

**TABLE 1
FORMER FOX 42-24 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 @ 5'	4/20/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SB01 @ 6-7'	4/20/2021	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 extractable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

TABLE 2
FORMER FOX 42-24 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'	4/20/2021	2.5 ft. bgs	8.14	1.18	1.34	0.249
SB01 @ 6-7'	9/28/2021	6-7 ft. bgs	9.05	0.294	0.0779	0.122
BKG02 @ 6-7'	9/28/2021	6-7 ft. bgs	8.16	NA	NA	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

BOLD = Analytical result is in exceedance of applicable standard

NA = Constituent not analyzed

TABLE 3
FORMER FOX 42-24 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'	9/28/2021	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 = Methylanthalene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

**TABLE 4
FORMER FOX 42-24 WELLHEAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	Depth to Water ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-	-
GW01	4/20/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4 ft. bgs	NA

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.
2. Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

TMB = Trimethylbenzene

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

ft. = Feet

AMSL = Above Mean Sea Level

NA = Not applicable

**TABLE 5
FORMER FOX 42-24 WELLHEAD
FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
			Latitude	Longitude		
FLR01 @ 5'	4/20/2021	5 ft. bgs	40.125355	-104.942932	1.7	0.0
WH01 @ 2.5'	4/20/2021	2.5 ft. bgs	40.125364	-104.942943	1.3	0.0
WHS01-N @ 0-6"	4/20/2021	0-6 in. bgs	40.125392	-104.942921	1.0	0.2
WHS01-W @ 0-6"	4/20/2021	0-6 in. bgs	40.125374	-104.942946	1.0	0.0
WHS01-S @ 0-6"	4/20/2021	0-6 in. bgs	40.125370	-104.942891	1.1	0.0
WHS01-E @ 0-6"	4/20/2021	0-6 in. bgs	40.125347	-104.942923	1.0	0.0
BKG01 @ 2.5'	4/20/2021	2.5 ft. bgs	40.125542	-104.943020	1.2	0.0
SB01 @ 6-7'	9/28/2021	6-7 ft. bgs	40.125363	-104.942911	NC	0.6
BKG02 @ 6-7'	9/28/2021	6-7 ft. bgs	40.125296	-104.942929	NC	0.8

Notes:

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

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

May 04, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Fox 42-24 Wellhead

Work Order #2104306

Enclosed are the results of analyses for samples received by Summit Scientific on 04/20/21 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large, stylized 'M' and 'P'.

Muri Premer For Paul Shrewsbury
President



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

Project: Fox 42-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
05/04/21 16:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLR01@5'	2104306-01	Soil	04/20/21 12:50	04/20/21 18:00
WH01@2.5'	2104306-02	Soil	04/20/21 12:51	04/20/21 18:00
GW01	2104306-04	Water	04/20/21 12:48	04/20/21 18:00

Summit Scientific

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2104306

Summit Scientific

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 Project Name: Fox 42-24 wellhead
Phone: 303-487-1228 Project Number: n/a
Sampler Name: J. Marcus

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	915 GBTEXN - 8260B	915 TPH - (C6 - C36)	pH, EC, SAR - 915	Boron - HWS - 915	VOC - 915	PAH - 915	Metals - 915		915 TIMP (1,2,4+135)
1	FLR01 @ 5'	4/21/20	1250	4			X			X				X	X						pH, EC, SAR by saturated paste, BTEX, naphthalene, and TMS for wood, BK601 on hold
2	WH01 @ 2.5'	↓	1251	2			X			X											
3	BK601 @ 2.5'	↓	1419	2										X						X	
4	GW01	↓	1248	3	X				X												
5																					
6																					
7																					
8																					
9																					
10																					Notes:

Relinquished by: *[Signature]* Date/Time: 4/20/21 1530
Received by: Tasman's Lock Box Date/Time: 4/20/21 1530

Relinquished by: Tasman's Lock Box Date/Time: 4/20/21 1800
Received by: *[Signature]* Date/Time: 4/20/21 1800

Relinquished by: Date/Time: Received by: Date/Time:

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

Sample Integrity:
Temperature Upon Receipt: 5
Samples Intact: Yes No

Sample Receipt Checklist

S2 Work Order 2104306

Client: PDC / Tasman Client Project ID: Fox 42-24 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)	<u>5</u>
-----------	----------

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.	✓			<i>on ice.</i>
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?			✓	
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, H2SO4, NaOH, HNO3, ect	✓			<i>HCl</i>
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.

