. bgs	40.557436	-104.617996	NC	0.6

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.

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

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 29, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Green 13-24 Wellhead

Work Order #2103268

Enclosed are the results of analyses for samples received by Summit Scientific on 03/17/21 18:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury

President



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

Project: Green 13-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@2.5'	2103268-01	Soil	03/17/21 11:51	03/17/21 18:10
FLR01@3'	2103268-02	Soil	03/17/21 11:52	03/17/21 18:10

Summit Scientific

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

Summit Scientific
S₂

2103268

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: Green 13-24 wellhead

Sampler Name: Kevin Fletcher

Project Number:

[illegible]


Relinquished by: Kevin Fletcher Date/Time: 3/17/21
1640

Received by:	Date/Time:
Tasman's Lock Box	3/17/21 1640

Turn Around Time	(Check)
Same Day	72 hours
24 hours	Standard

Notes:

Relinquished by: **Tasman's Lock Box** Date/Time: **3-17-21 18:10**

Received by:  Date/Time: 3-17-21 18:10

Sample Integrity:
Temperature Upon Receipt: 2.6
Samples Intact: Yes No

Relinquished by: _____ Date/Time: _____

Received by: _____ Date/Time: _____

2103268

Sample Receipt Checklist

S2 Work Order _____

Client: PDC/TASMAN Client Project ID: GREEN 13-24 WELLHEADShipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: _____Matrix (check all that apply): _____ Air ☒ Soil/Solid _____ Water _____ Other: _____
(Describe)

Temp (°C)	<u>2.6</u>
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Thermometer ID: 61857155-K

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

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.Muri P.
Custodian Printed Name or Initials
Signature of Custodian3-17-21
Date/Time



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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

WH01@2.5'
2103268-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/17/21 11:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.182	0.0100	mg/L	1	BEC0461	03/26/21	03/27/21	EPA 6020B	

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

Date Sampled: **03/17/21 11:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	337	0.0606	mg/L dry	1	BEC0371	03/22/21	03/24/21	EPA 6020B	
Magnesium	59.4	0.0606	"	"	"	"	"	"	
Sodium	77.8	0.0606	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/17/21 11:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.03	0.100	units	1	BEC0449	03/25/21	03/25/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/17/21 11:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	82.5		%	1	BEC0379	03/23/21	03/24/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/17/21 11:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.40	0.0100	mmhos/cm	1	BEC0398	03/23/21	03/23/21	EPA 120.1	

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

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

WH01@2.5'
2103268-01 (Soil)

Summit Scientific

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

Date Sampled: **03/17/21 11:51**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.15			pH Units	1	BEC0399	03/23/21	03/23/21	EPA 9045D	

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

FLR01@3'
2103268-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/17/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0362	03/22/21	03/22/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/17/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		84.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.5 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/17/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0363	03/22/21	03/22/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/17/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		82.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEC0362 - EPA 5030 Soil MS

Blank (BEC0362-BLK1)

Prepared: 03/22/21 Analyzed: 03/23/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0323		"	0.0400		80.8	23-173			
Surrogate: Toluene-d8	0.0410		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0368		"	0.0400		92.0	21-167			

LCS (BEC0362-BS1)

Prepared: 03/22/21 Analyzed: 03/23/21

Benzene	0.133	0.0020	mg/kg	0.150		88.3	70-130			
Toluene	0.132	0.0050	"	0.150		88.2	70-130			
Ethylbenzene	0.135	0.0050	"	0.150		90.2	70-130			
m,p-Xylene	0.269	0.010	"	0.300		89.6	70-130			
o-Xylene	0.136	0.0050	"	0.150		90.7	70-130			
1,2,4-Trimethylbenzene	0.141	0.0050	"	0.150		93.9	70-130			
1,3,5-Trimethylbenzene	0.142	0.0050	"	0.150		94.5	70-130			
Naphthalene	0.157	0.0038	"	0.150		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0400		92.5	23-173			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	21-167			

Matrix Spike (BEC0362-MS1)

Source: 2103235-01

Prepared: 03/22/21 Analyzed: 03/23/21

Benzene	0.143	0.0020	mg/kg	0.150	ND	95.2	70-130			
Toluene	0.146	0.0050	"	0.150	ND	97.1	70-130			
Ethylbenzene	0.146	0.0050	"	0.150	ND	97.1	70-130			
m,p-Xylene	0.290	0.010	"	0.300	0.00585	94.6	70-130			
o-Xylene	0.148	0.0050	"	0.150	ND	98.5	70-130			
1,2,4-Trimethylbenzene	0.144	0.0050	"	0.150	ND	95.8	70-130			
1,3,5-Trimethylbenzene	0.143	0.0050	"	0.150	ND	95.4	70-130			
Naphthalene	0.167	0.0038	"	0.150	0.00747	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0393		"	0.0400		98.2	23-173			
Surrogate: Toluene-d8	0.0402		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167			

