

**TABLE 1
FORMER BINDER 10-ADU 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
WH01 @ 6'	7/22/2021	6 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 BINDER 10-ADU 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
FLR01 @ 2.5'	7/22/2021	2.5 ft. bgs	8.27	0.298	0.731	0.274

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 BINDER 10-ADU 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'	7/22/2021	6 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

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

PAHs = Polycyclic aromatic hydrocarbons

Benz(a) = Benzanthracene

Benzo(a) = Benzopyrene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylnaphthalene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

**TABLE 4
FORMER BINDER 10-ADU WELLHEAD
FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
			Latitude	Longitude		
FLR01 @ 4'	7/22/2021	4 ft. bgs	40.329407	-104.885260	NC	0.0
FLR01 @ 2.5'	7/22/2021	2.5 ft. bgs	40.329403	-104.885255	NC	0.0
WHS01-N @ 0-6"	7/22/2021	0-6 in. bgs	40.329424	-104.885258	1.1	0.1
WHS01-W @ 0-6"	7/22/2021	0-6 in. bgs	40.329388	-104.885319	1.2	0.0
WHS01-S @ 0-6"	7/22/2021	0-6 in. bgs	40.329351	-104.885287	1.2	0.0
WHS01-E @ 0-6"	7/22/2021	0-6 in. bgs	40.329375	-104.885242	1.1	0.0
FL01-01 @ 4'	7/22/2021	4 ft. bgs	40.329427	-104.885693	2.4	0.2
BKG01 @ 2.5'	7/22/2021	2.5 ft. bgs	40.329471	-104.885042	1.2	0.0
WH01 @ 6'	7/22/2021	6 ft. bgs	40.329394	-104.885271	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

July 30, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Binder 10ADU Wellhead

Work Order #2107339

Enclosed are the results of analyses for samples received by Summit Scientific on 07/22/21 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 initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury

President



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

Project: Binder 10ADU Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2107339-01	Soil	07/22/21 09:53	07/22/21 18:00
FLR01@2.5'	2107339-02	Soil	07/22/21 08:38	07/22/21 18:00

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.

2107339

Summit Scientific

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

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: Binder 10-ADU wellhead
Sampler Name: J. Marcus	Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions				
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAH-915		VOC-915	ON HOLD		
1	WH01@6'	7/22/21	0953	3			X			X				X	X	X		X	X			pH, EC, SAR by saturated paste	
2	FLP01@2.5'	↓	0838	1			X			X							X	X					
3	BK601@2.5'	↓	0937	1			X			X											X		
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by:	Date/Time: 7/22/21 1515	Received by: Tasman's Lock Box	Date/Time: 7/22/21 1515	Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: 6 Samples Intact: <input checked="" type="radio"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 7/22/21 1800	Received by:	Date/Time: 7/22/21 1800		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 2107339

Client: PDC / Tasman Client Project ID: Binder 10-ADU 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)	6
-----------	----------

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.	✓			On ice.
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples 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			✓	
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

[Signature]
Signature of Custodian

7/22/21
Date/Time



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

Project: Binder 10ADU Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

WH01@6'
2107339-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/22/21 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEG0429	07/23/21	07/24/21	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: **07/22/21 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		54.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		124 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/22/21 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEG0430	07/23/21	07/24/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **07/22/21 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		84.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: Binder 10ADU Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

WH01@6'
2107339-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **07/22/21 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEG0425	07/23/21	07/25/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **07/22/21 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		57.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		62.4 %	40-150		"	"	"	"	

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: Binder 10ADU Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

FLR01@2.5'
2107339-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/22/21 08:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.274	0.0100	mg/L	1	BEG0467	07/27/21	07/28/21	EPA 6020B	

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

Date Sampled: **07/22/21 08:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.9	0.0577	mg/L dry	1	BEG0428	07/23/21	07/27/21	EPA 6020B	
Magnesium	7.94	0.0577	"	"	"	"	"	"	
Sodium	17.0	0.0577	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/22/21 08:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.731	0.00100	units	1	BEG0478	07/27/21	07/27/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/22/21 08:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.7		%	1	BEG0426	07/23/21	07/23/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/22/21 08:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.298	0.0100	mmhos/cm	1	BEG0448	07/26/21	07/26/21	EPA 120.1	

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

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: Binder 10ADU Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/30/21 15:36