JB
Custodian Printed Name or Initials

Shah B...
Signature of Custodian

4/20/21 1845
Date/Time



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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/04/21 16:13

FLR01@5'
2104306-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/21 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BED0380	04/22/21	04/23/21	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: **04/20/21 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		100 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/20/21 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BED0369	04/21/21	05/02/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **04/20/21 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		98.4 %		30-150		"	"	"	"	

Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/04/21 16:13

WH01@2.5'
2104306-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/20/21 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.249	0.0100	mg/L	1	BED0385	04/22/21	04/22/21	EPA 6020B	

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

Date Sampled: **04/20/21 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	57.4	0.0593	mg/L dry	1	BED0439	04/26/21	04/27/21	EPA 6020B	
Magnesium	42.9	0.0593	"	"	"	"	"	"	
Sodium	55.0	0.0593	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/20/21 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.34	0.00100	units	1	BED0475	04/28/21	04/28/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/20/21 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.2		%	1	BED0388	04/22/21	04/23/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/20/21 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.18	0.0100	mmhos/cm	1	BED0465	04/27/21	04/27/21	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: Fox 42-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 05/04/21 16:13

WH01@2.5'
2104306-02 (Soil)

Summit Scientific

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

Date Sampled: **04/20/21 12:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.14		pH Units	1	BED0466	04/27/21	04/27/21	EPA 9045D	

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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 05/04/21 16:13

GW01
2104306-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/20/21 12:48**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BED0368	04/21/21	04/22/21	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/20/21 12:48**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		92.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		79.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.2 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/04/21 16:13

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 BED0368 - EPA 5030 Water MS

Blank (BED0368-BLK1)

Prepared: 04/21/21 Analyzed: 04/22/21

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	2.0	"								
Naphthalene	ND	1.0	"								
1,2,4-Trimethylbenzene	ND	1.0	"								
1,3,5-Trimethylbenzene	ND	1.0	"								
Surrogate: 1,2-Dichloroethane-d4	12.6		"	13.3		94.7		23-173			
Surrogate: Toluene-d8	10.1		"	13.3		75.5		20-170			
Surrogate: 4-Bromofluorobenzene	11.6		"	13.3		87.2		21-167			

LCS (BED0368-BS1)

Prepared: 04/21/21 Analyzed: 04/22/21

Benzene	28.7	1.0	ug/l	33.3		86.2		51-132			
Toluene	33.3	1.0	"	33.3		99.9		51-138			
Ethylbenzene	40.1	1.0	"	33.3		120		58-146			
m,p-Xylene	75.6	2.0	"	66.7		113		57-144			
o-Xylene	39.1	1.0	"	33.3		117		53-146			
Naphthalene	34.0	1.0	"	33.3		102		70-130			
1,2,4-Trimethylbenzene	29.8	1.0	"	33.3		89.6		70-130			
1,3,5-Trimethylbenzene	41.5	1.0	"	33.3		125		70-130			
Surrogate: 1,2-Dichloroethane-d4	11.3		"	13.3		84.5		23-173			
Surrogate: Toluene-d8	11.5		"	13.3		86.0		20-170			
Surrogate: 4-Bromofluorobenzene	11.6		"	13.3		87.2		21-167			

Matrix Spike (BED0368-MS1)