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

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

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

Batch BEC0362 - EPA 5030 Soil MS

Matrix Spike Dup (BEC0362-MSD1)	Source: 2103235-01			Prepared: 03/22/21 Analyzed: 03/23/21						
Benzene	0.137	0.0020	mg/kg	0.150	ND	91.6	70-130	3.81	30	
Toluene	0.138	0.0050	"	0.150	ND	91.7	70-130	5.70	30	
Ethylbenzene	0.140	0.0050	"	0.150	ND	93.1	70-130	4.21	30	
m,p-Xylene	0.278	0.010	"	0.300	0.00585	90.8	70-130	4.02	30	
o-Xylene	0.144	0.0050	"	0.150	ND	95.7	70-130	2.86	30	
1,2,4-Trimethylbenzene	0.141	0.0050	"	0.150	ND	94.2	70-130	1.77	30	
1,3,5-Trimethylbenzene	0.139	0.0050	"	0.150	ND	92.9	70-130	2.65	30	
Naphthalene	0.170	0.0038	"	0.150	0.00747	109	70-130	2.28	30	
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0400		99.4	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.4	21-167			

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEC0363 - EPA 3550A

Blank (BEC0363-BLK1)

Prepared & Analyzed: 03/22/21

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

LCS (BEC0363-BS1)

Prepared & Analyzed: 03/22/21

C10-C28 (DRO)	477	50	mg/kg	500	95.4	70-130					
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Matrix Spike (BEC0363-MS1)

Source: 2103265-01

Prepared & Analyzed: 03/22/21

C10-C28 (DRO)	430	50	mg/kg	500	17.4	82.6	70-130				
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Matrix Spike Dup (BEC0363-MSD1)

Source: 2103265-01

Prepared & Analyzed: 03/22/21

C10-C28 (DRO)	449	50	mg/kg	500	17.4	86.4	70-130	4.37	20		
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Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

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

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

Batch BEC0461 - EPA 3050B

Blank (BEC0461-BLK1)

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

Boron ND 0.0100 mg/L

LCS (BEC0461-BS1)

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

Boron 5.39 0.0100 mg/L 5.00 108 80-120

Duplicate (BEC0461-DUP1)

Source: 2103225-03

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

Boron 0.0948 0.0100 mg/L 0.101 6.41 20

Matrix Spike (BEC0461-MS1)

Source: 2103225-03

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

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

Matrix Spike Dup (BEC0461-MSD1)

Source: 2103225-03

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

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

Summit Scientific

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: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

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 BEC0371 - General Preparation

Blank (BEC0371-BLK1)

Prepared: 03/22/21 Analyzed: 03/24/21

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

LCS (BEC0371-BS1)

Prepared: 03/22/21 Analyzed: 03/24/21

Calcium	4.46	0.0500	mg/L wet	5.00	89.3	70-130
Magnesium	5.13	0.0500	"	5.00	103	70-130
Sodium	4.90	0.0500	"	5.00	98.1	70-130

Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

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

Summit Scientific

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

Batch BEC0379 - General Preparation

Duplicate (BEC0379-DUP1)		Source: 2103239-02		Prepared: 03/23/21 Analyzed: 03/24/21	
% Solids	84.9		%	85.5	0.788 20

Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

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

Summit Scientific

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

Batch BEC0398 - General Preparation

Blank (BEC0398-BLK1)

Prepared & Analyzed: 03/23/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEC0398-BS1)

Prepared & Analyzed: 03/23/21

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 106 90-110

Duplicate (BEC0398-DUP1)

Source: 2103057-01

Prepared & Analyzed: 03/23/21

Specific Conductance (EC) 1.20 0.0100 mmhos/cm 1.20 0.0835 20

Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

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

Summit Scientific

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

Batch BEC0399 - General Preparation

LCS (BEC0399-BS1)

Prepared & Analyzed: 03/23/21

pH	9.25	pH Units	9.21	100	95-105
----	------	----------	------	-----	--------

Duplicate (BEC0399-DUP1)

