

**TABLE 1**  
**FORMER SITZMAN 1U TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(2)</sup> (mg/kg)
<b>COGCC standards for soil (mg/kg) <sup>(1)</sup></b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	<b>500</b>
SS01 @ 14'	3/7/2018	14	<0.0020	<0.0050	<0.0050	0.018	0.035	<b>720</b>
SS02 @ 12.5'	3/7/2018	12.5	<0.0020	<0.0050	<0.0050	0.02	<0.010	258
SS03 @ 10'	3/12/2018	10	0.14	0.014	9.4	140	2.4	<b>6,600</b>
SS04 @ 18'	3/12/2018	18	0.10	<0.0050	7.5	120	1.7	<b>5,400</b>
TP1 @ 14'	5/8/2018	14	<0.0020	0.0056	<0.0050	<0.010	0.011	<b>1,080</b>
SS05 @ 15'	6/12/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS06 @ 15'	6/12/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS07 @ 15'	6/12/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS08 @ 15'	6/12/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS09 @ 15'	6/13/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS10 @ 15'	6/18/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS11 @ 15'	6/25/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS12 @ 15'	6/25/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS13 @ 15'	6/25/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS14 @ 15'	7/12/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS15 @ 15'	7/12/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS16 @ 15'	7/12/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS17 @ 15'	7/13/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS18 @ 15'	7/13/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS19 @ 15'	7/17/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS20 @ 15'	7/17/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS21 @ 15'	7/17/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS22 @ 15'	7/17/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS23 @ 15'	7/17/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS24 @ 15'	7/17/2018	15	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50

**Notes:**

- Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
  - TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.
- COGCC = Colorado Oil and Gas Conservation Commission  
GRO = Total volatile petroleum hydrocarbons - gasoline range organics  
DRO = Total extractable petroleum hydrocarbons - diesel range organics  
mg/kg = Milligrams per kilogram  
bgs = Below ground surface  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
**BOLD** = Analytical result is in exceedance of COGCC soil standards.

**TABLE 2**  
**FORMER SITZMAN 1U TANK BATTERY**  
**CONFIRMATION SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(2)</sup> (mg/kg)
<b>COGCC standards for soil (mg/kg) <sup>(1)</sup></b>		<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	<b>500</b>
CS01	5/11/2018	<0.0020	<0.0050	<0.0050	<0.010	0.012	185
CS02	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
CS03	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	9.6
CS04	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
CS05	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	1.3
CS06	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	4.0
CS07	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	1.8
CS08	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
CS09	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	67.4
CS10	6/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	0.50
CS11	6/27/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	3.0
CS12	6/27/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	75
CS13	6/27/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	68.5
CS14	6/27/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	6.8
CS15	6/27/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	4.4
CS16	6/27/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	20
CS17	6/27/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	71
CS18	7/9/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	3.0
CS19	7/9/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	5.0
CS20	7/9/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	3.0
CS21	7/9/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	3.2
CS22	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	80.1
CS23	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	98
CS24	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	94
CS25	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	148
CS26	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	108
CS27	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	107
CS28	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	3.5
CS29	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	5.1
CS30	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	4.3
CS31	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	64
CS32	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	11
CS33	7/13/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	65.5
CS34	7/18/2018	<0.0020	<0.0050	<0.0050	0.032	0.014	22
CS35	7/18/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	6.2
CS36	7/18/2018	<0.0020	<0.0050	<0.0050	0.033	<0.010	20
CS37	7/18/2018	<0.0020	<0.0050	<0.0050	0.055	<0.010	24
CS38	7/20/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	76.6
CS39	7/20/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	57.0
CS40	7/20/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	143.7
CS41	7/20/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	61.93
CS42	7/23/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	62.6
CS43	7/23/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	78
CS44	7/23/2018	<0.0020	<0.0050	<0.0050	<0.010	<0.010	11

**Notes:**

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
  2. TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.
- COGCC = Colorado Oil and Gas Conservation Commission

**TABLE 2**  
**FORMER SITZMAN 1U TANK BATTERY**  
**CONFIRMATION SOIL ANALYTICAL RESULTS SUMMARY TABLE**

GRO = Total volatile petroleum hydrocarbons - gasoline range organics  
DRO = Total extractable petroleum hydrocarbons - diesel range organics  
mg/kg = Milligrams per kilogram  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
**BOLD** = Analytical result is in exceedance of COGCC soil standards

**TABLE 3**  
**FORMER SITZMAN 1U TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (feet bgs) <sup>(2)</sup>
<b>COGCC Table 910-1 Groundwater Standard (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	
GW01	7/23/2018	<1.0	<1.0	<1.0	<2.0	~ 15

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective May 1, 2018.

2. Depth to groundwater estimated from ground surface.

COGCC = Colorado Oil and Gas Conservation Commission

µg/L= Micrograms per liter

bgs = Below ground surface

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

**BOLD** = Analytical result is in exceedance of COGCC groundwater standards.

## **ATTACHMENT A**

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 09, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 05/08/18 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/09/18 06:59

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP1@14'	1805077-01	Soil	05/08/18 13:17	05/08/18 17:00

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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.*



1805077

Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: PDC Energy Client Project ID: SITZMAN 10

Shipped Via: HAND Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Cooler ID					
Temp (°C)	11.0°				

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.	✓			
Were all samples received intact <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
If custody seals are present, are they intact <sup>(1)</sup> ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			✓	
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 <sup>(1)</sup> ?			✓	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

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

LP  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

5/8/18 1633  
Date/Time



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

Project: Sitzman 1U  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/09/18 06:59

**TP1@14'**  
**1805077-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/08/18 13:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1805085	05/08/18	05/09/18	EPA 8260B	
<b>Toluene</b>	<b>0.0056</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Naphthalene</b>	<b>0.011</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>620</b>	5.0	"	10	"	"	"	"	

Date Sampled: **05/08/18 13:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	70-130		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	70-130		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		175 %	70-130		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/08/18 13:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>460</b>	50	mg/kg	1	1805086	05/08/18	05/08/18	EPA 8015M	

Date Sampled: **05/08/18 13:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		88.2 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/09/18 06:59

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

#### Summit Scientific

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

#### Batch 1805085 - EPA 5030 Soil MS

##### Blank (1805085-BLK1)

Prepared: 05/08/18 Analyzed: 05/09/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0421		"	0.0396		106	70-130				
Surrogate: Toluene-d8	0.0389		"	0.0400		97.2	70-130				
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	70-130				

##### LCS (1805085-BS1)

Prepared: 05/08/18 Analyzed: 05/09/18

Benzene	0.0880	0.0020	mg/kg	0.100		88.0	70-130				
Toluene	0.105	0.0050	"	0.100		105	70-130				
Ethylbenzene	0.115	0.0050	"	0.100		115	70-130				
m,p-Xylene	0.233	0.010	"	0.200		117	70-130				
o-Xylene	0.107	0.0050	"	0.100		107	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0410		"	0.0396		104	70-130				
Surrogate: Toluene-d8	0.0385		"	0.0400		96.3	70-130				
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		99.9	70-130				

##### Matrix Spike (1805085-MS1)

Source: 1805077-01

Prepared: 05/08/18 Analyzed: 05/09/18

Benzene	0.0885	0.0020	mg/kg	0.100	ND	88.5	70-130				
Toluene	0.104	0.0050	"	0.100	0.00564	98.8	70-130				
Ethylbenzene	0.116	0.0050	"	0.100	0.00330	113	70-130				
m,p-Xylene	0.254	0.010	"	0.200	0.0348	110	70-130				
o-Xylene	0.126	0.0050	"	0.100	ND	126	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0446		"	0.0396		113	70-130				
Surrogate: Toluene-d8	0.0380		"	0.0400		94.9	70-130				
Surrogate: 4-Bromofluorobenzene	0.0445		"	0.0400		111	70-130				

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 05/09/18 06:59

**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 1805085 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1805085-MSD1)</b>	<b>Source: 1805077-01</b>			Prepared: 05/08/18		Analyzed: 05/09/18				
Benzene	0.0894	0.0020	mg/kg	0.100	ND	89.4	70-130	0.944	30	
Toluene	0.104	0.0050	"	0.100	0.00564	98.6	70-130	0.201	30	
Ethylbenzene	0.115	0.0050	"	0.100	0.00330	111	70-130	1.20	30	
m,p-Xylene	0.238	0.010	"	0.200	0.0348	101	70-130	6.61	30	
o-Xylene	0.116	0.0050	"	0.100	ND	116	70-130	8.46	30	
Surrogate: 1,2-Dichloroethane-d4	0.0444		"	0.0396		112	70-130			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.0428		"	0.0400		107	70-130			