Source: 2104283-01

Prepared: 04/21/21 Analyzed: 04/22/21

Benzene	29.5	1.0	ug/l	33.3	ND	88.5		34-141			
Toluene	37.7	1.0	"	33.3	ND	113		27-151			
Ethylbenzene	39.7	1.0	"	33.3	ND	119		29-160			
m,p-Xylene	107	2.0	"	66.7	ND	161		20-166			
o-Xylene	38.7	1.0	"	33.3	ND	116		33-159			
Naphthalene	43.4	1.0	"	33.3	ND	130		70-130			
1,2,4-Trimethylbenzene	29.6	1.0	"	33.3	ND	88.8		70-130			
1,3,5-Trimethylbenzene	40.7	1.0	"	33.3	ND	122		70-130			
Surrogate: 1,2-Dichloroethane-d4	11.7		"	13.3		87.8		23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.3		20-170			
Surrogate: 4-Bromofluorobenzene	11.8		"	13.3		88.5		21-167			

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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/04/21 16:13

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 BED0368 - EPA 5030 Water MS

Matrix Spike Dup (BED0368-MSD1)	Source: 2104283-01			Prepared: 04/21/21		Analyzed: 04/22/21				
Benzene	31.9	1.0	ug/l	33.3	ND	95.8	34-141	7.85	30	
Toluene	33.4	1.0	"	33.3	ND	100	27-151	12.3	30	
Ethylbenzene	41.0	1.0	"	33.3	ND	123	29-160	3.24	30	
m,p-Xylene	86.7	2.0	"	66.7	ND	130	20-166	21.1	30	
o-Xylene	40.6	1.0	"	33.3	ND	122	33-159	4.89	30	
Naphthalene	40.3	1.0	"	33.3	ND	121	70-130	7.41	30	
1,2,4-Trimethylbenzene	30.4	1.0	"	33.3	ND	91.2	70-130	2.67	30	
1,3,5-Trimethylbenzene	42.1	1.0	"	33.3	ND	126	70-130	3.33	30	
Surrogate: 1,2-Dichloroethane-d4	13.1		"	13.3		98.5	23-173			
Surrogate: Toluene-d8	11.5		"	13.3		86.3	20-170			
Surrogate: 4-Bromofluorobenzene	11.5		"	13.3		86.2	21-167			

Batch BED0380 - EPA 5030 Soil MS

Blank (BED0380-BLK1)	Prepared & Analyzed: 04/22/21									
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	0.0400		"	0.0400		100	23-173			
Surrogate: Toluene-d8	0.0382		"	0.0400		95.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0413		"	0.0400		103	21-167			

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: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/04/21 16:13

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 BED0380 - EPA 5030 Soil MS

LCS (BED0380-BS1)

Prepared & Analyzed: 04/22/21

Benzene	0.119	0.0020	mg/kg	0.125		95.3	70-130			
Toluene	0.118	0.0050	"	0.125		94.5	70-130			
Ethylbenzene	0.123	0.0050	"	0.125		98.0	70-130			
m,p-Xylene	0.236	0.010	"	0.250		94.3	70-130			
o-Xylene	0.125	0.0050	"	0.125		99.8	70-130			
1,2,4-Trimethylbenzene	0.125	0.0050	"	0.125		99.9	70-130			
1,3,5-Trimethylbenzene	0.122	0.0050	"	0.125		97.8	70-130			
Naphthalene	0.131	0.0038	"	0.125		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0372		"	0.0400		93.1	23-173			
Surrogate: Toluene-d8	0.0408		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0430		"	0.0400		108	21-167			

Matrix Spike (BED0380-MS1)

Source: 2104299-01

Prepared & Analyzed: 04/22/21

Benzene	0.127	0.0020	mg/kg	0.125	0.00306	99.5	70-130			
Toluene	0.130	0.0050	"	0.125	ND	104	70-130			
Ethylbenzene	0.135	0.0050	"	0.125	ND	108	70-130			
m,p-Xylene	0.266	0.010	"	0.250	0.00372	105	70-130			
o-Xylene	0.140	0.0050	"	0.125	ND	112	70-130			
1,2,4-Trimethylbenzene	0.142	0.0050	"	0.125	ND	114	70-130			
1,3,5-Trimethylbenzene	0.137	0.0050	"	0.125	ND	110	70-130			
Naphthalene	0.134	0.0038	"	0.125	ND	107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0390		"	0.0400		97.6	23-173			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0421		"	0.0400		105	21-167			

