

**TABLE 1**  
**FORMER TANNER K 33-14 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 <sup>(4)</sup> (mg/kg)
Residential SSL <sup>(1,2)</sup>			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
FLR01 @ 3'	3/10/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	0.015	<0.0050	<b>0.030</b>	<0.0038	2.3
FL01-19-B @ 4.5'	3/19/2021	4.5 ft. bgs	<0.0020	<0.0050	<0.0050	0.11	0.0078	0.0078	<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

**BOLD** = Analytical result is in exceedance of applicable standard.

**TABLE 2**  
**FORMER TANNER K 33-14 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 <sup>(1)</sup>			6-8.3	<4	<6	2
WH01 @ 2.5'	3/10/2021	2.5'	8.17	1.33	3.27	0.191

**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 TANNER K 33-14 WELLHEAD  
FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup>		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
			Latitude	Longitude		
FLR01 @ 3'	3/10/2021	3 ft. bgs	40.26215485	-104.784092	0.9	8.4
WH01 @ 2.5'	3/10/2021	2.5 ft. bgs	40.26213991	-104.784089	0.9	1.5
WHS01-E @ 0-6"	3/10/2021	0-6 in. bgs	40.26215471	-104.784019	0.9	0.6
WHS01-N @ 0-6"	3/10/2021	0-6 in. bgs	40.26219796	-104.784113	1.1	1.5
WHS01-W @ 0-6"	3/10/2021	0-6 in. bgs	40.26214470	-104.784143	1.0	0.8
WHS01-S @ 0-6"	3/10/2021	0-6 in. bgs	40.26211868	-104.784088	1.0	0.7
FL-01 @ 4'	3/10/2021	4 ft. bgs	40.26213771	-104.783069	1.1	0.3
FL-02 @ 4'	3/10/2021	4 ft. bgs	40.26212739	-104.782468	1.0	0.2
FL-03 @ 4'	3/10/2021	4 ft. bgs	40.26288674	-104.782474	1.0	0.3
FL-04 @ 4'	3/10/2021	4 ft. bgs	40.26366803	-104.782471	1.1	0.3
FL-05 @ 4'	3/10/2021	4 ft. bgs	40.26432804	-104.782462	1.1	0.2
FL-06 @ 4'	3/10/2021	4 ft. bgs	40.26509503	-104.782469	1.1	0.4
FL-07 @ 4'	3/10/2021	4 ft. bgs	40.26588154	-104.782479	1.0	0.1
FL-08 @ 4'	3/10/2021	4 ft. bgs	40.26660116	-104.782455	1.1	0.3
FL-09 @ 4'	3/10/2021	4 ft. bgs	40.26736734	-104.782499	1.0	0.2
FL-10 @ 4'	3/10/2021	4 ft. bgs	40.26741038	-104.782802	1.0	0.1
FL-11 @ 4'	3/10/2021	4 ft. bgs	40.26739813	-104.783794	1.0	0.0
FL-12 @ 3'	3/10/2021	3 ft. bgs	40.26709520	-104.789523	1.1	0.7
FL-13 @ 4'	3/10/2021	4 ft. bgs	40.26740328	-104.784546	1.2	0.1
FL-14 @ 4'	3/10/2021	4 ft. bgs	40.26743599	-104.785547	1	0.2
FL-15 @ 4'	3/10/2021	4 ft. bgs	40.26744372	-104.786538	1.1	0.2
FL-16 @ 5'	3/10/2021	5 ft. bgs	40.26744076	-104.787528	1.1	0.1
FL-17 @ 4'	3/10/2021	4 ft. bgs	40.26742257	-104.788571	1	0.0
FL-18 @ 4'	3/10/2021	4 ft. bgs	40.26741189	-104.789551	1.3	0.4
BKG01 @ 2.5'	3/10/2021	2.5 ft. bgs	40.26201011	-104.784052	1.0	0.3
FL01-19-B @ 4.5'	3/19/2021	4.5 ft. bgs	40.26732333	-104.790171	1.4	1.9
FL01-19-N @ 4'	3/19/2021	4 ft. bgs	40.26733317	-104.790151	1.3	0.6
FL01-19-E @ 4'	3/19/2021	4 ft. bgs	40.26732638	-104.790136	1.3	0.7
FL01-19-S @ 4'	3/19/2021	4 ft. bgs	40.26731485	-104.790161	1.3	0.1
FL01-19-W @ 4'	3/19/2021	4 ft. bgs	40.26733318	-104.790154	1.3	0.5