Summit Scientific

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

Project: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 05/09/18 06:59

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

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

**Batch 1805086 - EPA 3550A**

<b>Blank (1805086-BLK1)</b>		Prepared: 05/08/18 Analyzed: 05/09/18								
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1805086-BS1)</b>		Prepared: 05/08/18 Analyzed: 05/09/18								
C10-C28 (DRO)	417	50	mg/kg	501	22.1	83.3	81.4-129			
<b>Matrix Spike (1805086-MS1)</b>		<b>Source: 1805079-01</b>		Prepared: 05/08/18 Analyzed: 05/09/18						
C10-C28 (DRO)	426	50	mg/kg	501	22.1	80.7	77.8-133			
<b>Matrix Spike Dup (1805086-MSD1)</b>		<b>Source: 1805079-01</b>		Prepared: 05/08/18 Analyzed: 05/09/18						
C10-C28 (DRO)	440	50	mg/kg	501	22.1	83.5	77.8-133	3.24	8.48	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/09/18 06:59

### Notes and Definitions

- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- 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

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 13, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 05/11/18 12:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/13/18 14:12

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS01	1805137-01	Soil	05/11/18 09:13	05/11/18 12:00

Summit Scientific

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### Sample Receipt Checklist

S2 Work Order: 1805137

Client: PDC ENERGY Client Project ID: SITZMAN IV

Shipped Via: HAND Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C)	6.6
-----------	-----

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> ?	✓			
<small>NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.</small>				
Were all samples received intact <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
If custody seals are present, are they intact <sup>(1)</sup> ?			✓	
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 <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			✓	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			✓	
<small>Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect</small>				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			✓	
<small>Record the pH in Comments.</small>				
If dissolved metals are requested, were samples field filtered?			✓	

Additional Comments (if any):

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

CP  
 Custodian Printed Name or Initials

[Signature]  
 Signature or Initials of Custodian

5/11/18 1832  
 Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/13/18 14:12

**CS01**  
**1805137-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/11/18 09:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1805143	05/11/18	05/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Naphthalene</b>	<b>0.012</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>25</b>	0.50	"	"	"	"	"	"	

Date Sampled: **05/11/18 09:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		126 %	70-130		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.1 %	70-130		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		111 %	70-130		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/11/18 09:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>160</b>	50	mg/kg	1	1805145	05/11/18	05/12/18	EPA 8015M	

Date Sampled: **05/11/18 09:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		93.2 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/13/18 14:12

### 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 1805143 - EPA 5030 Soil MS

##### Blank (1805143-BLK1)

Prepared & Analyzed: 05/11/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0483		"	0.0396		122	70-130			
Surrogate: Toluene-d8	0.0379		"	0.0400		94.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.2	70-130			

##### LCS (1805143-BS1)

Prepared & Analyzed: 05/11/18

Benzene	0.0886	0.0020	mg/kg	0.100		88.6	70-130			
Toluene	0.0940	0.0050	"	0.100		94.0	70-130			
Ethylbenzene	0.111	0.0050	"	0.100		111	70-130			
m,p-Xylene	0.210	0.010	"	0.200		105	70-130			
o-Xylene	0.100	0.0050	"	0.100		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0479		"	0.0396		121	70-130			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	70-130			

##### Matrix Spike (1805143-MS1)

Source: 1805137-01

Prepared & Analyzed: 05/11/18

Benzene	0.0893	0.0020	mg/kg	0.100	ND	89.3	70-130			
Toluene	0.0974	0.0050	"	0.100	ND	97.4	70-130			
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130			
m,p-Xylene	0.217	0.010	"	0.200	ND	109	70-130			
o-Xylene	0.103	0.0050	"	0.100	ND	103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0488		"	0.0396		123	70-130			
Surrogate: Toluene-d8	0.0390		"	0.0400		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.0481		"	0.0400		120	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: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 05/13/18 14:12

**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 1805143 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1805143-MSD1)</b>	<b>Source: 1805137-01</b>			<b>Prepared &amp; Analyzed: 05/11/18</b>						
Benzene	0.0907	0.0020	mg/kg	0.100	ND	90.7	70-130	1.47	30	
Toluene	0.0979	0.0050	"	0.100	ND	97.9	70-130	0.522	30	
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130	0.208	30	
m,p-Xylene	0.215	0.010	"	0.200	ND	108	70-130	0.889	30	
o-Xylene	0.104	0.0050	"	0.100	ND	104	70-130	0.812	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0485</i>		<i>"</i>	<i>0.0396</i>		<i>122</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>98.0</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0512</i>		<i>"</i>	<i>0.0400</i>		<i>128</i>	<i>70-130</i>			

Summit Scientific

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

Project: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 05/13/18 14:12

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

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

**Batch 1805145 - EPA 3550A**

<b>Blank (1805145-BLK1)</b>					Prepared: 05/11/18 Analyzed: 05/12/18					
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1805145-BS1)</b>					Prepared: 05/11/18 Analyzed: 05/12/18					
C10-C28 (DRO)	469	50	mg/kg	500	159	74.3	81.4-129			
<b>Matrix Spike (1805145-MS1)</b>					Source: 1805137-01 Prepared: 05/11/18 Analyzed: 05/12/18					
C10-C28 (DRO)	531	50	mg/kg	500	159	74.3	77.8-133			QM-07
<b>Matrix Spike Dup (1805145-MSD1)</b>					Source: 1805137-01 Prepared: 05/11/18 Analyzed: 05/12/18					
C10-C28 (DRO)	538	50	mg/kg	500	159	75.9	77.8-133	1.44	8.48	QM-07

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/13/18 14:12

### 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

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 13, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 06/12/18 13:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/18 15:07

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS05@15'	1806132-01	Soil	06/12/18 10:45	06/12/18 13:30
SS06@15'	1806132-02	Soil	06/12/18 10:57	06/12/18 13:30
SS07@15'	1806132-03	Soil	06/12/18 11:17	06/12/18 13:30
SS08@15'	1806132-04	Soil	06/12/18 11:31	06/12/18 13:30

Summit Scientific

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



1806132

Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: PDC Client Project ID: SITZMAN

Shipped Via: Hand (UPS, FedEx, Hand Delivered, Pick-up, etc.) Airbill #: \_\_\_\_\_

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

Temp (°C)	<u>76</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> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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 <sup>(1)</sup> ? 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):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

UP  
Custodian Printed Name or Initials

[Signature]  
Signature or Initials of Custodian

6.12.18 1630  
Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/18 15:07

**SS05@15'**  
**1806132-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/12/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806182	06/12/18	06/12/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/12/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/12/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806183	06/12/18	06/13/18	EPA 8015M	

Date Sampled: **06/12/18 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.1 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/13/18 15:07

**SS06@15'**  
**1806132-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/12/18 10:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806182	06/12/18	06/13/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/12/18 10:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/12/18 10:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806183	06/12/18	06/13/18	EPA 8015M	

Date Sampled: **06/12/18 10:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.9 %	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: Sitzman 1U  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/18 15:07

**SS07@15'**  
**1806132-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/12/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806182	06/12/18	06/13/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/12/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/12/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806183	06/12/18	06/13/18	EPA 8015M	

Date Sampled: **06/12/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.7 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/18 15:07

**SS08@15'**  
**1806132-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/12/18 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806182	06/12/18	06/13/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/12/18 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/12/18 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806183	06/12/18	06/13/18	EPA 8015M	

Date Sampled: **06/12/18 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.8 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/13/18 15:07

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

#### Summit Scientific

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

#### Batch 1806182 - EPA 5030 Soil MS

##### Blank (1806182-BLK1)

Prepared: 06/12/18 Analyzed: 06/13/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0410		"	0.0396		103	23-173				
Surrogate: Toluene-d8	0.0407		"	0.0400		102	20-170				
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0400		101	21-167				

##### LCS (1806182-BS1)

Prepared: 06/12/18 Analyzed: 06/13/18

Benzene	0.0971	0.0020	mg/kg	0.100		97.1	70-130				
Toluene	0.105	0.0050	"	0.100		105	70-130				
Ethylbenzene	0.116	0.0050	"	0.100		116	70-130				
m,p-Xylene	0.215	0.010	"	0.200		107	70-130				
o-Xylene	0.105	0.0050	"	0.100		105	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0427		"	0.0396		108	23-173				
Surrogate: Toluene-d8	0.0405		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0400		94.5	21-167				

##### Matrix Spike (1806182-MS1)

Source: 1806130-01

Prepared: 06/12/18 Analyzed: 06/13/18

Benzene	0.0955	0.0020	mg/kg	0.100	ND	95.5	70-130				
Toluene	0.102	0.0050	"	0.100	ND	102	70-130				
Ethylbenzene	0.116	0.0050	"	0.100	ND	116	70-130				
m,p-Xylene	0.219	0.010	"	0.200	0.0452	86.7	70-130				
o-Xylene	0.103	0.0050	"	0.100	ND	103	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0428		"	0.0396		108	23-173				
Surrogate: Toluene-d8	0.0405		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/13/18 15:07

**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 1806182 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1806182-MSD1)</b>	<b>Source: 1806130-01</b>			Prepared: 06/12/18		Analyzed: 06/13/18				
Benzene	0.0985	0.0020	mg/kg	0.100	ND	98.5	70-130	3.15	30	
Toluene	0.105	0.0050	"	0.100	ND	105	70-130	3.63	30	
Ethylbenzene	0.121	0.0050	"	0.100	ND	121	70-130	3.60	30	
m,p-Xylene	0.230	0.010	"	0.200	0.0452	92.4	70-130	5.08	30	
o-Xylene	0.108	0.0050	"	0.100	ND	108	70-130	4.09	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0437</i>		<i>"</i>	<i>0.0396</i>		<i>110</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0401</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>21-167</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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/13/18 15:07

