

TABLE 1
FORMER KREPS 21-7 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'	3/23/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
WH01 @ 6-7'	10/7/2021	6-7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

Notes:

- Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics

TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics

TEPH-ORO = Total extractable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

TABLE 2
FORMER KREPS 21-7 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'	3/23/2021	2.5 ft. bgs	8.19	0.406	0.836	0.102
BKG02 @ 6-7'	10/7/2021	6-7 ft. bgs	8.21	2.07	3.52	0.0991
WH01 @ 6-7'	10/7/2021	6-7 ft. bgs	8.23	0.621	0.433	0.0596

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

TABLE 3
FORMER KREPS 21-7 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH01 @ 6-7"	10/7/2021	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:

- Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with

COGCC = Colorado Oil and Gas Conservation Commission

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

PAHs = Polycyclic aromatic hydrocarbons

Benz(a) = Benzantracene

Benzo(a) = Benzopyrene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

A,H = Dibenzanthracene

1,2,3-CD = Indenopyrene

M = Methylnaphthalene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

TABLE 4
FORMER KREPS 21-7 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
WH01 @ 2.5'	3/23/2021	2.5 ft. bgs	40.506187	-104.595665	1.2	0.0
FLR01 @ 3'	3/23/2021	3 ft. bgs	40.506197	-104.595660	1.2	0.2
WHS01-N @ 0-6"	3/23/2021	0-6 in. bgs	40.506257	-104.595646	1.1	0.1
WHS01-E @ 0-6"	3/23/2021	0-6 in. bgs	40.506197	-104.595613	1.2	0.0
WHS01-S @ 0-6"	3/23/2021	0-6 in. bgs	40.506152	-104.595672	1.2	0.0
WHS01-W @ 0-6"	3/23/2021	0-6 in. bgs	40.506207	-104.595687	1.1	0.0
FL01-01 @ 3'	3/23/2021	3 ft. bgs	40.506630	-104.595665	1.2	0.0
BKG01 @ 2.5'	3/23/2021	2.5 ft. bgs	40.507126	-104.595916	1.1	0.0
WH01 @ 6-7'	10/7/2021	6-7 ft. bgs	40.506178	-104.595666	NC	0.7
BKG02 @ 6-7'	10/7/2021	6-7 ft. bgs	40.506112	-104.595651	NC	0.1

Notes:

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

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

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

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: Kreps 21-7 Wellhead

Work Order #2103327

Enclosed are the results of analyses for samples received by Summit Scientific on 03/23/21 17:20. 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: Kreps 21-7 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@2.5'	2103327-01	Soil	03/23/21 11:45	03/23/21 17:20
FLR01@3'	2103327-02	Soil	03/23/21 11:46	03/23/21 17:20

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.

Summit Scientific

S₂

2103327

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page

of

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: Kreps 21-7 Wellhead

Sampler Name: Cody Miller

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested								Special Instructions		
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B ⁹¹⁵	TPH - (C6 - C36) ⁹¹⁵	pH, EC, SAR ⁹¹⁵	Boron - HWS ⁹¹⁵	VOC - 915	PAH - 915	Metals - 915		THMs (124)(135) ⁹¹⁵	
1	WH01 @ 2.5'	3/23/21	1145	2			X			X					X	X						pH, EC, SAR by saturated paste
2	FLR01 @ 3'	3/23/21	1146	2			X			X			X	X						X		
3	BKG01 @ 2.5'	3/23/21	1300	2			X			X											X	
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Relinquished by: Cody Miller	Date/Time: 3/23/21 11500	Received by: Tasman's Lock Box	Date/Time: 3/23/21 11500	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____	Notes: ON ICE
Relinquished by: Tasman's Lock Box	Date/Time: 3-23-21 17:20	Received by:	Date/Time: 3-23-21 17:20	Sample Integrity: Temperature Upon Receipt: 7.10 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 2103327

Client: POC ITASHMAN Client Project ID: KREPS 21-7 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>7.6</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"/>	<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 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, H2SO4, NaOH, HNO3, 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.