**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

## Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 25, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Tanner K 33-14 Wellhead

Work Order #2103179

Enclosed are the results of analyses for samples received by Summit Scientific on 03/10/21 16:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury

President



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

Project: Tanner K 33-14 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
03/25/21 11:46

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLR01@3'	2103179-01	Soil	03/10/21 13:27	03/10/21 16:20
WH01@2.5'	2103179-02	Soil	03/10/21 13:28	03/10/21 16:20

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.*



**Sample Receipt Checklist**

S2 Work Order 2103179

Client: PDC/TASMAN Client Project ID: TANNER K 33-14 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>4.1</u>
-----------	------------

Thermometer ID: 61857155-K

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

Additional Comments (if any):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Musi P.  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

3-10-21  
Date/Time



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

Project: Tanner K 33-14 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/25/21 11:46

**FLR01@3'**  
**2103179-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/10/21 13:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BEC0237	03/11/21	03/12/21	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.015</b>	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
<b>1,3,5-Trimethylbenzene</b>	<b>0.030</b>	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.3</b>	0.50		"	"	"	"	"	"	

Date Sampled: **03/10/21 13:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		101 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %		21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/10/21 13:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BEC0242	03/11/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **03/10/21 13:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		112 %		30-150		"	"	"	"	

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: Tanner K 33-14 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/25/21 11:46

**WH01@2.5'**  
**2103179-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **03/10/21 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.191</b>	0.0100	mg/L	1	BEC0365	03/22/21	03/25/21	EPA 6020B	

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

Date Sampled: **03/10/21 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Calcium</b>	<b>102</b>	0.0557	mg/L dry	1	BEC0294	03/17/21	03/20/21	EPA 6020B	
<b>Magnesium</b>	<b>24.6</b>	0.0557	"	"	"	"	"	"	
<b>Sodium</b>	<b>142</b>	0.0557	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **03/10/21 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Sodium Adsorption Ratio</b>	<b>3.27</b>	0.100	units	1	BEC0358	03/22/21	03/22/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **03/10/21 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>% Solids</b>	<b>89.8</b>		%	1	BEC0221	03/11/21	03/11/21	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **03/10/21 13:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>1.33</b>	0.0100	mmhos/cm	1	BEC0352	03/19/21	03/19/21	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: Tanner K 33-14 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 03/25/21 11:46

**WH01@2.5'**  
**2103179-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **03/10/21 13:28**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.17</b>		pH Units	1	BEC0353	03/19/21	03/19/21	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: Tanner K 33-14 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/25/21 11:46

### 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 BEC0237 - EPA 5030 Soil MS

##### Blank (BEC0237-BLK1)

Prepared: 03/11/21 Analyzed: 03/12/21

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0393		"	0.0400		98.2	23-173			
<i>Surrogate: Toluene-d8</i>	0.0494		"	0.0400		123	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0421		"	0.0400		105	21-167			