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

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

**Batch 1806183 - EPA 3550A**

<b>Blank (1806183-BLK1)</b>				Prepared & Analyzed: 06/12/18						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1806183-BS1)</b>				Prepared & Analyzed: 06/12/18						
C10-C28 (DRO)	515	50	mg/kg	500	103	70-130				
<b>Matrix Spike (1806183-MS1)</b>				<b>Source: 1806130-01</b>		Prepared & Analyzed: 06/12/18				
C10-C28 (DRO)	514	50	mg/kg	500	41.7	94.4	70-130			
<b>Matrix Spike Dup (1806183-MSD1)</b>				<b>Source: 1806130-01</b>		Prepared & Analyzed: 06/12/18				
C10-C28 (DRO)	507	50	mg/kg	500	41.7	93.1	70-130	1.31	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/13/18 15:07

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 14, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 06/13/18 14:57. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/14/18 06:14

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS09@15'	1806167-01	Soil	06/13/18 12:12	06/13/18 14:57

---

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: 180 W 1 67

Client: PDC Client Project ID: SITZMAN W

Shipped Via: HAND Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C)	13.7
-----------	------

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.				
Were all samples received intact <sup>(1)</sup> ?	/			
Was adequate sample volume provided <sup>(1)</sup> ?	/			
If custody seals are present, are they intact <sup>(1)</sup> ?			/	
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 <sup>(1)</sup> ?	/			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	/			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	/			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	/			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			/	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			/	
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 <sup>(1)</sup> ?			/	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			/	

Additional Comments (if any):

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

UP  
 Custodian Printed Name or Initials

[Signature]  
 Signature or Initials of Custodian

6.13.18 1644  
 Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/14/18 06:14

**SS09@15'**  
**1806167-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/13/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806204	06/13/18	06/13/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/13/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/13/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806205	06/13/18	06/13/18	EPA 8015M	

Date Sampled: **06/13/18 12:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		84.4 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/14/18 06:14

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

#### Summit Scientific

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

#### Batch 1806204 - EPA 5030 Soil MS

##### Blank (1806204-BLK1)

Prepared & Analyzed: 06/13/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0450		"	0.0396		114	23-173				
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	20-170				
Surrogate: 4-Bromofluorobenzene	0.0423		"	0.0400		106	21-167				

##### LCS (1806204-BS1)

Prepared & Analyzed: 06/13/18

Benzene	0.0798	0.0020	mg/kg	0.100		79.8	70-130				
Toluene	0.0885	0.0050	"	0.100		88.5	70-130				
Ethylbenzene	0.0990	0.0050	"	0.100		99.0	70-130				
m,p-Xylene	0.190	0.010	"	0.200		95.0	70-130				
o-Xylene	0.0943	0.0050	"	0.100		94.3	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0471		"	0.0396		119	23-173				
Surrogate: Toluene-d8	0.0404		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0416		"	0.0400		104	21-167				

##### Matrix Spike (1806204-MS1)

Source: 1806167-01

Prepared & Analyzed: 06/13/18

Benzene	0.0798	0.0020	mg/kg	0.100	ND	79.8	70-130				
Toluene	0.0871	0.0050	"	0.100	ND	87.1	70-130				
Ethylbenzene	0.0989	0.0050	"	0.100	ND	98.9	70-130				
m,p-Xylene	0.186	0.010	"	0.200	ND	93.0	70-130				
o-Xylene	0.0936	0.0050	"	0.100	ND	93.6	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0459		"	0.0396		116	23-173				
Surrogate: Toluene-d8	0.0400		"	0.0400		100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	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: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/14/18 06:14

**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 1806204 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1806204-MSD1)</b>	<b>Source: 1806167-01</b>			<b>Prepared &amp; Analyzed: 06/13/18</b>						
Benzene	0.0794	0.0020	mg/kg	0.100	ND	79.4	70-130	0.490	30	
Toluene	0.0873	0.0050	"	0.100	ND	87.3	70-130	0.275	30	
Ethylbenzene	0.0998	0.0050	"	0.100	ND	99.8	70-130	0.966	30	
m,p-Xylene	0.190	0.010	"	0.200	ND	95.0	70-130	2.11	30	
o-Xylene	0.0958	0.0050	"	0.100	ND	95.8	70-130	2.38	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0462</i>		<i>"</i>	<i>0.0396</i>		<i>117</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0424</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>21-167</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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/14/18 06:14

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

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

**Batch 1806205 - EPA 3550A**

<b>Blank (1806205-BLK1)</b>				Prepared & Analyzed: 06/13/18						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1806205-BS1)</b>				Prepared & Analyzed: 06/13/18						
C10-C28 (DRO)	504	50	mg/kg	500	101	70-130				
<b>Matrix Spike (1806205-MS1)</b>				Source: 1806167-01 Prepared & Analyzed: 06/13/18						
C10-C28 (DRO)	461	50	mg/kg	500	13.6	89.4	70-130			
<b>Matrix Spike Dup (1806205-MSD1)</b>				Source: 1806167-01 Prepared & Analyzed: 06/13/18						
C10-C28 (DRO)	452	50	mg/kg	500	13.6	87.6	70-130	1.93	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/14/18 06:14

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 19, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 06/18/18 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/19/18 06:24

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS10@15'	1806219-01	Soil	06/18/18 11:49	06/18/18 14:00
CS01	1806219-02	Soil	06/18/18 12:50	06/18/18 14:00
CS02	1806219-03	Soil	06/18/18 12:55	06/18/18 14:00
CS03	1806219-04	Soil	06/18/18 13:00	06/18/18 14:00
CS04	1806219-05	Soil	06/18/18 13:05	06/18/18 14:00
CS05	1806219-06	Soil	06/18/18 13:10	06/18/18 14:00
CS06	1806219-07	Soil	06/18/18 13:15	06/18/18 14:00
CS07	1806219-08	Soil	06/18/18 13:20	06/18/18 14:00
CS08	1806219-09	Soil	06/18/18 13:25	06/18/18 14:00
CS09	1806219-10	Soil	06/18/18 13:30	06/18/18 14:00
CS10	1806219-11	Soil	06/18/18 13:35	06/18/18 14:00

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.*

1806219.1

# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 2

Client: PDC Energy  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Chris A

Project Manager: Mark Longhurst  
E-Mail: \_\_\_\_\_  
Project Name: Sitzman IV  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:				Special Instructions			
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GBLTXN	DRO (TPA)					
SS10 @ 15'	6/18/18	11:49	1			X			X			X	X					
CS01		12:50	1			X			X			X	X					
CS02		12:55	1			X			X			X	X					
CS03		1:00	1			X			X			X	X					
CS04		1:05	1			X			X			X	X					
CS05		1:10	1			X			X			X	X					
CS06		1:15	1			X			X			X	X					
CS07		1:20	1			X			X			X	X					
CS08		1:25	1			X			X			X	X					
CS09		1:30	1			X			X			X	X					
Relinquished by: <u>[Signature]</u>		Date/Time: <u>6/18/18 1400</u>		Received by: <u>[Signature]</u>		Date/Time: <u>6-18-18 1400</u>		Turn Around Time (Check)				Notes:						
								Same Day <input checked="" type="checkbox"/>				72 Hours <input type="checkbox"/>						
								24 Hours <input type="checkbox"/>				Standard <input type="checkbox"/>						
								48 Hours <input type="checkbox"/>										
Relinquished by:		Date/Time:		Received in Lab by:		Date/Time:		Sample Integrity:				Temperature Upon Receipt: <u>20.1</u>						
								Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										

1806219.2

# Summit Scientific

741 Corporate Circle Suite 1 ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 2 of 2

Client: PDC Energy  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Chr3A

Project Manager: Mark Longhurst  
E-Mail: \_\_\_\_\_  
Project Name: Sitzman 10  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:				Special Instructions		
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)						
CS10	6/18/18	135	1			X		X				X (G BTEX)	X (DRO (TPH))				
Relinquished by: <u>[Signature]</u>	Date/Time: <u>6/18/18 1400</u>	Received by: <u>[Signature]</u>	Date/Time: <u>6.18.18 1400</u>	Turn Around Time (Check)				Notes:									
				Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/>													
				24 Hours <input type="checkbox"/> Standard <input type="checkbox"/>													
				48 Hours <input type="checkbox"/>													
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:													
				Temperature Upon Receipt: <u>20.1</u>													
				Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													

1806219

Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: PDC Client Project ID: Sitzman IV

Shipped Via: Hand Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C) | 20.1

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.	/			
Were all samples received intact <sup>(1)</sup> ?	/			
Was adequate sample volume provided <sup>(1)</sup> ?	/			
If custody seals are present, are they intact <sup>(1)</sup> ?			/	
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 <sup>(1)</sup> ?	/			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	/			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	/			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	/			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			/	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? 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 <sup>(1)</sup> ? Record the pH in Comments.			/	
If dissolved metals are requested, were samples field filtered?			/	