Source: 2103057-01

Prepared & Analyzed: 03/23/21

pH	9.00	pH Units	8.93	0.781	20
----	------	----------	------	-------	----

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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: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 17:21

Notes and Definitions

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 23, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

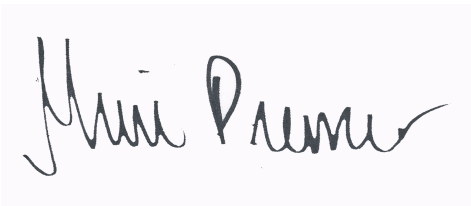
Denver, CO 80203

RE: Green 13-24 Wellhead

Work Order #2111272

Enclosed are the results of analyses for samples received by Summit Scientific on 11/15/21 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Muri Premer", is displayed on a light purple rectangular background.

Muri Premer For Paul Shrewsbury
President



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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@6-7'	2111272-01	Soil	11/15/21 13:00	11/15/21 15:30
BKG02@6-7'	2111272-02	Soil	11/15/21 12:50	11/15/21 15:30

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.

2111272

303-277-9310

Page 1 of 1

Project Manager: Mark Longhurst

E-Mail: mark.longhurst@PDCE.com

Project Name: Green 13-24 Wellhead

Project Number: NA

Project Number: NA

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAHs - 915	Metals - 915		
1	SB01@6-7'	11/15/21	1300	3			X			X			X	X	X	X	X	X	X		pH, EC, SAR by saturated paste
2	BYC02@6-7'	↓	1250	3			X			X										X	
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
Relinquished by:		Date/Time:	Received by:		Date/Time:		Turn Around Time		(Check)		Notes: Full PAH Site										
Mike C...		11/15/21 1530	Tasman's Lock Box		11/15/21 1630		Same Day		72 hours												
Relinquished by:		Date/Time:	Received by:		Date/Time:		24 hours		Standard												
Tasman's Lock Box							48 hours														
Relinquished by:		Date/Time:	Received by:		Date/Time:		Sample Integrity:														
							Temperature Upon Receipt:		5.2												
							Samples Intact:		(Yes) No												

2111272

Sample Receipt Checklist

S2 Work Order _____

Client:

Boc/Tasman

Client Project ID:

Green 13-24 wellhead

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

Airbill #: _____

☐ ☒ ☐ ☐ ☐

Matrix (check all that apply):

☐ Air☒ Soil/Solid☐ Water☐ Other: _____

(Describe)

Temp (°C)

5.2

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Custodian Printed Name or Initials

Signature of Custodian

11.13.21

Date/Time



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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

SB01@6-7'
2111272-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEK0377	11/17/21	11/18/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEK0378	11/17/21	11/19/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.8 %	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: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

SB01@6-7'
2111272-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEK0406	11/18/21	11/21/21	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: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		61.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		63.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.444	0.0100	mg/L	1	BEK0355	11/16/21	11/23/21	EPA 6020B	

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

Date Sampled: **11/15/21 13:00**

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: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

SB01@6-7'
2111272-01 (Soil)

Summit Scientific

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

Calcium	76.3	0.0589	mg/L dry	1	BEK0488	11/22/21	12/02/21	EPA 6020B
Magnesium	134	0.0589	"	"	"	"	"	"
Sodium	1350	0.0589	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	21.6	0.00100	units	1	BEL0052	12/03/21	12/03/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.9		%	1	BEK0416	11/18/21	11/19/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	6.86	0.0100	mmhos/cm	1	BEK0507	11/23/21	11/23/21	EPA 120.1	

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

Date Sampled: **11/15/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.27		pH Units	1	BEK0508	11/23/21	11/23/21	EPA 9045D	

Summit Scientific

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

BKG02@6-7'
2111272-02 (Soil)

Summit Scientific

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

Date Sampled: **11/15/21 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	81.9	0.0559		mg/L dry	1	BEL0280	12/13/21	12/20/21	EPA 6020B	
Magnesium	69.0	0.0559		"	"	"	"	"	"	
Sodium	691	0.0559		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/15/21 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	13.6	0.00100		units	1	BEL0439	12/20/21	12/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/15/21 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	89.4			%	1	BEL0225	12/10/21	12/10/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/15/21 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	4.91	0.0100		mmhos/cm	1	BEL0516	12/22/21	12/22/21	EPA 120.1	I-04

Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

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 BEK0377 - EPA 5030 Soil MS

Blank (BEK0377-BLK1)