FLR01@2.5'
2107339-02 (Soil)

Summit Scientific

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

Date Sampled: **07/22/21 08:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.27		pH Units	1	BEG0447	07/26/21	07/26/21	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: Binder 10ADU Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEG0429 - EPA 5030 Soil MS

Blank (BEG0429-BLK1)

Prepared: 07/23/21 Analyzed: 07/24/21

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>	0.0222		"	0.0400		55.4	23-173			
<i>Surrogate: Toluene-d8</i>	0.0527		"	0.0400		132	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0422		"	0.0400		105	21-167			

LCS (BEG0429-BS1)

Prepared: 07/23/21 Analyzed: 07/24/21

Benzene	0.0742	0.0020	mg/kg	0.100		74.2	70-130			
Toluene	0.123	0.0050	"	0.100		123	70-130			
Ethylbenzene	0.110	0.0050	"	0.100		110	70-130			
m,p-Xylene	0.216	0.010	"	0.200		108	70-130			
o-Xylene	0.102	0.0050	"	0.100		102	70-130			
1,2,4-Trimethylbenzene	0.109	0.0050	"	0.100		109	70-130			
1,3,5-Trimethylbenzene	0.111	0.0050	"	0.100		111	70-130			
Naphthalene	0.0843	0.0038	"	0.100		84.3	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0156		"	0.0400		38.9	23-173			
<i>Surrogate: Toluene-d8</i>	0.0483		"	0.0400		121	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0406		"	0.0400		102	21-167			

Matrix Spike (BEG0429-MS1)

Source: 2107319-01

Prepared: 07/23/21 Analyzed: 07/24/21

Benzene	0.0740	0.0020	mg/kg	0.100	ND	74.0	70-130			
Toluene	0.122	0.0050	"	0.100	ND	122	70-130			
Ethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130			
m,p-Xylene	0.221	0.010	"	0.200	ND	110	70-130			
o-Xylene	0.104	0.0050	"	0.100	ND	104	70-130			
1,2,4-Trimethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130			
1,3,5-Trimethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130			
Naphthalene	0.0983	0.0038	"	0.100	ND	98.3	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0390		"	0.0400		97.6	23-173			
<i>Surrogate: Toluene-d8</i>	0.0476		"	0.0400		119	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	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: Binder 10ADU Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

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 BEG0429 - EPA 5030 Soil MS

Matrix Spike Dup (BEG0429-MSD1)	Source: 2107319-01			Prepared: 07/23/21 Analyzed: 07/24/21					
Benzene	0.0705	0.0020	mg/kg	0.100	ND	70.5	70-130	4.73	30
Toluene	0.111	0.0050	"	0.100	ND	111	70-130	9.88	30
Ethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	8.63	30
m,p-Xylene	0.205	0.010	"	0.200	ND	102	70-130	7.55	30
o-Xylene	0.0983	0.0050	"	0.100	ND	98.3	70-130	5.40	30
1,2,4-Trimethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130	5.28	30
1,3,5-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130	6.16	30
Naphthalene	0.0992	0.0038	"	0.100	ND	99.2	70-130	0.942	30
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0400		94.9	23-173		
Surrogate: Toluene-d8	0.0471		"	0.0400		118	20-170		
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400		101	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: Binder 10ADU Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/30/21 15:36

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 BEG0430 - EPA 3550A

Blank (BEG0430-BLK1)

Prepared: 07/23/21 Analyzed: 07/24/21

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

LCS (BEG0430-BS1)

Prepared: 07/23/21 Analyzed: 07/24/21

C10-C28 (DRO)	497	50	mg/kg	500	99.5	70-130				
---------------	-----	----	-------	-----	------	--------	--	--	--	--

Matrix Spike (BEG0430-MS1)

Source: 2107319-01

Prepared: 07/23/21 Analyzed: 07/24/21

C10-C28 (DRO)	531	50	mg/kg	500	20.4	102	70-130			
---------------	-----	----	-------	-----	------	-----	--------	--	--	--

Matrix Spike Dup (BEG0430-MSD1)

Source: 2107319-01

Prepared: 07/23/21 Analyzed: 07/24/21

C10-C28 (DRO)	518	50	mg/kg	500	20.4	99.6	70-130	2.47	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: Binder 10ADU Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

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 BEG0425 - EPA 5030 Soil MS

Blank (BEG0425-BLK1)