Additional Comments (if any):

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

CP  
Custodian Printed Name or Initials

[Signature]  
Signature of Initials of Custodian

6-18-18 1539  
Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/19/18 06:24

**SS10@15'**  
**1806219-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 11:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/18/18 11:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 11:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 11:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		77.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/19/18 06:24

**CS01**  
**1806219-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/18/18 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		80.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/19/18 06:24

**CS02**  
**1806219-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/18/18 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		81.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/19/18 06:24

**CS03**  
**1806219-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>9.6</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/18/18 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		112 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		100 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		82.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/19/18 06:24

**CS04**  
**1806219-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/18/18 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		77.2 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/19/18 06:24

**CS05**  
**1806219-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.3</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/18/18 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		118 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		113 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		81.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/19/18 06:24

**CS06**  
**1806219-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>4.0</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/18/18 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		119 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		126 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		79.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/19/18 06:24

**CS07**  
**1806219-08 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.8</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/18/18 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		81.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/19/18 06:24

**CS08**  
**1806219-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/18/18 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		83.2 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/19/18 06:24

**CS09**  
**1806219-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>7.4</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/18/18 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>60</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1806263</b>	<b>06/18/18</b>	<b>06/18/18</b>	<b>EPA 8015M</b>	

Date Sampled: **06/18/18 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		83.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/19/18 06:24

**CS10**  
**1806219-11 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/18/18 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806262	06/18/18	06/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.50</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/18/18 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		124 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/18 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806263	06/18/18	06/18/18	EPA 8015M	

Date Sampled: **06/18/18 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/19/18 06:24

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

#### Summit Scientific

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

#### Batch 1806262 - EPA 5030 Soil MS

##### Blank (1806262-BLK1)

Prepared & Analyzed: 06/18/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0461		"	0.0396		116	23-173				
Surrogate: Toluene-d8	0.0405		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0425		"	0.0400		106	21-167				

##### LCS (1806262-BS1)

Prepared & Analyzed: 06/18/18

Benzene	0.0800	0.0020	mg/kg	0.100		80.0	70-130				
Toluene	0.0876	0.0050	"	0.100		87.6	70-130				
Ethylbenzene	0.100	0.0050	"	0.100		100	70-130				
m,p-Xylene	0.185	0.010	"	0.200		92.6	70-130				
o-Xylene	0.0928	0.0050	"	0.100		92.8	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0461		"	0.0396		117	23-173				
Surrogate: Toluene-d8	0.0402		"	0.0400		100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167				

##### Matrix Spike (1806262-MS1)

Source: 1806219-01

Prepared & Analyzed: 06/18/18

Benzene	0.0810	0.0020	mg/kg	0.100	ND	81.0	70-130				
Toluene	0.0890	0.0050	"	0.100	ND	89.0	70-130				
Ethylbenzene	0.0981	0.0050	"	0.100	ND	98.1	70-130				
m,p-Xylene	0.182	0.010	"	0.200	ND	91.1	70-130				
o-Xylene	0.0909	0.0050	"	0.100	ND	90.9	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0493		"	0.0396		124	23-173				
Surrogate: Toluene-d8	0.0402		"	0.0400		100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	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: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/19/18 06:24

**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 1806262 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1806262-MSD1)</b>	<b>Source: 1806219-01</b>			<b>Prepared &amp; Analyzed: 06/18/18</b>						
Benzene	0.0812	0.0020	mg/kg	0.100	ND	81.2	70-130	0.222	30	
Toluene	0.0894	0.0050	"	0.100	ND	89.4	70-130	0.404	30	
Ethylbenzene	0.0979	0.0050	"	0.100	ND	97.9	70-130	0.214	30	
m,p-Xylene	0.183	0.010	"	0.200	ND	91.7	70-130	0.574	30	
o-Xylene	0.0920	0.0050	"	0.100	ND	92.0	70-130	1.12	30	
Surrogate: 1,2-Dichloroethane-d4	0.0482		"	0.0396		122	23-173			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0420		"	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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/19/18 06:24

**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 1806263 - EPA 3550A**

<b>Blank (1806263-BLK1)</b>		Prepared: 06/18/18 Analyzed: 06/19/18								
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1806263-BS1)</b>		Prepared: 06/18/18 Analyzed: 06/19/18								
C10-C28 (DRO)	494	50	mg/kg	500		98.8	70-130			
<b>Matrix Spike (1806263-MS1)</b>		<b>Source: 1806219-01</b>		Prepared: 06/18/18 Analyzed: 06/19/18						
C10-C28 (DRO)	527	50	mg/kg	500	13.8	103	70-130			
<b>Matrix Spike Dup (1806263-MSD1)</b>		<b>Source: 1806219-01</b>		Prepared: 06/18/18 Analyzed: 06/19/18						
C10-C28 (DRO)	524	50	mg/kg	500	13.8	102	70-130	0.512	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/19/18 06:24

### 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

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 26, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 06/25/18 17:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/26/18 06:31

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS11@15'	1806308-01	Soil	06/25/18 15:05	06/25/18 17:15
SS12@15'	1806308-02	Soil	06/25/18 15:50	06/25/18 17:15
SS13@15'	1806308-03	Soil	06/25/18 16:15	06/25/18 17:15

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: 1806308

Client: RDC Client Project ID: S. Jensen IV

Shipped Via: Pickup Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C)	7.6
-----------	-----

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> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation <b>(excluding cooling)</b> <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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 <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<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.

[Signature]  
 Custodian Printed Name or Initials

[Signature]  
 Signature or Initials of Custodian

6/25/18 1830  
 Date/Time



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

Project: Sitzman 1U  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/26/18 06:31

**SS11@15'**  
**1806308-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/25/18 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806368	06/25/18	06/25/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/25/18 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/25/18 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806369	06/25/18	06/25/18	EPA 8015M	

Date Sampled: **06/25/18 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		90.5 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/26/18 06:31

**SS12@15'**  
**1806308-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/25/18 15:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806368	06/25/18	06/25/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/25/18 15:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/25/18 15:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806369	06/25/18	06/25/18	EPA 8015M	

Date Sampled: **06/25/18 15:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		89.2 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/26/18 06:31

**SS13@15'**  
**1806308-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/25/18 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806368	06/25/18	06/25/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/25/18 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.2 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/25/18 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806369	06/25/18	06/25/18	EPA 8015M	

Date Sampled: **06/25/18 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		90.7 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/26/18 06:31

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

#### Summit Scientific

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

#### Batch 1806368 - EPA 5030 Soil MS

##### Blank (1806368-BLK1)

Prepared & Analyzed: 06/25/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0371		"	0.0396		93.7	23-173				
Surrogate: Toluene-d8	0.0388		"	0.0400		96.9	20-170				
Surrogate: 4-Bromofluorobenzene	0.0371		"	0.0400		92.7	21-167				

##### LCS (1806368-BS1)

Prepared & Analyzed: 06/25/18

Benzene	0.0906	0.0020	mg/kg	0.100		90.6	70-130				
Toluene	0.102	0.0050	"	0.100		102	70-130				
Ethylbenzene	0.116	0.0050	"	0.100		116	70-130				
m,p-Xylene	0.228	0.010	"	0.200		114	70-130				
o-Xylene	0.104	0.0050	"	0.100		104	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0360		"	0.0396		90.9	23-173				
Surrogate: Toluene-d8	0.0392		"	0.0400		97.9	20-170				
Surrogate: 4-Bromofluorobenzene	0.0374		"	0.0400		93.6	21-167				

##### Matrix Spike (1806368-MS1)

Source: 1806308-01

Prepared & Analyzed: 06/25/18

Benzene	0.0922	0.0020	mg/kg	0.100	ND	92.2	70-130				
Toluene	0.102	0.0050	"	0.100	ND	102	70-130				
Ethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130				
m,p-Xylene	0.228	0.010	"	0.200	ND	114	70-130				
o-Xylene	0.104	0.0050	"	0.100	ND	104	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0397		"	0.0396		100	23-173				
Surrogate: Toluene-d8	0.0388		"	0.0400		97.0	20-170				
Surrogate: 4-Bromofluorobenzene	0.0384		"	0.0400		95.9	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: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/26/18 06:31

**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 1806368 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1806368-MSD1)</b>	<b>Source: 1806308-01</b>			<b>Prepared &amp; Analyzed: 06/25/18</b>						
Benzene	0.0920	0.0020	mg/kg	0.100	ND	92.0	70-130	0.261	30	
Toluene	0.104	0.0050	"	0.100	ND	104	70-130	1.93	30	
Ethylbenzene	0.119	0.0050	"	0.100	ND	119	70-130	2.11	30	
m,p-Xylene	0.236	0.010	"	0.200	ND	118	70-130	3.40	30	
o-Xylene	0.107	0.0050	"	0.100	ND	107	70-130	3.06	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0398</i>		<i>"</i>	<i>0.0396</i>		<i>100</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.7</i>	<i>21-167</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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/26/18 06:31