Muri P.
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

3.23.21
Date/Time



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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

WH01@2.5'
2103327-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/23/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.102	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: **03/23/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	34.7	0.0632	mg/L dry	1	BEC0422	03/24/21	03/27/21	EPA 6020B	
Magnesium	10.2	0.0632	"	"	"	"	"	"	
Sodium	21.8	0.0632	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.836	0.100	units	1	BEC0496	03/29/21	03/29/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	79.1		%	1	BEC0416	03/24/21	03/25/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/23/21 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.406	0.0100	mmhos/cm	1	BEC0444	03/25/21	03/25/21	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: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

WH01@2.5'
2103327-01 (Soil)

Summit Scientific

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

Date Sampled: **03/23/21 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.19			pH Units	1	BEC0445	03/25/21	03/25/21	EPA 9045D	

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

FLR01@3'
2103327-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/23/21 11:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0412	03/24/21	03/25/21	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: **03/23/21 11:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		91.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/23/21 11:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0436	03/25/21	03/26/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/23/21 11:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

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 BEC0412 - EPA 5030 Soil MS

Blank (BEC0412-BLK1)

Prepared: 03/24/21 Analyzed: 03/25/21

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	0.0317		"	0.0400		79.3	23-173			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.2	21-167			

LCS (BEC0412-BS1)

Prepared: 03/24/21 Analyzed: 03/25/21

Benzene	0.0908	0.0020	mg/kg	0.100		90.8	70-130			
Toluene	0.0949	0.0050	"	0.100		94.9	70-130			
Ethylbenzene	0.0913	0.0050	"	0.100		91.3	70-130			
m,p-Xylene	0.164	0.010	"	0.200		81.9	70-130			
o-Xylene	0.0832	0.0050	"	0.100		83.2	70-130			
1,2,4-Trimethylbenzene	0.0869	0.0050	"	0.100		86.9	70-130			
1,3,5-Trimethylbenzene	0.0818	0.0050	"	0.100		81.8	70-130			
Naphthalene	0.0974	0.0038	"	0.100		97.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0229		"	0.0400		57.2	23-173			
Surrogate: Toluene-d8	0.0448		"	0.0400		112	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

Matrix Spike (BEC0412-MS1)

Source: 2103307-01

Prepared: 03/24/21 Analyzed: 03/25/21

Benzene	0.0806	0.0020	mg/kg	0.100	ND	80.6	70-130			
Toluene	0.100	0.0050	"	0.100	ND	100	70-130			
Ethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130			
m,p-Xylene	0.188	0.010	"	0.200	0.00375	91.9	70-130			
o-Xylene	0.0946	0.0050	"	0.100	ND	94.6	70-130			
1,2,4-Trimethylbenzene	0.107	0.0050	"	0.100	0.00732	99.5	70-130			
1,3,5-Trimethylbenzene	0.100	0.0050	"	0.100	0.00336	96.9	70-130			
Naphthalene	0.112	0.0038	"	0.100	0.00588	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0278		"	0.0400		69.6	23-173			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	21-167			

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

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 BEC0412 - EPA 5030 Soil MS

Matrix Spike Dup (BEC0412-MSD1)	Source: 2103307-01			Prepared: 03/24/21 Analyzed: 03/25/21						
Benzene	0.0970	0.0020	mg/kg	0.100	ND	97.0	70-130	18.4	30	
Toluene	0.0971	0.0050	"	0.100	ND	97.1	70-130	3.37	30	
Ethylbenzene	0.0916	0.0050	"	0.100	ND	91.6	70-130	13.9	30	
m,p-Xylene	0.165	0.010	"	0.200	0.00375	80.5	70-130	12.9	30	
o-Xylene	0.0856	0.0050	"	0.100	ND	85.6	70-130	10.1	30	
1,2,4-Trimethylbenzene	0.102	0.0050	"	0.100	0.00732	95.0	70-130	4.27	30	
1,3,5-Trimethylbenzene	0.0900	0.0050	"	0.100	0.00336	86.6	70-130	10.8	30	
Naphthalene	0.114	0.0038	"	0.100	0.00588	108	70-130	1.65	30	
Surrogate: 1,2-Dichloroethane-d4	0.0252		"	0.0400		63.1	23-173			
Surrogate: Toluene-d8	0.0443		"	0.0400		111	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	21-167			

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEC0436 - EPA 3550A

Blank (BEC0436-BLK1)

Prepared: 03/25/21 Analyzed: 03/26/21

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

LCS (BEC0436-BS1)

Prepared: 03/25/21 Analyzed: 03/26/21

C10-C28 (DRO)	350	50	mg/kg	500	70.0	70-130
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Matrix Spike (BEC0436-MS1)

Source: 2103327-02

Prepared: 03/25/21 Analyzed: 03/26/21

C10-C28 (DRO)	454	50	mg/kg	500	13.1	88.2	70-130
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Matrix Spike Dup (BEC0436-MSD1)