Prepared: 07/23/21 Analyzed: 07/24/21

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	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0196</i>		<i>"</i>	<i>0.0333</i>		<i>58.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0207</i>		<i>"</i>	<i>0.0333</i>		<i>62.1</i>	<i>40-150</i>			

LCS (BEG0425-BS1)

Prepared: 07/23/21 Analyzed: 07/24/21

Acenaphthene	0.0227	0.00500	mg/kg	0.0333		68.2	31-137			
Anthracene	0.0234	0.00500	"	0.0333		70.1	30-120			
Benzo (a) anthracene	0.0236	0.00500	"	0.0333		70.7	30-120			
Benzo (a) pyrene	0.0234	0.00500	"	0.0333		70.3	30-120			
Benzo (b) fluoranthene	0.0249	0.00500	"	0.0333		74.8	30-120			
Benzo (k) fluoranthene	0.0241	0.00500	"	0.0333		72.4	30-120			
Chrysene	0.0229	0.00500	"	0.0333		68.7	30-120			
Dibenz (a,h) anthracene	0.0241	0.00500	"	0.0333		72.4	30-120			
Fluoranthene	0.0245	0.00500	"	0.0333		73.5	30-120			
Fluorene	0.0237	0.00500	"	0.0333		71.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0232	0.00500	"	0.0333		69.6	30-120			
Naphthalene	0.0225	0.00500	"	0.0333		67.6	30-120			
Pyrene	0.0224	0.00500	"	0.0333		67.4	35-142			
1-Methylnaphthalene	0.0219	0.00500	"	0.0333		65.8	35-142			
2-Methylnaphthalene	0.0230	0.00500	"	0.0333		69.1	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0243</i>		<i>"</i>	<i>0.0333</i>		<i>72.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0238</i>		<i>"</i>	<i>0.0333</i>		<i>71.5</i>	<i>40-150</i>			

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: Binder 10ADU Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

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 BEG0425 - EPA 5030 Soil MS

Matrix Spike (BEG0425-MS1)	Source: 2107322-01			Prepared: 07/23/21 Analyzed: 07/24/21						
Acenaphthene	0.0190	0.00500	mg/kg	0.0333	ND	57.0	31-137			
Anthracene	0.0202	0.00500	"	0.0333	ND	60.5	30-120			
Benzo (a) anthracene	0.0192	0.00500	"	0.0333	ND	57.5	30-120			
Benzo (a) pyrene	0.0195	0.00500	"	0.0333	ND	58.5	30-120			
Benzo (b) fluoranthene	0.0272	0.00500	"	0.0333	ND	81.7	30-120			
Benzo (k) fluoranthene	0.0199	0.00500	"	0.0333	ND	59.6	30-120			
Chrysene	0.0191	0.00500	"	0.0333	ND	57.4	30-120			
Dibenz (a,h) anthracene	0.0213	0.00500	"	0.0333	ND	64.0	30-120			
Fluoranthene	0.0213	0.00500	"	0.0333	ND	63.8	30-120			
Fluorene	0.0202	0.00500	"	0.0333	ND	60.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0205	0.00500	"	0.0333	ND	61.5	30-120			
Naphthalene	0.0184	0.00500	"	0.0333	ND	55.1	30-120			
Pyrene	0.0221	0.00500	"	0.0333	ND	66.4	35-142			
1-Methylnaphthalene	0.0233	0.00500	"	0.0333	ND	70.0	15-130			
2-Methylnaphthalene	0.0185	0.00500	"	0.0333	ND	55.6	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0193</i>		<i>"</i>	<i>0.0333</i>		<i>58.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0199</i>		<i>"</i>	<i>0.0333</i>		<i>59.7</i>	<i>40-150</i>			