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

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

**Batch 1806369 - EPA 3550A**

<b>Blank (1806369-BLK1)</b>				Prepared & Analyzed: 06/25/18						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1806369-BS1)</b>				Prepared & Analyzed: 06/25/18						
C10-C28 (DRO)	627	50	mg/kg	500	125	70-130				
<b>Matrix Spike (1806369-MS1)</b>				<b>Source: 1806309-04</b>		Prepared & Analyzed: 06/25/18				
C10-C28 (DRO)	709	50	mg/kg	500	96.5	123	70-130			
<b>Matrix Spike Dup (1806369-MSD1)</b>				<b>Source: 1806309-04</b>		Prepared & Analyzed: 06/25/18				
C10-C28 (DRO)	711	50	mg/kg	500	96.5	123	70-130	0.233	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/26/18 06:31

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 28, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 06/27/18 15:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/28/18 16:30

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS11	1806340-01	Soil	06/27/18 09:50	06/27/18 15:00
CS12	1806340-02	Soil	06/27/18 09:55	06/27/18 15:00
CS13	1806340-03	Soil	06/27/18 10:00	06/27/18 15:00
CS14	1806340-04	Soil	06/27/18 10:05	06/27/18 15:00
CS15	1806340-05	Soil	06/27/18 10:10	06/27/18 15:00
CS16	1806340-06	Soil	06/27/18 10:15	06/27/18 15:00
CS17	1806340-07	Soil	06/27/18 10:20	06/27/18 15:00

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.*

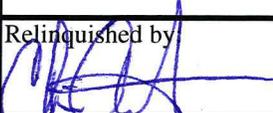
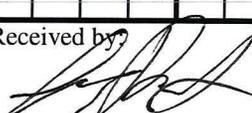
# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
 303-277-9310 ♦ 303-374-5933 Fax

1806340

Client: PDC Energy  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Sampler Name: Chris Armbruster

Project Manager: Mark Longhurst  
 E-Mail: Mark.Longhurst@pdce.com  
 Project Name: Sitzman 1U  
 Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:						Special Instructions
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GBTEXN (8260)	DRO (TPH)	EC	PH	Hold For Analysis		
CS11	6/27/2018	9:50	1		X			X				X	X					
CS12	6/27/2018	9:55	1		X			X				X	X					
CS13	6/27/2018	10:00	1		X			X				X	X					
CS14	6/27/2018	10:05	1		X			X				X	X					
CS15	6/27/2018	10:10	1		X			X				X	X					
CS16	6/27/2018	10:15	1		X			X				X	X					
CS17	6/27/2018	10:20	1		X			X				X	X					
Relinquished by: 				Date/Time: <u>6/27/18 1830</u>	Received by: 				Date/Time: <u>6.27.18 1830</u>	Turn Around Time (Check)						Notes:		
Relinquished by:				Date/Time:	Received by:				Date/Time:	Same Day	<input checked="" type="checkbox"/>	72 Hours	<input type="checkbox"/>	Standard	<input type="checkbox"/>			
Relinquished by:				Date/Time:	Received in Lab by:				Date/Time:	24 Hours	<input type="checkbox"/>	48 Hours	<input type="checkbox"/>	Sample Integrity:				
Relinquished by:				Date/Time:	Received in Lab by:				Date/Time:	Temperature Upon Receipt: <u>5.7</u>	Intact:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No					

### Sample Receipt Checklist

S2 Work Order: 180634/D

Client: PDC Energy Client Project ID: Sitzman 1U

Shipped Via: Pickup Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

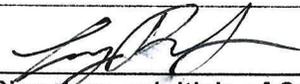
Temp (°C)	5.7
-----------	-----

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> ? <small>NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.</small>	/			
Were all samples received intact <sup>(1)</sup> ?	/			
Was adequate sample volume provided <sup>(1)</sup> ?	/			
If custody seals are present, are they intact <sup>(1)</sup> ?			/	
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 <sup>(1)</sup> ?	/			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	/			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	/			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	/			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			/	
Are samples preserved that require preservation <b>(excluding cooling)</b> <sup>(1)</sup> ? <small>Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect</small>			/	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? <small>Record the pH in Comments.</small>			/	
If dissolved metals are requested, were samples field filtered?			/	
<u>Additional Comments (if any):</u>  				

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

UP  
Custodian Printed Name or Initials

  
Signature or Initials of Custodian

6.27.18 1930  
Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/28/18 16:30

**CS11**  
**1806340-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/27/18 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806392	06/27/18	06/27/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.0</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/27/18 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/27/18 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806394	06/27/18	06/28/18	EPA 8015M	

Date Sampled: **06/27/18 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		86.1 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/28/18 16:30

**CS12**  
**1806340-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/27/18 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806392	06/27/18	06/27/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>20</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/27/18 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/27/18 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>55</b>	50	mg/kg	1	1806394	06/27/18	06/28/18	EPA 8015M	

Date Sampled: **06/27/18 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		88.3 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/28/18 16:30

**CS13**  
**1806340-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/27/18 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806392	06/27/18	06/28/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>6.5</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/27/18 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/27/18 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>62</b>	50	mg/kg	1	1806394	06/27/18	06/28/18	EPA 8015M	

Date Sampled: **06/27/18 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		87.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/28/18 16:30

**CS14**  
**1806340-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/27/18 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806392	06/27/18	06/28/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>6.8</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/27/18 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/27/18 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806394	06/27/18	06/28/18	EPA 8015M	

Date Sampled: **06/27/18 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		88.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/28/18 16:30

**CS15**  
**1806340-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/27/18 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806392	06/27/18	06/28/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>4.4</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/27/18 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/27/18 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806394	06/27/18	06/28/18	EPA 8015M	

Date Sampled: **06/27/18 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		89.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/28/18 16:30

**CS16**  
**1806340-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/27/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806392	06/27/18	06/28/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>20</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/27/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/27/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1806394	06/27/18	06/28/18	EPA 8015M	

Date Sampled: **06/27/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		87.7 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/28/18 16:30

**CS17**  
**1806340-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **06/27/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1806392	06/27/18	06/28/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>20</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **06/27/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/27/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>51</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1806394</b>	<b>06/27/18</b>	<b>06/28/18</b>	<b>EPA 8015M</b>	

Date Sampled: **06/27/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		88.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
06/28/18 16:30

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

#### Summit Scientific

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

#### Batch 1806392 - EPA 5030 Soil MS

##### Blank (1806392-BLK1)

Prepared: 06/27/18 Analyzed: 06/28/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0406		"	0.0396		102	23-173				
Surrogate: Toluene-d8	0.0412		"	0.0400		103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0416		"	0.0400		104	21-167				

##### LCS (1806392-BS1)

Prepared: 06/27/18 Analyzed: 06/28/18

Benzene	0.0886	0.0020	mg/kg	0.100		88.6	70-130				
Toluene	0.0973	0.0050	"	0.100		97.3	70-130				
Ethylbenzene	0.112	0.0050	"	0.100		112	70-130				
m,p-Xylene	0.206	0.010	"	0.200		103	70-130				
o-Xylene	0.0996	0.0050	"	0.100		99.6	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0408		"	0.0396		103	23-173				
Surrogate: Toluene-d8	0.0405		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167				

##### Matrix Spike (1806392-MS1)

Source: 1806338-01

Prepared: 06/27/18 Analyzed: 06/28/18

Benzene	0.0876	0.0020	mg/kg	0.100	ND	87.6	70-130				
Toluene	0.0956	0.0050	"	0.100	ND	95.6	70-130				
Ethylbenzene	0.108	0.0050	"	0.100	ND	108	70-130				
m,p-Xylene	0.198	0.010	"	0.200	ND	99.2	70-130				
o-Xylene	0.0956	0.0050	"	0.100	ND	95.6	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0426		"	0.0396		108	23-173				
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170				
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	21-167				

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/28/18 16:30

**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 1806392 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1806392-MSD1)</b>	<b>Source: 1806338-01</b>			Prepared: 06/27/18	Analyzed: 06/28/18					
Benzene	0.0989	0.0020	mg/kg	0.100	ND	98.9	70-130	12.2	30	
Toluene	0.108	0.0050	"	0.100	ND	108	70-130	11.9	30	
Ethylbenzene	0.126	0.0050	"	0.100	ND	126	70-130	15.0	30	
m,p-Xylene	0.231	0.010	"	0.200	ND	115	70-130	15.1	30	
o-Xylene	0.112	0.0050	"	0.100	ND	112	70-130	16.0	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0446</i>		<i>"</i>	<i>0.0396</i>		<i>113</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0413</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0428</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>21-167</i>			

Summit Scientific

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

Project: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/28/18 16:30

**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 1806394 - EPA 3550A**

<b>Blank (1806394-BLK1)</b>		Prepared: 06/27/18 Analyzed: 06/28/18								
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1806394-BS1)</b>		Prepared: 06/27/18 Analyzed: 06/28/18								
C10-C28 (DRO)	525	50	mg/kg				70-130			
<b>Matrix Spike (1806394-MS1)</b>		<b>Source: 1806338-01</b>		Prepared: 06/27/18 Analyzed: 06/28/18						
C10-C28 (DRO)	528	50	mg/kg		16.1		70-130			
<b>Matrix Spike Dup (1806394-MSD1)</b>		<b>Source: 1806338-01</b>		Prepared & Analyzed: 06/27/18						
C10-C28 (DRO)	561	50	mg/kg		16.1		70-130	5.96	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/28/18 16:30