Matrix Spike Dup (BED0380-MSD1)

Source: 2104299-01

Prepared & Analyzed: 04/22/21

Benzene	0.127	0.0020	mg/kg	0.125	0.00306	99.5	70-130	0.0236	30	
Toluene	0.127	0.0050	"	0.125	ND	101	70-130	2.53	30	
Ethylbenzene	0.134	0.0050	"	0.125	ND	108	70-130	0.223	30	
m,p-Xylene	0.268	0.010	"	0.250	0.00372	106	70-130	0.517	30	
o-Xylene	0.137	0.0050	"	0.125	ND	110	70-130	2.23	30	
1,2,4-Trimethylbenzene	0.134	0.0050	"	0.125	ND	107	70-130	6.02	30	
1,3,5-Trimethylbenzene	0.132	0.0050	"	0.125	ND	105	70-130	3.86	30	
Naphthalene	0.154	0.0038	"	0.125	ND	123	70-130	13.8	30	
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0400		99.6	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0428		"	0.0400		107	21-167			

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: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 05/04/21 16:13

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 BED0369 - EPA 3550A

Blank (BED0369-BLK1)

Prepared: 04/21/21 Analyzed: 05/02/21

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

LCS (BED0369-BS1)

Prepared: 04/21/21 Analyzed: 05/02/21

C10-C28 (DRO)	497	50	mg/kg	500	99.4	70-130				
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Matrix Spike (BED0369-MS1)

Source: 2104288-01

Prepared: 04/21/21 Analyzed: 05/02/21

C10-C28 (DRO)	420	50	mg/kg	500	13.3	81.3	70-130			
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Matrix Spike Dup (BED0369-MSD1)

Source: 2104288-01

Prepared: 04/21/21 Analyzed: 05/02/21

C10-C28 (DRO)	464	50	mg/kg	500	13.3	90.2	70-130	10.0	20	
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Summit Scientific

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



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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 05/04/21 16:13

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 BED0385 - EPA 3050B

Blank (BED0385-BLK1)

Prepared & Analyzed: 04/22/21

Boron ND 0.0100 mg/L

LCS (BED0385-BS1)

Prepared & Analyzed: 04/22/21

Boron 5.60 0.0100 mg/L 5.00 112 80-120

Duplicate (BED0385-DUP1)

Source: 2104288-01

Prepared & Analyzed: 04/22/21

Boron 0.131 0.0100 mg/L 0.154 15.9 20

Matrix Spike (BED0385-MS1)

Source: 2104288-01

Prepared & Analyzed: 04/22/21

Boron 5.35 0.0100 mg/L 5.00 0.154 104 75-125

Matrix Spike Dup (BED0385-MSD1)

Source: 2104288-01

Prepared & Analyzed: 04/22/21

Boron 5.39 0.0100 mg/L 5.00 0.154 105 75-125 0.636 25

Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 05/04/21 16:13

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

Summit Scientific

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

Batch BED0439 - General Preparation

Blank (BED0439-BLK1)

Prepared: 04/26/21 Analyzed: 04/27/21

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

LCS (BED0439-BS1)

Prepared: 04/26/21 Analyzed: 04/27/21

Calcium	4.96	0.0500	mg/L wet	5.00	99.2	70-130				
Magnesium	5.51	0.0500	"	5.00	110	70-130				
Sodium	5.46	0.0500	"	5.00	109	70-130				

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: Fox 42-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 05/04/21 16:13

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

Summit Scientific

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

Batch BED0388 - General Preparation

Duplicate (BED0388-DUP1)	Source: 2104127-03	Prepared: 04/22/21	Analyzed: 04/23/21
% Solids	91.0	%	90.8
			0.217
			20

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: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 05/04/21 16:13

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

Summit Scientific

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

Batch BED0465 - General Preparation

Blank (BED0465-BLK1)

Prepared & Analyzed: 04/27/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BED0465-BS1)