##### LCS (BEC0237-BS1)

Prepared: 03/11/21 Analyzed: 03/12/21

Benzene	0.0988	0.0020	mg/kg	0.100		98.8	70-130			
Toluene	0.110	0.0050	"	0.100		110	70-130			
Ethylbenzene	0.103	0.0050	"	0.100		103	70-130			
m,p-Xylene	0.206	0.010	"	0.200		103	70-130			
o-Xylene	0.105	0.0050	"	0.100		105	70-130			
1,2,4-Trimethylbenzene	0.111	0.0050	"	0.100		111	70-130			
1,3,5-Trimethylbenzene	0.110	0.0050	"	0.100		110	70-130			
Naphthalene	0.0987	0.0038	"	0.100		98.7	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0374		"	0.0400		93.4	23-173			
<i>Surrogate: Toluene-d8</i>	0.0427		"	0.0400		107	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0412		"	0.0400		103	21-167			

##### Matrix Spike (BEC0237-MS1)

Source: 2103136-01

Prepared: 03/11/21 Analyzed: 03/12/21

Benzene	0.0700	0.0020	mg/kg	0.100	ND	70.0	70-130			
Toluene	0.111	0.0050	"	0.100	ND	111	70-130			
Ethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
m,p-Xylene	0.200	0.010	"	0.200	0.00402	98.0	70-130			
o-Xylene	0.102	0.0050	"	0.100	ND	102	70-130			
1,2,4-Trimethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130			
1,3,5-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130			
Naphthalene	0.105	0.0038	"	0.100	ND	105	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0411		"	0.0400		103	23-173			
<i>Surrogate: Toluene-d8</i>	0.0437		"	0.0400		109	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0421		"	0.0400		105	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: Tanner K 33-14 Wellhead

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/25/21 11:46

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**Summit Scientific**

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

**Batch BEC0237 - EPA 5030 Soil MS**

Matrix Spike Dup (BEC0237-MSD1)	Source: 2103136-01			Prepared: 03/11/21 Analyzed: 03/12/21						
Benzene	0.0769	0.0020	mg/kg	0.100	ND	76.9	70-130	9.44	30	
Toluene	0.114	0.0050	"	0.100	ND	114	70-130	2.03	30	
Ethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130	3.62	30	
m,p-Xylene	0.207	0.010	"	0.200	0.00402	102	70-130	3.45	30	
o-Xylene	0.105	0.0050	"	0.100	ND	105	70-130	2.23	30	
1,2,4-Trimethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	5.28	30	
1,3,5-Trimethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	3.89	30	
Naphthalene	0.110	0.0038	"	0.100	ND	110	70-130	4.89	30	
Surrogate: 1,2-Dichloroethane-d4	0.0399		"	0.0400		99.8	23-173			
Surrogate: Toluene-d8	0.0427		"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0422		"	0.0400		105	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: Tanner K 33-14 Wellhead

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/25/21 11:46

**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 BEC0242 - EPA 3550A**

**Blank (BEC0242-BLK1)**

Prepared: 03/11/21 Analyzed: 03/12/21

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

**LCS (BEC0242-BS1)**

Prepared: 03/11/21 Analyzed: 03/12/21

C10-C28 (DRO)	528	50	mg/kg	500	106	70-130				
---------------	-----	----	-------	-----	-----	--------	--	--	--	--

**Matrix Spike (BEC0242-MS1)**

Source: 2103136-01

Prepared: 03/11/21 Analyzed: 03/12/21

C10-C28 (DRO)	481	50	mg/kg	500	39.4	88.2	70-130			
---------------	-----	----	-------	-----	------	------	--------	--	--	--

**Matrix Spike Dup (BEC0242-MSD1)**

Source: 2103136-01

Prepared: 03/11/21 Analyzed: 03/12/21

C10-C28 (DRO)	494	50	mg/kg	500	39.4	90.8	70-130	2.69	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: Tanner K 33-14 Wellhead

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/25/21 11:46

**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 BEC0365 - EPA 3050B**

**Blank (BEC0365-BLK1)**

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

Boron ND 0.0100 mg/L

**LCS (BEC0365-BS1)**

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

Boron 5.19 0.0100 mg/L 5.00 104 80-120

**Duplicate (BEC0365-DUP1)**

Source: 2103178-01

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

Boron 0.214 0.0100 mg/L 0.237 9.99 20

**Matrix Spike (BEC0365-MS1)**

Source: 2103178-01

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

Boron 5.50 0.0100 mg/L 5.00 0.237 105 75-125

**Matrix Spike Dup (BEC0365-MSD1)**

Source: 2103178-01

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

Boron 5.49 0.0100 mg/L 5.00 0.237 105 75-125 0.241 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: Tanner K 33-14 Wellhead