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 10, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 07/09/18 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/10/18 07:12

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS18	1807081-01	Soil	07/09/18 09:40	07/09/18 14:00
CS19	1807081-02	Soil	07/09/18 09:47	07/09/18 14:00
CS20	1807081-03	Soil	07/09/18 09:53	07/09/18 14:00
CS21	1807081-04	Soil	07/09/18 10:01	07/09/18 14:00

Summit Scientific

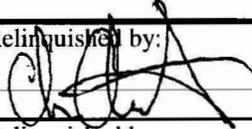
*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401 *1867081*  
 303-277-9310 ♦ 303-374-5933 Fax

Client: PDC Energy  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Sampler Name: Chris Armbruster

Project Manager: Mark Longhurst  
 E-Mail: Mark.Longhurst@pdce.com  
 Project Name: Sitzman 1U  
 Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:						Special Instructions
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GBTEXN (8260)	DRO (TPH)	EC	PH	Hold For Analysis		
CS18	7/9/2018	9:40	1		X			X				X	X					
CS19	7/9/2018	9:47	1		X			X				X	X					
CS20	7/9/2018	9:53	1		X			X				X	X					
CS21	7/9/2018	10:01	1		X			X				X	X					
Relinquished by: 	Date/Time: <u>7/9/18 17:00</u>	Received by: 	Date/Time: <u>7-9-18 17:00</u>	Turn Around Time (Check)				Notes:										
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day	<input checked="" type="checkbox"/>	72 Hours	<input type="checkbox"/>											
				24 Hours	<input type="checkbox"/>	Standard	<input type="checkbox"/>											
				48 Hours	<input type="checkbox"/>													
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Sample Integrity:														
				Temperature Upon Receipt:	<u>1.8</u>													
				Intact: Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>											

### Sample Receipt Checklist

S2 Work Order: 1807081

Client: PDC

Client Project ID: Sitzman 1U

Shipped Via: P.U.  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

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

Temp (°C)	1.8
-----------	-----

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> ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
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? If yes, contact client and note in narrative.				
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
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 <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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  
Custodian Printed Name or Initials

[Signature] 7-9-18  
Signature or Initials of Custodian

17:30  
Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/10/18 07:12

**CS18**  
**1807081-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/09/18 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807081	07/09/18	07/09/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.0</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/09/18 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		106 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		123 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/09/18 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807082	"	07/09/18	EPA 8015M	

Date Sampled: **07/09/18 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		81.7 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/10/18 07:12

**CS19**  
**1807081-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/09/18 09:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807081	07/09/18	07/09/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>5.0</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/09/18 09:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		130 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/09/18 09:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807082	"	07/09/18	EPA 8015M	

Date Sampled: **07/09/18 09:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		83.9 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/10/18 07:12

**CS20**  
**1807081-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/09/18 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807081	07/09/18	07/10/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.0</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/09/18 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		119 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/09/18 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807082	"	07/09/18	EPA 8015M	

Date Sampled: **07/09/18 09:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		84.1 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/10/18 07:12

**CS21**  
**1807081-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/09/18 10:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807081	07/09/18	07/09/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.2</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/09/18 10:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		112 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		106 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		124 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/09/18 10:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807082	"	07/09/18	EPA 8015M	

Date Sampled: **07/09/18 10:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		80.7 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/10/18 07:12

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

#### Summit Scientific

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

#### Batch 1807081 - EPA 5030 Soil MS

##### Blank (1807081-BLK1)

Prepared & Analyzed: 07/09/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0441		"	0.0396		111	23-173				
Surrogate: Toluene-d8	0.0421		"	0.0400		105	20-170				
Surrogate: 4-Bromofluorobenzene	0.0428		"	0.0400		107	21-167				

##### LCS (1807081-BS1)

Prepared & Analyzed: 07/09/18

Benzene	0.0992	0.0020	mg/kg	0.100		99.2	70-130				
Toluene	0.100	0.0050	"	0.100		100	70-130				
Ethylbenzene	0.117	0.0050	"	0.100		117	70-130				
m,p-Xylene	0.199	0.010	"	0.200		99.6	70-130				
o-Xylene	0.0994	0.0050	"	0.100		99.4	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0419		"	0.0396		106	23-173				
Surrogate: Toluene-d8	0.0422		"	0.0400		105	20-170				
Surrogate: 4-Bromofluorobenzene	0.0431		"	0.0400		108	21-167				

##### Matrix Spike (1807081-MS1)

Source: 1807082-01

Prepared & Analyzed: 07/09/18

Benzene	0.114	0.0020	mg/kg	0.100	0.0214	92.7	70-130				
Toluene	0.102	0.0050	"	0.100	ND	102	70-130				
Ethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130				
m,p-Xylene	0.207	0.010	"	0.200	0.0362	85.6	70-130				
o-Xylene	0.105	0.0050	"	0.100	0.0139	91.0	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0451		"	0.0396		114	23-173				
Surrogate: Toluene-d8	0.0423		"	0.0400		106	20-170				
Surrogate: 4-Bromofluorobenzene	0.0443		"	0.0400		111	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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/10/18 07:12

**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 1807081 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1807081-MSD1)</b>	<b>Source: 1807082-01</b>			<b>Prepared &amp; Analyzed: 07/09/18</b>						
Benzene	0.117	0.0020	mg/kg	0.100	0.0214	95.8	70-130	2.72	30	
Toluene	0.101	0.0050	"	0.100	ND	101	70-130	0.502	30	
Ethylbenzene	0.114	0.0050	"	0.100	ND	114	70-130	2.26	30	
m,p-Xylene	0.200	0.010	"	0.200	0.0362	82.1	70-130	3.43	30	
o-Xylene	0.102	0.0050	"	0.100	0.0139	87.8	70-130	3.16	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0447</i>		<i>"</i>	<i>0.0396</i>		<i>113</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0416</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>21-167</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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/10/18 07:12

**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 1807082 - EPA 3550A**

<b>Blank (1807082-BLK1)</b>					Prepared: 07/09/18 Analyzed: 07/10/18					
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1807082-BS1)</b>					Prepared: 07/09/18 Analyzed: 07/10/18					
C10-C28 (DRO)	475	50	mg/kg				70-130			
<b>Matrix Spike (1807082-MS1)</b>					Source: 1807082-01 Prepared: 07/09/18 Analyzed: 07/10/18					
C10-C28 (DRO)	487	50	mg/kg		25.5		70-130			
<b>Matrix Spike Dup (1807082-MSD1)</b>					Source: 1807082-01 Prepared: 07/09/18 Analyzed: 07/10/18					
C10-C28 (DRO)	455	50	mg/kg		25.5		70-130	6.69	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/10/18 07:12

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 13, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 07/12/18 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/13/18 06:11

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS14@15'	1807146-01	Soil	07/12/18 10:43	07/12/18 17:30
SS15@15'	1807146-02	Soil	07/12/18 11:27	07/12/18 17:30
SS16@15'	1807146-03	Soil	07/12/18 11:39	07/12/18 17:30

Summit Scientific

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

# Summit Scientific

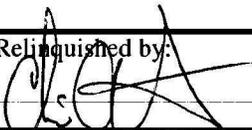
1807146

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Client: PDC Energy  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Chris Armbruster

Project Manager: Mark Longhurst  
E-Mail: Mark.Longhurst@pdce.com  
Project Name: Sitzman 1U  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:						Special Instructions
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GBTEXN (8260)	DRO (TPH)	EC	PH	Hold For Analysis		
SS14@15'	7/12/2018	1043	1		X			X				X	X					
SS15@15'	7/12/2018	1127	1		X			X				X	X					
SS16@15'	7/12/2018	1139	1		X			X				X	X					
Relinquished by: 	Date/Time: 7/12/18 17:10	Received by: 	Date/Time: 7-12-18 17:10	Turn Around Time (Check)						Notes:								
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day	<input checked="" type="checkbox"/>	72 Hours	<input type="checkbox"/>											
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 Hours	<input type="checkbox"/>	Standard	<input type="checkbox"/>											
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	48 Hours	<input type="checkbox"/>			Sample Integrity:										
				Temperature Upon Receipt:	0.0													
				Intact: Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>											

1807146

Sample Receipt Checklist

S2 Work Order \_\_\_\_\_

Client: PDC Client Project ID: Sitzman 14

Shipped Via: P.U. Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C) ~~17~~ 0.0

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.	X			
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
If custody seals are present, are they intact <sup>(1)</sup> ?			X	
Are samples with holding times due within 48 hours sample due within 48 hours present?	X			
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			X	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			X	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	

Additional Comments (if any):  
 \_\_\_\_\_  
 \_\_\_\_\_

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

Muri  
 Custodian Printed Name or Initials

[Signature] 7-12-18  
 Signature of Custodian

17:30  
 Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/13/18 06:11

SS14@15'  
1807146-01 (Soil)