Prepared & Analyzed: 04/27/21

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 90-110

Duplicate (BED0465-DUP1)

Source: 2104085-08

Prepared & Analyzed: 04/27/21

Specific Conductance (EC) 9.72 0.0100 mmhos/cm 9.69 0.350 20

Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 05/04/21 16:13

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 BED0466 - General Preparation

LCS (BED0466-BS1)

Prepared & Analyzed: 04/27/21

pH	9.26	pH Units	9.21	101	95-105
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Duplicate (BED0466-DUP1)

Source: 2104085-08

Prepared & Analyzed: 04/27/21

pH	8.12	pH Units	8.10	0.247	20
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Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/04/21 16:13

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

October 07, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Fox 42-24 Wellhead

Work Order #2109419

Enclosed are the results of analyses for samples received by Summit Scientific on 09/28/21 17:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large, stylized initial "M".

Muri Premer For Paul Shrewsbury

President



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

Project: Fox 42-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
10/07/21 15:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@6-7'	2109419-01	Soil	09/28/21 10:07	09/28/21 17:45
BKG02@6-7'	2109419-02	Soil	09/28/21 10:37	09/28/21 17:45

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

Sample Receipt Checklist

S2 Work Order# 2109419

Client: PDC/Tasman Client Project ID: For 4224 WH

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

Matrix (check all that apply): Air Soil/Solid Water Other: _____ (Describe)

Temp (°C) 11.4

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 if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽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 , etc.	<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.

RL
Custodian Printed Name or Initials

9-28-21
Date/Time



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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/07/21 15:49

SB01@6-7'
2109419-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BEI0652	09/30/21	10/01/21	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: **09/28/21 10:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		111 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BEI0653	09/30/21	10/01/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		120 %		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: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/07/21 15:49

SB01@6-7'
2109419-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEI0615	09/29/21	10/03/21	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: **09/28/21 10:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		43.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		40.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.122	0.0100	mg/L	1	BEI0617	09/29/21	10/01/21	EPA 6020B	

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

Date Sampled: **09/28/21 10:07**

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

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



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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/07/21 15:49

SB01@6-7'
2109419-01 (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	104	0.0634	mg/L dry	1	BEI0610	09/29/21	10/01/21	EPA 6020B	
Magnesium	8.89	0.0634	"	"	"	"	"	"	
Sodium	3.08	0.0634	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0779	0.00100	units	1	BEJ0009	10/01/21	10/01/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	78.9		%	1	BEI0614	09/29/21	09/29/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.294	0.0100	mmhos/cm	1	BEI0612	09/29/21	09/29/21	EPA 120.1	

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

Date Sampled: **09/28/21 10:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.05		pH Units	1	BEI0611	09/29/21	09/29/21	EPA 9045D	

Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 10/07/21 15:49

BKG02@6-7'
2109419-02 (Soil)

Summit Scientific

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

Date Sampled: **09/28/21 10:37**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.16		pH Units	1	BEJ0097	10/06/21	10/06/21	EPA 9045D	

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: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/07/21 15:49

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 BEI0652 - EPA 5030 Soil MS

Blank (BEI0652-BLK1)

Prepared: 09/30/21 Analyzed: 10/01/21

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0451</i>		<i>"</i>	<i>0.0400</i>		<i>113</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0547</i>		<i>"</i>	<i>0.0400</i>		<i>137</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0407</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>		<i>21-167</i>		

LCS (BEI0652-BS1)

Prepared: 09/30/21 Analyzed: 10/01/21

Benzene	0.149	0.0020	mg/kg	0.150		99.5		70-130		
Toluene	0.158	0.0050	"	0.150		105		70-130		
Ethylbenzene	0.144	0.0050	"	0.150		96.0		70-130		
m,p-Xylene	0.285	0.010	"	0.300		94.8		70-130		
o-Xylene	0.142	0.0050	"	0.150		94.6		70-130		
1,2,4-Trimethylbenzene	0.137	0.0050	"	0.150		91.3		70-130		
1,3,5-Trimethylbenzene	0.136	0.0050	"	0.150		90.5		70-130		
Naphthalene	0.130	0.0038	"	0.150		86.4		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0466</i>		<i>"</i>	<i>0.0400</i>		<i>116</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0430</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>		<i>21-167</i>		