Source: 2103327-02

Prepared: 03/25/21 Analyzed: 03/26/21

C10-C28 (DRO)	465	50	mg/kg	500	13.1	90.3	70-130	2.27	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: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

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 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

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

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 BEC0422 - General Preparation

Blank (BEC0422-BLK1)

Prepared: 03/24/21 Analyzed: 03/27/21

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

LCS (BEC0422-BS1)

Prepared: 03/24/21 Analyzed: 03/27/21

Calcium	4.39	0.0500	mg/L wet	5.00	87.7	70-130
Magnesium	5.98	0.0500	"	5.00	120	70-130
Sodium	6.25	0.0500	"	5.00	125	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: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

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 BEC0416 - General Preparation

Duplicate (BEC0416-DUP1)		Source: 2103299-01		Prepared: 03/24/21 Analyzed: 03/25/21	
% Solids	81.8		%	84.4	3.13 20

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

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 BEC0444 - General Preparation

Blank (BEC0444-BLK1)

Prepared & Analyzed: 03/25/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEC0444-BS1)

Prepared & Analyzed: 03/25/21

Specific Conductance (EC) 0.159 0.0100 mmhos/cm 0.150 106 90-110

Duplicate (BEC0444-DUP1)

Source: 2103147-06

Prepared & Analyzed: 03/25/21

Specific Conductance (EC) 2.28 0.0100 mmhos/cm 2.28 0.132 20

Summit Scientific

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

Project: Kreps 21-7 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

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 BEC0445 - General Preparation

LCS (BEC0445-BS1)

Prepared & Analyzed: 03/25/21

pH	9.29	pH Units	9.21	101	95-105
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Duplicate (BEC0445-DUP1)

Source: 2103147-06

Prepared & Analyzed: 03/25/21

pH	8.23	pH Units	8.22	0.122	20
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Summit Scientific

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

Project: Kreps 21-7 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
03/29/21 13:32

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 18, 2021

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Kreps 21-7 Wellhead
Work Order #2110119

Enclosed are the results of analyses for samples received by Summit Scientific on 10/07/21 12:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "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: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG02@6-7'	2110119-01	Soil	10/07/21 09:02	10/07/21 12:00
WH01@6-7'	2110119-02	Soil	10/07/21 08:50	10/07/21 12:00

Summit Scientific

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

Summit Scientific

S₂

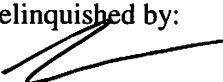
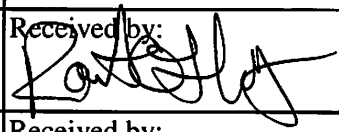
2110119

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: Kreps 21-7 Wellhead
Sampler Name: Sam Anderson Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAH suite			
1	BK602 @ 6-7'	10/7/21	0900	1			X			X					X	X				pH, EC, SAR by saturated paste	
2	WH01 @ 6-7'	↓	0850	3			X			X			X	X	X	X	X				
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 10/7/21 1200	Received by: Tasman's Lock Box	Date/Time: 10/7/21 1200	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/>	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 10-7-21 1200	Sample Integrity: 8.7	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: <u>8.7</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

S₂

Sample Receipt Checklist

S2 Work Order# _____

2110119

Client: ROC/Tasman Client Project ID: Kreps 21-7 wellheadShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other ☒ Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Temp (°C)

8.7

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"/>	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 , 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.

Custodian Printed Name or Initials

Date/Time

10-7-21



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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

BKG02@6-7'
2110119-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/07/21 09:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0991	0.0100	mg/L	1	BEJ0175	10/11/21	10/12/21	EPA 6020B	

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

Date Sampled: **10/07/21 09:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	142	0.0559	mg/L dry	1	BEJ0172	10/11/21	10/16/21	EPA 6020B	
Magnesium	90.3	0.0559	"	"	"	"	"	"	
Sodium	218	0.0559	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/07/21 09:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.52	0.00100	units	1	BEJ0303	10/17/21	10/17/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/07/21 09:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.4		%	1	BEJ0168	10/11/21	10/11/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/07/21 09:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.07	0.0100	mmhos/cm	1	BEJ0207	10/12/21	10/12/21	EPA 120.1	

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

Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

BKG02@6-7'
2110119-01 (Soil)

Summit Scientific

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

Date Sampled: **10/07/21 09:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.21			pH Units	1	BEJ0206	10/12/21	10/12/21	EPA 9045D	

Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

WH01@6-7'
2110119-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEJ0185	10/11/21	10/12/21	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: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0186	10/11/21	10/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.8 %	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: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

WH01@6-7'
2110119-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEJ0137	10/08/21	10/09/21	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: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		104 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		92.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0596	0.0100	mg/L	1	BEJ0175	10/11/21	10/12/21	EPA 6020B	

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

Date Sampled: **10/07/21 08:50**

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: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

WH01@6-7'
2110119-02 (Soil)

Summit Scientific

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

Calcium	73.7	0.0562	mg/L dry	1	BEJ0172	10/11/21	10/16/21	EPA 6020B
Magnesium	18.9	0.0562	"	"	"	"	"	"
Sodium	16.1	0.0562	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.433	0.00100	units	1	BEJ0303	10/17/21	10/17/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.9		%	1	BEJ0168	10/11/21	10/11/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.621	0.0100	mmhos/cm	1	BEJ0207	10/12/21	10/12/21	EPA 120.1	

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

Date Sampled: **10/07/21 08:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.23		pH Units	1	BEJ0206	10/12/21	10/12/21	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: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

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 BEJ0185 - EPA 5030 Soil MS

Blank (BEJ0185-BLK1)

Prepared: 10/11/21 Analyzed: 10/12/21

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	0.0396		"	0.0400		99.1	23-173			
Surrogate: Toluene-d8	0.0380		"	0.0400		95.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.6	21-167			

LCS (BEJ0185-BS1)

Prepared: 10/11/21 Analyzed: 10/12/21

Benzene	0.101	0.0020	mg/kg	0.100		101	70-130			
Toluene	0.0961	0.0050	"	0.100		96.1	70-130			
Ethylbenzene	0.116	0.0050	"	0.100		116	70-130			
m,p-Xylene	0.226	0.010	"	0.200		113	70-130			
o-Xylene	0.110	0.0050	"	0.100		110	70-130			
1,2,4-Trimethylbenzene	0.114	0.0050	"	0.100		114	70-130			
1,3,5-Trimethylbenzene	0.110	0.0050	"	0.100		110	70-130			
Naphthalene	0.104	0.0038	"	0.100		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0401		"	0.0400		100	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	21-167			

Matrix Spike (BEJ0185-MS1)

Source: 2110117-02

Prepared: 10/11/21 Analyzed: 10/12/21

Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130			
Toluene	0.0964	0.0050	"	0.100	ND	96.4	70-130			
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130			
m,p-Xylene	0.223	0.010	"	0.200	ND	112	70-130			
o-Xylene	0.111	0.0050	"	0.100	ND	111	70-130			
1,2,4-Trimethylbenzene	0.114	0.0050	"	0.100	ND	114	70-130			
1,3,5-Trimethylbenzene	0.110	0.0050	"	0.100	ND	110	70-130			
Naphthalene	0.108	0.0038	"	0.100	ND	108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0400		99.4	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0400		96.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.0	21-167			

Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

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 BEJ0185 - EPA 5030 Soil MS

Matrix Spike Dup (BEJ0185-MSD1)	Source: 2110117-02			Prepared: 10/11/21 Analyzed: 10/12/21						
Benzene	0.104	0.0020	mg/kg	0.100	ND	104	70-130	1.60	30	
Toluene	0.0993	0.0050	"	0.100	ND	99.3	70-130	2.97	30	
Ethylbenzene	0.116	0.0050	"	0.100	ND	116	70-130	1.12	30	
m,p-Xylene	0.226	0.010	"	0.200	ND	113	70-130	1.46	30	
o-Xylene	0.111	0.0050	"	0.100	ND	111	70-130	0.594	30	
1,2,4-Trimethylbenzene	0.114	0.0050	"	0.100	ND	114	70-130	0.343	30	
1,3,5-Trimethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	0.109	30	
Naphthalene	0.108	0.0038	"	0.100	ND	108	70-130	0.555	30	
Surrogate: 1,2-Dichloroethane-d4	0.0422		"	0.0400		105	23-173			
Surrogate: Toluene-d8	0.0405		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	21-167			

Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEJ0186 - EPA 3550A

Blank (BEJ0186-BLK1)

Prepared: 10/11/21 Analyzed: 10/12/21

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

LCS (BEJ0186-BS1)

Prepared: 10/11/21 Analyzed: 10/12/21

C10-C28 (DRO)	417	50	mg/kg	500	83.5	70-130
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Matrix Spike (BEJ0186-MS1)