Summit Scientific

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

Date Sampled: 07/12/18 10:43

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807137	07/12/18	07/12/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/12/18 10:43

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 07/12/18 10:43

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807138	07/12/18	07/12/18	EPA 8015M	

Date Sampled: 07/12/18 10:43

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.8 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/13/18 06:11

**SS15@15'**  
**1807146-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/12/18 11:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807137	07/12/18	07/12/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/12/18 11:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/12/18 11:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807138	07/12/18	07/13/18	EPA 8015M	

Date Sampled: **07/12/18 11:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/13/18 06:11

**SS16@15'**  
**1807146-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/12/18 11:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807137	07/12/18	07/12/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/12/18 11:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/12/18 11:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807138	07/12/18	07/13/18	EPA 8015M	

Date Sampled: **07/12/18 11:39**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		101 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/13/18 06:11

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

#### Summit Scientific

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

#### Batch 1807137 - EPA 5030 Soil MS

##### Blank (1807137-BLK1)

Prepared & Analyzed: 07/12/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0391		"	0.0396		98.7	23-173				
Surrogate: Toluene-d8	0.0405		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0421		"	0.0400		105	21-167				

##### LCS (1807137-BS1)

Prepared & Analyzed: 07/12/18

Benzene	0.0994	0.0020	mg/kg	0.100		99.4	70-130				
Toluene	0.103	0.0050	"	0.100		103	70-130				
Ethylbenzene	0.117	0.0050	"	0.100		117	70-130				
m,p-Xylene	0.212	0.010	"	0.200		106	70-130				
o-Xylene	0.102	0.0050	"	0.100		102	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0396		105	23-173				
Surrogate: Toluene-d8	0.0401		"	0.0400		100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167				

##### Matrix Spike (1807137-MS1)

Source: 1807144-02

Prepared: 07/12/18 Analyzed: 07/13/18

Benzene	0.101	0.0020	mg/kg	0.100	ND	101	70-130				
Toluene	0.105	0.0050	"	0.100	ND	105	70-130				
Ethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130				
m,p-Xylene	0.214	0.010	"	0.200	ND	107	70-130				
o-Xylene	0.102	0.0050	"	0.100	ND	102	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0396		105	23-173				
Surrogate: Toluene-d8	0.0404		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	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: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/13/18 06:11

**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 1807137 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1807137-MSD1)</b>	<b>Source: 1807144-02</b>			Prepared: 07/12/18		Analyzed: 07/13/18				
Benzene	0.105	0.0020	mg/kg	0.100	ND	105	70-130	3.78	30	
Toluene	0.109	0.0050	"	0.100	ND	109	70-130	3.63	30	
Ethylbenzene	0.126	0.0050	"	0.100	ND	126	70-130	6.48	30	
m,p-Xylene	0.230	0.010	"	0.200	ND	115	70-130	7.10	30	
o-Xylene	0.110	0.0050	"	0.100	ND	110	70-130	7.31	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0407</i>		<i>"</i>	<i>0.0396</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.6</i>	<i>21-167</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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/13/18 06:11

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

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

**Batch 1807138 - EPA 3550A**

<b>Blank (1807138-BLK1)</b>				Prepared: 07/12/18 Analyzed: 07/13/18						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1807138-BS1)</b>				Prepared: 07/12/18 Analyzed: 07/13/18						
C10-C28 (DRO)	496	50	mg/kg			70-130				
<b>Matrix Spike (1807138-MS1)</b>				Source: 1807144-02 Prepared: 07/12/18 Analyzed: 07/13/18						
C10-C28 (DRO)	459	50	mg/kg		29.5	70-130				
<b>Matrix Spike Dup (1807138-MSD1)</b>				Source: 1807144-02 Prepared: 07/12/18 Analyzed: 07/13/18						
C10-C28 (DRO)	461	50	mg/kg		29.5	70-130	0.579		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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/13/18 06:11

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 15, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 07/13/18 14:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS17@15'	1807161-01	Soil	07/13/18 09:04	07/13/18 14:15
SS18@15'	1807161-02	Soil	07/13/18 09:17	07/13/18 14:15
CS22	1807161-03	Soil	07/13/18 10:30	07/13/18 14:15
CS23	1807161-04	Soil	07/13/18 10:33	07/13/18 14:15
CS24	1807161-05	Soil	07/13/18 10:35	07/13/18 14:15
CS25	1807161-06	Soil	07/13/18 10:40	07/13/18 14:15
CS26	1807161-07	Soil	07/13/18 10:42	07/13/18 14:15
CS27	1807161-08	Soil	07/13/18 10:51	07/13/18 14:15
CS28	1807161-09	Soil	07/13/18 10:57	07/13/18 14:15
CS29	1807161-10	Soil	07/13/18 11:04	07/13/18 14:15
CS30	1807161-11	Soil	07/13/18 11:17	07/13/18 14:15
CS31	1807161-12	Soil	07/13/18 11:19	07/13/18 14:15
CS32	1807161-13	Soil	07/13/18 11:21	07/13/18 14:15
CS33	1807161-14	Soil	07/13/18 11:23	07/13/18 14:15

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.*

1807161.1

# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Client: PDC Energy  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Chris Armbruster

Project Manager: Mark Longhurst  
E-Mail: \_\_\_\_\_  
Project Name: Sitzman LV  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:										Special Instructions					
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)															
SS17@15'	7/13/18	9:04	1			X						GBTXX	GPA DRO/GR													
SS18@15'		9:17	1			X			X			X	X													
CS22		10:30	1			X			X			X	X													
CS23		10:33	1			X			X			X	X													
CS24		10:35	1			X			X			X	X													
CS25		10:40	1			X			X			X	X													
CS26		10:42	1			X			X			X	X													
CS27		10:51	1			X			X			X	X													
CS28		10:57	1			X			X			X	X													
CS29		11:04	1			X			X			X	X													
Relinquished by: <u>[Signature]</u>				Date/Time: <u>7/13/18 1415</u>				Received by: <u>[Signature]</u>				Date/Time: <u>7.13.18 1415</u>				Turn Around Time (Check)										Notes:
Relinquished by:				Date/Time:				Received by:				Date/Time:				Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/>										
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				24 Hours <input type="checkbox"/> Standard <input type="checkbox"/>										
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				48 Hours <input type="checkbox"/>										
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				Sample Integrity:										
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				Temperature Upon Receipt: <u>16.6</u>										
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										



1807161

Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: PDC Energy Client Project ID: Sitzman W

Shipped Via: Hand Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C) 16.6

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 (excluding cooling) <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.

WP  
 Custodian Printed Name or Initials

[Signature]  
 Signature or Initials of Custodian

2/13/18 1418  
 Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/15/18 10:44

SS17@15'  
1807161-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/13/18 09:04

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/13/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/13/18 09:04

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.5 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/13/18 09:04

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807141	07/13/18	07/13/18	EPA 8015M	

Date Sampled: 07/13/18 09:04

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		101 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/15/18 10:44

**SS18@15'**  
**1807161-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 09:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/13/18 09:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.1 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 09:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807141	07/13/18	07/13/18	EPA 8015M	

Date Sampled: **07/13/18 09:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS22**  
**1807161-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	07/14/18	"	
Xylenes (total)	ND	0.010	"	"	"	"	07/14/18	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>8.1</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/13/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		121 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>72</b>	50	mg/kg	1	1807141	07/13/18	07/13/18	EPA 8015M	

Date Sampled: **07/13/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		99.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS23**  
**1807161-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 10:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>15</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/13/18 10:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		140 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 10:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>83</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1807141</b>	<b>07/13/18</b>	<b>07/13/18</b>	<b>EPA 8015M</b>	

Date Sampled: **07/13/18 10:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.3 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS24**  
**1807161-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>21</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/13/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		151 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>73</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1807141</b>	<b>07/13/18</b>	<b>07/13/18</b>	<b>EPA 8015M</b>	

Date Sampled: **07/13/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS25**  
**1807161-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>28</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/13/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		173 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>120</b>	50	mg/kg	1	1807141	07/13/18	07/13/18	EPA 8015M	

Date Sampled: **07/13/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		105 %	30-150		"	"	"	"	

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS26**  
**1807161-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>23</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/13/18 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		151 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>85</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1807141</b>	<b>07/13/18</b>	<b>07/13/18</b>	<b>EPA 8015M</b>	

Date Sampled: **07/13/18 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS27**  
**1807161-08 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 10:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>20</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/13/18 10:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		154 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 10:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>87</b>	50	mg/kg	1	1807141	07/13/18	07/13/18	EPA 8015M	

Date Sampled: **07/13/18 10:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.2 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS28**  
**1807161-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 10:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.5</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/13/18 10:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		119 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 10:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807141	07/13/18	07/13/18	EPA 8015M	

Date Sampled: **07/13/18 10:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/15/18 10:44

**CS29**  
**1807161-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>5.1</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/13/18 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		128 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807141	07/13/18	07/13/18	EPA 8015M	

Date Sampled: **07/13/18 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/15/18 10:44

**CS30**  
**1807161-11 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>4.3</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/13/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		99.4 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.9 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		118 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807141	07/13/18	07/14/18	EPA 8015M	