Matrix Spike Dup (BEG0425-MSD1)	Source: 2107322-01			Prepared: 07/23/21 Analyzed: 07/24/21						
Acenaphthene	0.0186	0.00500	mg/kg	0.0333	ND	55.8	31-137	2.20	30	
Anthracene	0.0196	0.00500	"	0.0333	ND	58.7	30-120	3.05	30	
Benzo (a) anthracene	0.0206	0.00500	"	0.0333	ND	61.8	30-120	7.16	30	
Benzo (a) pyrene	0.0201	0.00500	"	0.0333	ND	60.4	30-120	3.15	30	
Benzo (b) fluoranthene	0.0234	0.00500	"	0.0333	ND	70.1	30-120	15.2	30	
Benzo (k) fluoranthene	0.0203	0.00500	"	0.0333	ND	60.9	30-120	2.18	30	
Chrysene	0.0198	0.00500	"	0.0333	ND	59.4	30-120	3.43	30	
Dibenz (a,h) anthracene	0.0213	0.00500	"	0.0333	ND	63.9	30-120	0.238	30	
Fluoranthene	0.0216	0.00500	"	0.0333	ND	64.8	30-120	1.63	30	
Fluorene	0.0198	0.00500	"	0.0333	ND	59.4	30-120	1.92	30	
Indeno (1,2,3-cd) pyrene	0.0206	0.00500	"	0.0333	ND	61.8	30-120	0.393	30	
Naphthalene	0.0183	0.00500	"	0.0333	ND	55.0	30-120	0.131	30	
Pyrene	0.0219	0.00500	"	0.0333	ND	65.6	35-142	1.20	30	
1-Methylnaphthalene	0.0228	0.00500	"	0.0333	ND	68.3	15-130	2.46	50	
2-Methylnaphthalene	0.0187	0.00500	"	0.0333	ND	56.2	15-130	1.08	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0203</i>		<i>"</i>	<i>0.0333</i>		<i>60.9</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0195</i>		<i>"</i>	<i>0.0333</i>		<i>58.4</i>	<i>40-150</i>			

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: Binder 10ADU Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/30/21 15:36

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 BEG0467 - EPA 3050B

Blank (BEG0467-BLK1)				Prepared: 07/27/21 Analyzed: 07/28/21							
Boron	ND	0.0100	mg/L								
LCS (BEG0467-BS1)				Prepared: 07/27/21 Analyzed: 07/28/21							
Boron	4.88	0.0100	mg/L	5.00	97.7	80-120					
Duplicate (BEG0467-DUP1)				Source: 2107337-02		Prepared: 07/27/21 Analyzed: 07/28/21					
Boron	0.122	0.0100	mg/L		0.125				2.20	20	
Matrix Spike (BEG0467-MS1)				Source: 2107337-02		Prepared: 07/27/21 Analyzed: 07/28/21					
Boron	4.72	0.0100	mg/L	5.00	0.125	91.9	75-125				
Matrix Spike Dup (BEG0467-MSD1)				Source: 2107337-02		Prepared: 07/27/21 Analyzed: 07/28/21					
Boron	4.66	0.0100	mg/L	5.00	0.125	90.6	75-125	1.34		25	

Summit Scientific

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



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

Project: Binder 10ADU Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/30/21 15:36

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 BEG0428 - General Preparation

Blank (BEG0428-BLK1)

Prepared: 07/23/21 Analyzed: 07/26/21

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

LCS (BEG0428-BS1)

Prepared: 07/23/21 Analyzed: 07/26/21

Calcium	5.05	0.0500	mg/L wet	5.00		101	70-130			
Magnesium	4.98	0.0500	"	5.00		99.6	70-130			
Sodium	4.72	0.0500	"	5.00		94.5	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: Binder 10ADU Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/30/21 15:36

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 BEG0426 - General Preparation

Duplicate (BEG0426-DUP1)		Source: 2106415-02			Prepared & Analyzed: 07/23/21			
% Solids	78.1		%		78.6		0.644	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: Binder 10ADU Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/30/21 15:36

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 BEG0448 - General Preparation

Blank (BEG0448-BLK1)

Prepared & Analyzed: 07/26/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEG0448-BS1)

Prepared & Analyzed: 07/26/21

Specific Conductance (EC) 0.144 0.0100 mmhos/cm 0.150 96.2 90-110

Duplicate (BEG0448-DUP1)

Source: 2107230-01

Prepared & Analyzed: 07/26/21

Specific Conductance (EC) 0.307 0.0100 mmhos/cm 0.308 0.391 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: Binder 10ADU Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/30/21 15:36

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 BEG0447 - General Preparation

LCS (BEG0447-BS1)

Prepared & Analyzed: 07/26/21

pH	9.30	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

Duplicate (BEG0447-DUP1)

Source: 2107230-01

Prepared & Analyzed: 07/26/21

pH	8.60	pH Units	8.61	0.116	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: Binder 10ADU Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/30/21 15:36

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