Source: 2110117-02

Prepared: 10/11/21 Analyzed: 10/12/21

C10-C28 (DRO)	472	50	mg/kg	500	11.1	92.2	70-130
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Matrix Spike Dup (BEJ0186-MSD1)

Source: 2110117-02

Prepared: 10/11/21 Analyzed: 10/12/21

C10-C28 (DRO)	386	50	mg/kg	500	11.1	75.1	70-130	20.0	20
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Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

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 BEJ0137 - EPA 5030 Soil MS

Blank (BEJ0137-BLK1)

Prepared: 10/08/21 Analyzed: 10/09/21

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	0.0346		"	0.0333		104	40-150			
Surrogate: Fluoranthene-d10	0.0321		"	0.0333		96.4	40-150			

LCS (BEJ0137-BS1)

Prepared: 10/08/21 Analyzed: 10/09/21

Acenaphthene	0.0311	0.00500	mg/kg	0.0333	93.3	31-137	
Anthracene	0.0291	0.00500	"	0.0333	87.3	30-120	
Benzo (a) anthracene	0.0322	0.00500	"	0.0333	96.7	30-120	
Benzo (a) pyrene	0.0326	0.00500	"	0.0333	97.7	30-120	
Benzo (b) fluoranthene	0.0393	0.00500	"	0.0333	118	30-120	
Benzo (k) fluoranthene	0.0379	0.00500	"	0.0333	114	30-120	
Chrysene	0.0298	0.00500	"	0.0333	89.5	30-120	
Dibenz (a,h) anthracene	0.0189	0.00500	"	0.0333	56.8	30-120	
Fluoranthene	0.0286	0.00500	"	0.0333	85.7	30-120	
Fluorene	0.0302	0.00500	"	0.0333	90.6	30-120	
Indeno (1,2,3-cd) pyrene	0.0144	0.00500	"	0.0333	43.2	30-120	
Pyrene	0.0318	0.00500	"	0.0333	95.5	35-142	
1-Methylnaphthalene	0.0310	0.00500	"	0.0333	93.0	35-142	
2-Methylnaphthalene	0.0316	0.00500	"	0.0333	94.8	35-142	
Surrogate: 2-Methylnaphthalene-d10	0.0342		"	0.0333	103	40-150	
Surrogate: Fluoranthene-d10	0.0343		"	0.0333	103	40-150	

Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEJ0137 - EPA 5030 Soil MS

Matrix Spike (BEJ0137-MS1)			Source: 2110003-02		Prepared: 10/08/21		Analyzed: 10/09/21			
Acenaphthene	0.0216	0.00500	mg/kg	0.0333	ND	64.8	31-137			
Anthracene	0.0198	0.00500	"	0.0333	ND	59.4	30-120			
Benzo (a) anthracene	0.0206	0.00500	"	0.0333	ND	61.7	30-120			
Benzo (a) pyrene	0.0206	0.00500	"	0.0333	ND	61.7	30-120			
Benzo (b) fluoranthene	0.0245	0.00500	"	0.0333	ND	73.5	30-120			
Benzo (k) fluoranthene	0.0245	0.00500	"	0.0333	ND	73.4	30-120			
Chrysene	0.0192	0.00500	"	0.0333	ND	57.5	30-120			
Dibenz (a,h) anthracene	0.0117	0.00500	"	0.0333	ND	35.1	30-120			
Fluoranthene	0.0210	0.00500	"	0.0333	ND	63.1	30-120			
Fluorene	0.0215	0.00500	"	0.0333	ND	64.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0192	0.00500	"	0.0333	ND	57.7	30-120			
Pyrene	0.0209	0.00500	"	0.0333	ND	62.8	35-142			
1-Methylnaphthalene	0.0219	0.00500	"	0.0333	ND	65.8	15-130			
2-Methylnaphthalene	0.0233	0.00500	"	0.0333	ND	69.8	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0235		"	0.0333		70.6	40-150			
Surrogate: Fluoranthene-d10	0.0250		"	0.0333		74.9	40-150			