Matrix Spike (BEI0652-MS1)

Source: 2109291-06

Prepared: 09/30/21 Analyzed: 10/01/21

Benzene	0.140	0.0020	mg/kg	0.150	ND	93.5		70-130		
Toluene	0.142	0.0050	"	0.150	ND	94.5		70-130		
Ethylbenzene	0.125	0.0050	"	0.150	ND	83.3		70-130		
m,p-Xylene	0.233	0.010	"	0.300	ND	77.6		70-130		
o-Xylene	0.124	0.0050	"	0.150	ND	82.4		70-130		
1,2,4-Trimethylbenzene	0.127	0.0050	"	0.150	ND	84.5		70-130		
1,3,5-Trimethylbenzene	0.107	0.0050	"	0.150	ND	71.5		70-130		
Naphthalene	0.126	0.0038	"	0.150	ND	84.1		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0458</i>		<i>"</i>	<i>0.0400</i>		<i>115</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0425</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0412</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>		<i>21-167</i>		

Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/07/21 15:49

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 BEI0652 - EPA 5030 Soil MS

Matrix Spike Dup (BEI0652-MSD1)	Source: 2109291-06			Prepared: 09/30/21 Analyzed: 10/01/21					
Benzene	0.153	0.0020	mg/kg	0.150	ND	102	70-130	8.89	30
Toluene	0.150	0.0050	"	0.150	ND	99.8	70-130	5.46	30
Ethylbenzene	0.138	0.0050	"	0.150	ND	92.2	70-130	10.1	30
m,p-Xylene	0.259	0.010	"	0.300	ND	86.2	70-130	10.4	30
o-Xylene	0.136	0.0050	"	0.150	ND	90.6	70-130	9.39	30
1,2,4-Trimethylbenzene	0.107	0.0050	"	0.150	ND	71.3	70-130	17.0	30
1,3,5-Trimethylbenzene	0.120	0.0050	"	0.150	ND	80.3	70-130	11.5	30
Naphthalene	0.138	0.0038	"	0.150	ND	92.3	70-130	9.27	30
Surrogate: 1,2-Dichloroethane-d4	0.0445		"	0.0400		111	23-173		
Surrogate: Toluene-d8	0.0410		"	0.0400		102	20-170		
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		101	21-167		

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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/07/21 15:49

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 BEI0653 - EPA 3550A

Blank (BEI0653-BLK1)

Prepared & Analyzed: 09/30/21

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

LCS (BEI0653-BS1)

Prepared & Analyzed: 09/30/21

C10-C28 (DRO)	566	50	mg/kg	500	113	70-130				
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Matrix Spike (BEI0653-MS1)

Source: 2109291-06

Prepared & Analyzed: 09/30/21

C10-C28 (DRO)	504	50	mg/kg	500	33.9	93.9	70-130			
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Matrix Spike Dup (BEI0653-MSD1)

Source: 2109291-06

Prepared: 09/30/21 Analyzed: 10/01/21

C10-C28 (DRO)	535	50	mg/kg	500	33.9	100	70-130	6.09	20	
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/07/21 15:49

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 BEI0615 - EPA 5030 Soil MS

Blank (BEI0615-BLK1)

Prepared: 09/29/21 Analyzed: 10/03/21

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	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0301</i>		"	<i>0.0333</i>		<i>90.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0307</i>		"	<i>0.0333</i>		<i>92.2</i>	<i>40-150</i>			

LCS (BEI0615-BS1)