Prepared: 11/17/21 Analyzed: 11/18/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0400		92.5	23-173			
Surrogate: Toluene-d8	0.0420		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0417		"	0.0400		104	21-167			

LCS (BEK0377-BS1)

Prepared: 11/17/21 Analyzed: 11/18/21

Benzene	0.121	0.0020	mg/kg	0.100		121	70-130			
Toluene	0.117	0.0050	"	0.100		117	70-130			
Ethylbenzene	0.0974	0.0050	"	0.100		97.4	70-130			
m,p-Xylene	0.181	0.010	"	0.200		90.5	70-130			
o-Xylene	0.0922	0.0050	"	0.100		92.2	70-130			
1,2,4-Trimethylbenzene	0.0888	0.0050	"	0.100		88.8	70-130			
1,3,5-Trimethylbenzene	0.0852	0.0050	"	0.100		85.2	70-130			
Naphthalene	0.0703	0.0038	"	0.100		70.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0400		92.6	23-173			
Surrogate: Toluene-d8	0.0426		"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	21-167			

Matrix Spike (BEK0377-MS1)

Source: 2111227-01

Prepared: 11/17/21 Analyzed: 11/18/21

Benzene	0.0966	0.0020	mg/kg	0.100	ND	96.6	70-130			
Toluene	0.0888	0.0050	"	0.100	ND	88.8	70-130			
Ethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130			
m,p-Xylene	0.180	0.010	"	0.200	ND	89.9	70-130			
o-Xylene	0.0966	0.0050	"	0.100	ND	96.6	70-130			
1,2,4-Trimethylbenzene	0.0880	0.0050	"	0.100	ND	88.0	70-130			
1,3,5-Trimethylbenzene	0.0960	0.0050	"	0.100	0.00861	87.4	70-130			
Naphthalene	0.108	0.0038	"	0.100	ND	108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0400		95.1	23-173			
Surrogate: Toluene-d8	0.0412		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0706		"	0.0400		176	21-167			

S-02

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: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

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 BEK0377 - EPA 5030 Soil MS

Matrix Spike Dup (BEK0377-MSD1)	Source: 2111227-01			Prepared: 11/17/21 Analyzed: 11/18/21						
Benzene	0.0736	0.0020	mg/kg	0.100	ND	73.6	70-130	27.0	30	
Toluene	0.0978	0.0050	"	0.100	ND	97.8	70-130	9.65	30	
Ethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130	3.22	30	
m,p-Xylene	0.167	0.010	"	0.200	ND	83.3	70-130	7.59	30	
o-Xylene	0.0746	0.0050	"	0.100	ND	74.6	70-130	25.7	30	
1,2,4-Trimethylbenzene	0.0943	0.0050	"	0.100	ND	94.3	70-130	6.84	30	
1,3,5-Trimethylbenzene	0.107	0.0050	"	0.100	0.00861	98.2	70-130	10.7	30	
Naphthalene	0.102	0.0038	"	0.100	ND	102	70-130	4.94	30	
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0400		95.0	23-173			
Surrogate: Toluene-d8	0.0418		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0570		"	0.0400		143	21-167			

Summit Scientific

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEK0378 - EPA 3550A

Blank (BEK0378-BLK1)

Prepared: 11/17/21 Analyzed: 11/19/21

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

LCS (BEK0378-BS1)

Prepared: 11/17/21 Analyzed: 11/19/21

C10-C28 (DRO)	488	50	mg/kg	500	97.5	70-130
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Matrix Spike (BEK0378-MS1)

Source: 2111227-01

Prepared: 11/17/21 Analyzed: 11/19/21

C10-C28 (DRO)	461	50	mg/kg	500	42.0	83.8	70-130
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Matrix Spike Dup (BEK0378-MSD1)

Source: 2111227-01

Prepared: 11/17/21 Analyzed: 11/19/21

C10-C28 (DRO)	430	50	mg/kg	500	42.0	77.6	70-130	7.01	20
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Summit Scientific

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEK0406 - EPA 5030 Soil MS

Blank (BEK0406-BLK1)

Prepared: 11/18/21 Analyzed: 11/21/21

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	0.0310		"	0.0333		93.1	40-150			
Surrogate: Fluoranthene-d10	0.0300		"	0.0333		90.1	40-150			

LCS (BEK0406-BS1)