Matrix Spike Dup (BEJ0137-MSD1)			Source: 2110003-02		Prepared: 10/08/21		Analyzed: 10/09/21			
Acenaphthene	0.0258	0.00500	mg/kg	0.0333	ND	77.5	31-137	17.9	30	
Anthracene	0.0252	0.00500	"	0.0333	ND	75.5	30-120	23.9	30	
Benzo (a) anthracene	0.0268	0.00500	"	0.0333	ND	80.5	30-120	26.3	30	
Benzo (a) pyrene	0.0272	0.00500	"	0.0333	ND	81.6	30-120	27.8	30	
Benzo (b) fluoranthene	0.0329	0.00500	"	0.0333	ND	98.6	30-120	29.2	30	
Benzo (k) fluoranthene	0.0317	0.00500	"	0.0333	ND	95.1	30-120	25.7	30	
Chrysene	0.0249	0.00500	"	0.0333	ND	74.7	30-120	26.1	30	
Dibenz (a,h) anthracene	0.0149	0.00500	"	0.0333	ND	44.6	30-120	23.6	30	
Fluoranthene	0.0259	0.00500	"	0.0333	ND	77.6	30-120	20.7	30	
Fluorene	0.0258	0.00500	"	0.0333	ND	77.4	30-120	18.0	30	
Indeno (1,2,3-cd) pyrene	0.0112	0.00500	"	0.0333	ND	33.5	30-120	53.1	30	QM-07
Pyrene	0.0264	0.00500	"	0.0333	ND	79.1	35-142	23.0	30	
1-Methylnaphthalene	0.0254	0.00500	"	0.0333	ND	76.1	15-130	14.5	50	
2-Methylnaphthalene	0.0259	0.00500	"	0.0333	ND	77.8	15-130	10.8	50	
Surrogate: 2-Methylnaphthalene-d10	0.0275		"	0.0333		82.5	40-150			
Surrogate: Fluoranthene-d10	0.0305		"	0.0333		91.5	40-150			

Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

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 BEJ0175 - EPA 3050B

Blank (BEJ0175-BLK1)

Prepared: 10/11/21 Analyzed: 10/12/21

Boron ND 0.0100 mg/L

LCS (BEJ0175-BS1)

Prepared: 10/11/21 Analyzed: 10/12/21

Boron 4.78 0.0100 mg/L 5.00 95.6 80-120

Duplicate (BEJ0175-DUP1)

Source: 2110117-01

Prepared: 10/11/21 Analyzed: 10/12/21

Boron 0.0646 0.0100 mg/L 0.0773 17.9 20

Matrix Spike (BEJ0175-MS1)

Source: 2110117-01

Prepared: 10/11/21 Analyzed: 10/12/21

Boron 4.55 0.0100 mg/L 5.00 0.0773 89.5 75-125

Matrix Spike Dup (BEJ0175-MSD1)

Source: 2110117-01

Prepared: 10/11/21 Analyzed: 10/12/21

Boron 5.02 0.0100 mg/L 5.00 0.0773 98.8 75-125 9.68 25

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

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 BEJ0172 - General Preparation

Blank (BEJ0172-BLK1)

Prepared: 10/11/21 Analyzed: 10/16/21

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

LCS (BEJ0172-BS1)

Prepared: 10/11/21 Analyzed: 10/16/21

Calcium	5.60	0.0500	mg/L wet	5.00	112	70-130
Magnesium	5.63	0.0500	"	5.00	113	70-130
Sodium	5.62	0.0500	"	5.00	112	70-130

Summit Scientific

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

Project: Kreps 21-7 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

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 BEJ0168 - General Preparation

Duplicate (BEJ0168-DUP1)

Source: 2110099-01

Prepared & Analyzed: 10/11/21

% Solids	91.3	%	90.2	1.12	20
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Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

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 BEJ0207 - General Preparation

Blank (BEJ0207-BLK1)

Prepared & Analyzed: 10/12/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEJ0207-BS1)

Prepared & Analyzed: 10/12/21

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.5 90-110

Duplicate (BEJ0207-DUP1)

Source: 2110117-01

Prepared & Analyzed: 10/12/21

Specific Conductance (EC) 1.74 0.0100 mmhos/cm 1.73 0.346 20

Summit Scientific

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

Project: Kreps 21-7 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

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

Summit Scientific

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

Batch BEJ0206 - General Preparation

LCS (BEJ0206-BS1)

Prepared & Analyzed: 10/12/21

pH	9.24	pH Units	9.18	101	95-105
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Duplicate (BEJ0206-DUP1)

Source: 2110117-01

Prepared & Analyzed: 10/12/21

pH	8.02	pH Units	8.03	0.125	20
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Summit Scientific

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

Project: Kreps 21-7 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/18/21 17:34

Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

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