Prepared: 09/29/21 Analyzed: 10/03/21

Acenaphthene	0.0287	0.00500	mg/kg	0.0333		86.0	31-137			
Anthracene	0.0303	0.00500	"	0.0333		90.8	30-120			
Benzo (a) anthracene	0.0299	0.00500	"	0.0333		89.8	30-120			
Benzo (a) pyrene	0.0299	0.00500	"	0.0333		89.7	30-120			
Benzo (b) fluoranthene	0.0300	0.00500	"	0.0333		90.1	30-120			
Benzo (k) fluoranthene	0.0303	0.00500	"	0.0333		90.9	30-120			
Chrysene	0.0300	0.00500	"	0.0333		90.0	30-120			
Dibenz (a,h) anthracene	0.0297	0.00500	"	0.0333		89.1	30-120			
Fluoranthene	0.0318	0.00500	"	0.0333		95.4	30-120			
Fluorene	0.0279	0.00500	"	0.0333		83.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0251	0.00500	"	0.0333		75.4	30-120			
Pyrene	0.0303	0.00500	"	0.0333		90.8	35-142			
1-Methylnaphthalene	0.0288	0.00500	"	0.0333		86.4	35-142			
2-Methylnaphthalene	0.0279	0.00500	"	0.0333		83.7	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0251</i>		"	<i>0.0333</i>		<i>75.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0218</i>		"	<i>0.0333</i>		<i>65.5</i>	<i>40-150</i>			

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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/07/21 15:49

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 BEI0615 - EPA 5030 Soil MS

Matrix Spike (BEI0615-MS1)	Source: 2109413-01			Prepared: 09/29/21 Analyzed: 10/03/21					
Acenaphthene	0.0252	0.00500	mg/kg	0.0333	ND	75.5	31-137		
Anthracene	0.0251	0.00500	"	0.0333	ND	75.2	30-120		
Benzo (a) anthracene	0.0219	0.00500	"	0.0333	ND	65.7	30-120		
Benzo (a) pyrene	0.0218	0.00500	"	0.0333	ND	65.4	30-120		
Benzo (b) fluoranthene	0.0214	0.00500	"	0.0333	ND	64.3	30-120		
Benzo (k) fluoranthene	0.0220	0.00500	"	0.0333	ND	66.0	30-120		
Chrysene	0.0245	0.00500	"	0.0333	ND	73.5	30-120		
Dibenz (a,h) anthracene	0.0194	0.00500	"	0.0333	ND	58.2	30-120		
Fluoranthene	0.0201	0.00500	"	0.0333	ND	60.2	30-120		
Fluorene	0.0238	0.00500	"	0.0333	ND	71.3	30-120		
Indeno (1,2,3-cd) pyrene	0.0191	0.00500	"	0.0333	ND	57.4	30-120		
Pyrene	0.0242	0.00500	"	0.0333	ND	72.7	35-142		
1-Methylnaphthalene	0.0221	0.00500	"	0.0333	ND	66.4	15-130		
2-Methylnaphthalene	0.0232	0.00500	"	0.0333	ND	69.5	15-130		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0242</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>72.5</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0200</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>60.0</i>	<i>40-150</i>		

Matrix Spike Dup (BEI0615-MSD1)	Source: 2109413-01			Prepared: 09/29/21 Analyzed: 10/03/21					
Acenaphthene	0.0274	0.00500	mg/kg	0.0333	ND	82.2	31-137	8.52	30
Anthracene	0.0267	0.00500	"	0.0333	ND	80.0	30-120	6.20	30
Benzo (a) anthracene	0.0230	0.00500	"	0.0333	ND	69.0	30-120	4.99	30
Benzo (a) pyrene	0.0225	0.00500	"	0.0333	ND	67.5	30-120	3.12	30
Benzo (b) fluoranthene	0.0224	0.00500	"	0.0333	ND	67.3	30-120	4.49	30
Benzo (k) fluoranthene	0.0226	0.00500	"	0.0333	ND	67.8	30-120	2.67	30
Chrysene	0.0256	0.00500	"	0.0333	ND	76.8	30-120	4.30	30
Dibenz (a,h) anthracene	0.0217	0.00500	"	0.0333	ND	65.2	30-120	11.3	30
Fluoranthene	0.0199	0.00500	"	0.0333	ND	59.8	30-120	0.759	30
Fluorene	0.0246	0.00500	"	0.0333	ND	73.8	30-120	3.45	30
Indeno (1,2,3-cd) pyrene	0.0217	0.00500	"	0.0333	ND	65.2	30-120	12.7	30
Pyrene	0.0259	0.00500	"	0.0333	ND	77.8	35-142	6.74	30
1-Methylnaphthalene	0.0251	0.00500	"	0.0333	ND	75.2	15-130	12.4	50
2-Methylnaphthalene	0.0234	0.00500	"	0.0333	ND	70.1	15-130	0.832	50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0228</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>68.5</i>	<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0151</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>45.4</i>	<i>40-150</i>		