Prepared: 11/18/21 Analyzed: 11/21/21

Acenaphthene	0.0312	0.00500	mg/kg	0.0333		93.5	31-137			
Anthracene	0.0326	0.00500	"	0.0333		97.9	30-120			
Benzo (a) anthracene	0.0306	0.00500	"	0.0333		91.8	30-120			
Benzo (a) pyrene	0.0329	0.00500	"	0.0333		98.6	30-120			
Benzo (b) fluoranthene	0.0400	0.00500	"	0.0333		120	30-120			
Benzo (k) fluoranthene	0.0272	0.00500	"	0.0333		81.6	30-120			
Chrysene	0.0295	0.00500	"	0.0333		88.4	30-120			
Dibenz (a,h) anthracene	0.0218	0.00500	"	0.0333		65.4	30-120			
Fluoranthene	0.0352	0.00500	"	0.0333		106	30-120			
Fluorene	0.0340	0.00500	"	0.0333		102	30-120			
Indeno (1,2,3-cd) pyrene	0.0207	0.00500	"	0.0333		62.2	30-120			
Pyrene	0.0335	0.00500	"	0.0333		100	35-142			
1-Methylnaphthalene	0.0300	0.00500	"	0.0333		90.0	35-142			
2-Methylnaphthalene	0.0268	0.00500	"	0.0333		80.4	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0283		"	0.0333		85.0	40-150			
Surrogate: Fluoranthene-d10	0.0348		"	0.0333		104	40-150			

Summit Scientific

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEK0406 - EPA 5030 Soil MS

Matrix Spike (BEK0406-MS1)

Source: 2111252-01

Prepared: 11/18/21 Analyzed: 11/21/21

Acenaphthene	0.0284	0.00500	mg/kg	0.0333	ND	85.2	31-137		
Anthracene	0.0296	0.00500	"	0.0333	ND	88.7	30-120		
Benzo (a) anthracene	0.0308	0.00500	"	0.0333	ND	92.5	30-120		
Benzo (a) pyrene	0.0314	0.00500	"	0.0333	ND	94.3	30-120		
Benzo (b) fluoranthene	0.0362	0.00500	"	0.0333	ND	109	30-120		
Benzo (k) fluoranthene	0.0382	0.00500	"	0.0333	ND	115	30-120		
Chrysene	0.0276	0.00500	"	0.0333	ND	82.9	30-120		
Dibenz (a,h) anthracene	0.0195	0.00500	"	0.0333	ND	58.5	30-120		
Fluoranthene	0.0325	0.00500	"	0.0333	ND	97.6	30-120		
Fluorene	0.0316	0.00500	"	0.0333	ND	94.8	30-120		
Indeno (1,2,3-cd) pyrene	0.0232	0.00500	"	0.0333	ND	69.7	30-120		
Pyrene	0.0335	0.00500	"	0.0333	ND	100	35-142		
1-Methylnaphthalene	0.0276	0.00500	"	0.0333	ND	82.9	15-130		
2-Methylnaphthalene	0.0270	0.00500	"	0.0333	ND	81.1	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0285		"	0.0333		85.5	40-150		
Surrogate: Fluoranthene-d10	0.0315		"	0.0333		94.4	40-150		

Matrix Spike Dup (BEK0406-MSD1)

Source: 2111252-01

Prepared: 11/18/21 Analyzed: 11/21/21

Acenaphthene	0.0235	0.00500	mg/kg	0.0333	ND	70.5	31-137	18.8	30
Anthracene	0.0249	0.00500	"	0.0333	ND	74.7	30-120	17.2	30
Benzo (a) anthracene	0.0247	0.00500	"	0.0333	ND	74.1	30-120	22.1	30
Benzo (a) pyrene	0.0261	0.00500	"	0.0333	ND	78.2	30-120	18.6	30
Benzo (b) fluoranthene	0.0317	0.00500	"	0.0333	ND	95.2	30-120	13.1	30
Benzo (k) fluoranthene	0.0338	0.00500	"	0.0333	ND	101	30-120	12.1	30
Chrysene	0.0224	0.00500	"	0.0333	ND	67.1	30-120	21.0	30
Dibenz (a,h) anthracene	0.0153	0.00500	"	0.0333	ND	45.8	30-120	24.4	30
Fluoranthene	0.0286	0.00500	"	0.0333	ND	85.8	30-120	13.0	30
Fluorene	0.0262	0.00500	"	0.0333	ND	78.6	30-120	18.7	30
Indeno (1,2,3-cd) pyrene	0.0212	0.00500	"	0.0333	ND	63.7	30-120	9.11	30
Pyrene	0.0280	0.00500	"	0.0333	ND	84.1	35-142	17.8	30
1-Methylnaphthalene	0.0248	0.00500	"	0.0333	ND	74.5	15-130	10.6	50
2-Methylnaphthalene	0.0238	0.00500	"	0.0333	ND	71.3	15-130	12.8	50
Surrogate: 2-Methylnaphthalene-d10	0.0266		"	0.0333		79.8	40-150		
Surrogate: Fluoranthene-d10	0.0287		"	0.0333		86.0	40-150		

Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

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 BEK0355 - EPA 3050B

Blank (BEK0355-BLK1)

Prepared: 11/16/21 Analyzed: 11/23/21

Boron ND 0.0100 mg/L

LCS (BEK0355-BS1)

Prepared: 11/16/21 Analyzed: 11/23/21

Boron 5.26 0.0100 mg/L 5.00 105 80-120

Duplicate (BEK0355-DUP1)

Source: 2111192-01

Prepared: 11/16/21 Analyzed: 11/23/21

Boron ND 0.0100 mg/L ND 20

Matrix Spike (BEK0355-MS1)

Source: 2111192-01

Prepared: 11/16/21 Analyzed: 11/23/21

Boron 5.25 0.0100 mg/L 5.00 ND 105 75-125

Matrix Spike Dup (BEK0355-MSD1)

Source: 2111192-01

Prepared: 11/16/21 Analyzed: 11/23/21

Boron 5.58 0.0100 mg/L 5.00 ND 112 75-125 6.00 25

Summit Scientific

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

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 BEK0488 - General Preparation

Blank (BEK0488-BLK1)

Prepared: 11/22/21 Analyzed: 12/02/21

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

LCS (BEK0488-BS1)

Prepared: 11/22/21 Analyzed: 12/02/21

Calcium	5.91	0.0500	mg/L wet	5.00	118	70-130
Magnesium	5.64	0.0500	"	5.00	113	70-130
Sodium	5.50	0.0500	"	5.00	110	70-130

Batch BEL0280 - General Preparation

Blank (BEL0280-BLK1)

Prepared: 12/13/21 Analyzed: 12/20/21

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

LCS (BEL0280-BS1)

Prepared: 12/13/21 Analyzed: 12/20/21

Calcium	6.26	0.0500	mg/L wet	5.00	125	70-130
Magnesium	5.52	0.0500	"	5.00	110	70-130
Sodium	5.74	0.0500	"	5.00	115	70-130

Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

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

Summit Scientific

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

Batch BEK0416 - General Preparation

Duplicate (BEK0416-DUP1)		Source: 2111044-10			Prepared: 11/18/21 Analyzed: 11/19/21						
% Solids	91.8		%		91.9			0.117		20	

Batch BEL0225 - General Preparation

Duplicate (BEL0225-DUP1)		Source: 2111262-03			Prepared & Analyzed: 12/10/21						
% Solids	94.4		%		95.1			0.749		20	

Summit Scientific

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

Project: Green 13-24 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

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 BEK0507 - General Preparation

Blank (BEK0507-BLK1)

Prepared & Analyzed: 11/23/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEK0507-BS1)

Prepared & Analyzed: 11/23/21

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 100 95-105

Duplicate (BEK0507-DUP1)

Source: 2111262-07

Prepared & Analyzed: 11/23/21

Specific Conductance (EC) 1.16 0.0100 mmhos/cm 1.18 1.54 20

Batch BEL0516 - General Preparation

Blank (BEL0516-BLK1)

Prepared & Analyzed: 12/22/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEL0516-BS1)

Prepared & Analyzed: 12/22/21

Specific Conductance (EC) 0.143 0.0100 mmhos/cm 0.150 95.1 95-105

Duplicate (BEL0516-DUP1)

Source: 2111272-02

Prepared & Analyzed: 12/22/21

Specific Conductance (EC) 4.90 0.0100 mmhos/cm 4.91 0.224 20

Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

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 BEK0508 - General Preparation

LCS (BEK0508-BS1)

Prepared & Analyzed: 11/23/21

pH	9.11	pH Units	9.18	99.2	95-105
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Duplicate (BEK0508-DUP1)

Source: 2111262-07

Prepared & Analyzed: 11/23/21

pH	8.08	pH Units	8.05	0.372	20
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Summit Scientific

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

Project: Green 13-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/23/21 11:49

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
I-04	Sample was analyzed out of recommended holding time per clients request.
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