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/25/21 11:46

**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 BEC0294 - General Preparation**

**Blank (BEC0294-BLK1)**

Prepared: 03/17/21 Analyzed: 03/19/21

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

**LCS (BEC0294-BS1)**

Prepared: 03/17/21 Analyzed: 03/19/21

Calcium	5.21	0.0500	mg/L wet	5.00	104	70-130				
Magnesium	5.22	0.0500	"	5.00	104	70-130				
Sodium	5.26	0.0500	"	5.00	105	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: Tanner K 33-14 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 03/25/21 11:46

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

**Summit Scientific**

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

**Batch BEC0221 - General Preparation**

**Duplicate (BEC0221-DUP1)**

**Source: 2103161-01**

Prepared & Analyzed: 03/11/21

% Solids	84.8		%		84.7			0.112	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: Tanner K 33-14 Wellhead

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/25/21 11:46

**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 BEC0352 - General Preparation**

**Blank (BEC0352-BLK1)**

Prepared & Analyzed: 03/19/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEC0352-BS1)**

Prepared & Analyzed: 03/19/21

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 100 90-110

**Duplicate (BEC0352-DUP1)**

Source: 2103161-01

Prepared & Analyzed: 03/19/21

Specific Conductance (EC) 0.922 0.0100 mmhos/cm 0.908 1.53 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: Tanner K 33-14 Wellhead

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/25/21 11:46

**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 BEC0353 - General Preparation**

**LCS (BEC0353-BS1)**

Prepared & Analyzed: 03/19/21

pH 9.25 pH Units 9.21 100 95-105

**Duplicate (BEC0353-DUP1)**

Source: 2103161-01

Prepared & Analyzed: 03/19/21

pH 8.38 pH Units 8.46 0.950 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: Tanner K 33-14 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/25/21 11:46

### 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

March 21, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Tanner K 33-14 Wellhead

Work Order #2103288

Enclosed are the results of analyses for samples received by Summit Scientific on 03/19/21 13:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury

President



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

Project: Tanner K 33-14 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
03/21/21 19:37

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-19-B@4.5'	2103288-01	Soil	03/19/21 10:29	03/19/21 13:45

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.*



**Sample Receipt Checklist**

S2 Work Order 2103288

Client: PDC/TASMAN Client Project ID: TANNER K 33-14 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>3.8</u>
-----------	------------

Thermometer ID: 61857155-K

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

<sup>(1)</sup> 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

3-19-21  
Date/Time



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

Project: Tanner K 33-14 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/21/21 19:37

**FL01-19-B@4.5'**  
**2103288-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **03/19/21 10:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BEC0355	03/19/21	03/19/21	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.11</b>	0.010		"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.0078</b>	0.0050		"	"	"	"	"	"	
<b>1,3,5-Trimethylbenzene</b>	<b>0.0078</b>	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **03/19/21 10:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		111 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		129 %		21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/19/21 10:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BEC0354	03/19/21	03/19/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **03/19/21 10:29**

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

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: Tanner K 33-14 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/21/21 19:37

### 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 BEC0355 - EPA 5030 Soil MS

##### Blank (BEC0355-BLK1)

Prepared & Analyzed: 03/19/21

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>	0.0450		"	0.0400		112		23-173			
<i>Surrogate: Toluene-d8</i>	0.0420		"	0.0400		105		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0497		"	0.0400		124		21-167			