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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/07/21 15:49

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

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

Batch BEI0617 - EPA 3050B

Blank (BEI0617-BLK1)

Prepared: 09/29/21 Analyzed: 10/01/21

Boron ND 0.0100 mg/L

LCS (BEI0617-BS1)

Prepared: 09/29/21 Analyzed: 10/01/21

Boron 4.77 0.0100 mg/L 5.00 95.5 80-120

Duplicate (BEI0617-DUP1)

Source: 2108245-05

Prepared: 09/29/21 Analyzed: 10/01/21

Boron 0.0350 0.0100 mg/L 0.0315 10.6 20

Matrix Spike (BEI0617-MS1)

Source: 2108245-05

Prepared: 09/29/21 Analyzed: 10/01/21

Boron 5.55 0.0100 mg/L 5.00 0.0315 110 75-125

Matrix Spike Dup (BEI0617-MSD1)

Source: 2108245-05

Prepared: 09/29/21 Analyzed: 10/01/21

Boron 5.65 0.0100 mg/L 5.00 0.0315 112 75-125 1.90 25

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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/07/21 15:49

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

Summit Scientific

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

Batch BEI0610 - General Preparation

Blank (BEI0610-BLK1)

Prepared: 09/29/21 Analyzed: 10/01/21

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

LCS (BEI0610-BS1)

Prepared: 09/29/21 Analyzed: 10/01/21

Calcium	5.16	0.0500	mg/L wet	5.00	103	70-130				
Magnesium	5.40	0.0500	"	5.00	108	70-130				
Sodium	5.28	0.0500	"	5.00	106	70-130				

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

Project: Fox 42-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 10/07/21 15:49

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

Summit Scientific

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

Batch BEI0614 - General Preparation

Duplicate (BEI0614-DUP1)

Source: 2108370-01

Prepared & Analyzed: 09/29/21

% Solids	86.6		%		84.8			2.07		20	
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PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/07/21 15:49

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

Summit Scientific

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

Batch BEI0612 - General Preparation

Blank (BEI0612-BLK1)

Prepared & Analyzed: 09/29/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEI0612-BS1)

Prepared & Analyzed: 09/29/21

Specific Conductance (EC) 0.146 0.0100 mmhos/cm 0.150 97.6 90-110

Duplicate (BEI0612-DUP1)

Source: 2109382-01

Prepared & Analyzed: 09/29/21

Specific Conductance (EC) 2.30 0.0100 mmhos/cm 2.31 0.303 20

Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/07/21 15:49

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

Summit Scientific

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

Batch BEI0611 - General Preparation

LCS (BEI0611-BS1)										
					Prepared & Analyzed: 09/29/21					
pH	9.14		pH Units	9.21	99.2	95-105				
Duplicate (BEI0611-DUP1)										
					Source: 2109382-01					
					Prepared & Analyzed: 09/29/21					
pH	7.77		pH Units	7.77			0.00		20	

Batch BEJ0097 - General Preparation

LCS (BEJ0097-BS1)										
					Prepared & Analyzed: 10/06/21					
pH	9.02		pH Units	9.21	97.9	95-105				
Duplicate (BEJ0097-DUP1)										
					Source: 2109010-03					
					Prepared & Analyzed: 10/06/21					
pH	8.56		pH Units	8.55			0.117		20	

Summit Scientific

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

Project: Fox 42-24 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/07/21 15:49

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