##### LCS (BEC0355-BS1)

Prepared & Analyzed: 03/19/21

Benzene	0.0768	0.0020	mg/kg	0.100		76.8		70-130			
Toluene	0.0831	0.0050	"	0.100		83.1		70-130			
Ethylbenzene	0.112	0.0050	"	0.100		112		70-130			
m,p-Xylene	0.217	0.010	"	0.200		109		70-130			
o-Xylene	0.105	0.0050	"	0.100		105		70-130			
1,2,4-Trimethylbenzene	0.107	0.0050	"	0.100		107		70-130			
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100		104		70-130			
Naphthalene	0.118	0.0038	"	0.100		118		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0454		"	0.0400		114		23-173			
<i>Surrogate: Toluene-d8</i>	0.0426		"	0.0400		106		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0511		"	0.0400		128		21-167			

##### Matrix Spike (BEC0355-MS1)

Source: 2103287-01

Prepared & Analyzed: 03/19/21

Benzene	0.0783	0.0020	mg/kg	0.100	ND	78.3		70-130			
Toluene	0.0828	0.0050	"	0.100	ND	82.8		70-130			
Ethylbenzene	0.106	0.0050	"	0.100	ND	106		70-130			
m,p-Xylene	0.208	0.010	"	0.200	0.00504	101		70-130			
o-Xylene	0.101	0.0050	"	0.100	ND	101		70-130			
1,2,4-Trimethylbenzene	0.101	0.0050	"	0.100	ND	101		70-130			
1,3,5-Trimethylbenzene	0.0956	0.0050	"	0.100	ND	95.6		70-130			
Naphthalene	0.126	0.0038	"	0.100	0.00894	117		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0438		"	0.0400		109		23-173			
<i>Surrogate: Toluene-d8</i>	0.0434		"	0.0400		109		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0473		"	0.0400		118		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: Tanner K 33-14 Wellhead

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/21/21 19:37

**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 BEC0355 - EPA 5030 Soil MS**

Matrix Spike Dup (BEC0355-MSD1)	Source: 2103287-01			Prepared & Analyzed: 03/19/21							
Benzene	0.0785	0.0020	mg/kg	0.100	ND	78.5	70-130	0.191	30		
Toluene	0.0882	0.0050	"	0.100	ND	88.2	70-130	6.32	30		
Ethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130	2.97	30		
m,p-Xylene	0.217	0.010	"	0.200	0.00504	106	70-130	4.11	30		
o-Xylene	0.104	0.0050	"	0.100	ND	104	70-130	2.83	30		
1,2,4-Trimethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	2.96	30		
1,3,5-Trimethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130	6.68	30		
Naphthalene	0.110	0.0038	"	0.100	0.00894	101	70-130	14.2	30		
Surrogate: 1,2-Dichloroethane-d4	0.0542		"	0.0400		135	23-173				
Surrogate: Toluene-d8	0.0429		"	0.0400		107	20-170				
Surrogate: 4-Bromofluorobenzene	0.0484		"	0.0400		121	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: Tanner K 33-14 Wellhead

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/21/21 19:37

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEC0354 - EPA 3550A**

**Blank (BEC0354-BLK1)**

Prepared & Analyzed: 03/19/21

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

**LCS (BEC0354-BS1)**

Prepared & Analyzed: 03/19/21

C10-C28 (DRO)	519	50	mg/kg	500	104	70-130				
---------------	-----	----	-------	-----	-----	--------	--	--	--	--

**Matrix Spike (BEC0354-MS1)**

Source: 2103287-01

Prepared & Analyzed: 03/19/21

C10-C28 (DRO)	497	50	mg/kg	500	31.9	93.0	70-130			
---------------	-----	----	-------	-----	------	------	--------	--	--	--

**Matrix Spike Dup (BEC0354-MSD1)**

Source: 2103287-01

Prepared & Analyzed: 03/19/21

C10-C28 (DRO)	504	50	mg/kg	500	31.9	94.5	70-130	1.49	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: Tanner K 33-14 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/21/21 19:37

### 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