Date Sampled: **07/13/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		103 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS31**  
**1807161-12 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 11:19**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>14</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/13/18 11:19**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		94.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		147 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 11:19**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>50</b>	50	mg/kg	1	1807141	07/13/18	07/14/18	EPA 8015M	

Date Sampled: **07/13/18 11:19**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.7 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS32**  
**1807161-13 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 11:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>11</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/13/18 11:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		98.9 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.4 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		125 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 11:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807141	07/13/18	07/14/18	EPA 8015M	

Date Sampled: **07/13/18 11:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		100 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

**CS33**  
**1807161-14 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/13/18 11:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807140	07/13/18	07/14/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>6.5</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/13/18 11:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		127 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/13/18 11:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>59</b>	50	mg/kg	1	1807141	07/13/18	07/14/18	EPA 8015M	

Date Sampled: **07/13/18 11:23**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.2 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/15/18 10:44

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

### Summit Scientific

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

#### Batch 1807140 - EPA 5030 Soil MS

##### Blank (1807140-BLK1)

Prepared & Analyzed: 07/13/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0396		96.1	23-173				
Surrogate: Toluene-d8	0.0396		"	0.0400		99.1	20-170				
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.4	21-167				

##### LCS (1807140-BS1)

Prepared & Analyzed: 07/13/18

Benzene	0.0666	0.0020	mg/kg	0.0750		88.8	70-130				
Toluene	0.0700	0.0050	"	0.0750		93.4	70-130				
Ethylbenzene	0.0675	0.0050	"	0.0750		90.0	70-130				
m,p-Xylene	0.130	0.010	"	0.150		87.0	70-130				
o-Xylene	0.0668	0.0050	"	0.0750		89.1	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0366		"	0.0396		92.5	23-173				
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.5	21-167				

##### Matrix Spike (1807140-MS1)

Source: 1807142-01

Prepared & Analyzed: 07/13/18

Benzene	0.0747	0.0020	mg/kg	0.0750	ND	99.6	70-130				
Toluene	0.0773	0.0050	"	0.0750	ND	103	70-130				
Ethylbenzene	0.0756	0.0050	"	0.0750	ND	101	70-130				
m,p-Xylene	0.145	0.010	"	0.150	ND	96.8	70-130				
o-Xylene	0.0760	0.0050	"	0.0750	ND	101	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0368		"	0.0396		93.0	23-173				
Surrogate: Toluene-d8	0.0405		"	0.0400		101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0400		95.2	21-167				

Summit Scientific

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

Project: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/15/18 10:44

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

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

**Batch 1807140 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1807140-MSD1)</b>	<b>Source: 1807142-01</b>			<b>Prepared &amp; Analyzed: 07/13/18</b>						
Benzene	0.0939	0.0020	mg/kg	0.0750	ND	125	70-130	22.7	30	
Toluene	0.0983	0.0050	"	0.0750	ND	131	70-130	23.8	30	QM-07
Ethylbenzene	0.0970	0.0050	"	0.0750	ND	129	70-130	24.8	30	
m,p-Xylene	0.183	0.010	"	0.150	ND	122	70-130	23.0	30	
o-Xylene	0.0964	0.0050	"	0.0750	ND	128	70-130	23.6	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0355</i>		<i>"</i>	<i>0.0396</i>		<i>89.6</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>94.0</i>	<i>21-167</i>			

Summit Scientific

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

Project: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/15/18 10:44

**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 1807141 - EPA 3550A**

<b>Blank (1807141-BLK1)</b>					Prepared: 07/13/18 Analyzed: 07/14/18					
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1807141-BS1)</b>					Prepared: 07/13/18 Analyzed: 07/14/18					
C10-C28 (DRO)	488	50	mg/kg				70-130			
<b>Matrix Spike (1807141-MS1)</b>					Source: 1807142-01 Prepared: 07/13/18 Analyzed: 07/14/18					
C10-C28 (DRO)	469	50	mg/kg		31.6		70-130			
<b>Matrix Spike Dup (1807141-MSD1)</b>					Source: 1807142-01 Prepared: 07/13/18 Analyzed: 07/14/18					
C10-C28 (DRO)	478	50	mg/kg		31.6		70-130	1.95	20	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/15/18 10:44

### Notes and Definitions

- S-02      The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- 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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 18, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 07/17/18 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/18/18 05:49

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS19@15'	1807188-01	Soil	07/17/18 12:30	07/17/18 18:00
SS20@15'	1807188-02	Soil	07/17/18 12:34	07/17/18 18:00
SS21@15'	1807188-03	Soil	07/17/18 12:37	07/17/18 18:00
SS22@15'	1807188-04	Soil	07/17/18 13:13	07/17/18 18:00
SS23@15'	1807188-05	Soil	07/17/18 13:09	07/17/18 18:00
SS24@15'	1807188-06	Soil	07/17/18 13:07	07/17/18 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.*

1807188

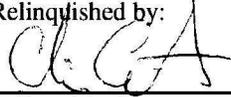
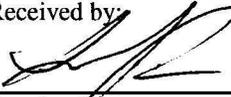
# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
 303-277-9310 ♦ 303-374-5933 Fax

Client: PDC Energy  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Sampler Name: Chris Armbruster

Project Manager: Mark Longhurst  
 E-Mail: Mark.Longhurst@pdce.com  
 Project Name: Sitzman 1U  
 Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:						Special Instructions	
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GBTEXN (8260)	DRO (TPH)	EC	PH	Hold For Analysis			
SS19@15'	7/17/2018	12:30	1			X		X					X	X					
SS20@15'	7/17/2018	12:34	1			X		X					X	X					
SS21@15'	7/17/2018	12:37	1			X		X					X	X					
SS22@15'	7/17/2018	1:13	1			X		X					X	X					
SS23@15'	7/17/2018	1:09	1			X		X					X	X					
SS24@15'	7/17/2018	1:07	1			X		X					X	X					

Relinquished by: 	Date/Time: <u>7/17/18/1500</u>	Received by: 	Date/Time: <u>7.17.18 1800</u>	<b>Turn Around Time (Check)</b> Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input type="checkbox"/>  <b>Sample Integrity:</b> Temperature Upon Receipt: <u>8.5</u> Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes:  <u>on ice</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:		

1807188

Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: PDC Client Project ID: Sitzman

Shipped Via: Pickup Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C)	<u>8.5</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <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"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? 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 <sup>(1)</sup> ? 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):

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

UP  
Custodian Printed Name or Initials

[Signature]  
Signature or Initials of Custodian

7.9.18 (RCJ)  
Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/18/18 05:49

**SS19@15'**  
**1807188-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/17/18 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807177	07/17/18	07/17/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/17/18 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/17/18 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807176	"	07/17/18	EPA 8015M	

Date Sampled: **07/17/18 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/18/18 05:49

**SS20@15'**  
**1807188-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/17/18 12:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807177	07/17/18	07/17/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/17/18 12:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/17/18 12:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807176	"	07/17/18	EPA 8015M	

Date Sampled: **07/17/18 12:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/18/18 05:49

**SS21@15'**  
**1807188-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/17/18 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807177	07/17/18	07/17/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/17/18 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/17/18 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807176	"	07/17/18	EPA 8015M	

Date Sampled: **07/17/18 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/18/18 05:49

**SS22@15'**  
**1807188-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/17/18 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807177	07/17/18	07/17/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/17/18 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/17/18 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807176	"	07/17/18	EPA 8015M	

Date Sampled: **07/17/18 13:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		101 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/18/18 05:49

**SS23@15'**  
**1807188-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/17/18 13:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807177	07/17/18	07/17/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/17/18 13:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/17/18 13:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807176	"	07/17/18	EPA 8015M	

Date Sampled: **07/17/18 13:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		99.7 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/18/18 05:49

**SS24@15'**  
**1807188-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/17/18 13:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807177	07/17/18	07/17/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/17/18 13:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/17/18 13:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807176	"	07/17/18	EPA 8015M	

Date Sampled: **07/17/18 13:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/18/18 05:49

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

#### Summit Scientific

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

#### Batch 1807177 - EPA 5030 Soil MS

##### Blank (1807177-BLK1)

Prepared & Analyzed: 07/17/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0392		"	0.0396		98.9	23-173				
Surrogate: Toluene-d8	0.0384		"	0.0400		96.1	20-170				
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	21-167				

##### LCS (1807177-BS1)

Prepared & Analyzed: 07/17/18

Benzene	0.0798	0.0020	mg/kg	0.100		79.8	70-130				
Toluene	0.0888	0.0050	"	0.100		88.8	70-130				
Ethylbenzene	0.0806	0.0050	"	0.100		80.6	70-130				
m,p-Xylene	0.154	0.010	"	0.200		77.2	70-130				
o-Xylene	0.0717	0.0050	"	0.100		71.7	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0362		"	0.0396		91.3	23-173				
Surrogate: Toluene-d8	0.0465		"	0.0400		116	20-170				
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.8	21-167				

##### Matrix Spike (1807177-MS1)

Source: 1807174-01

Prepared & Analyzed: 07/17/18

Benzene	0.0849	0.0020	mg/kg	0.100	ND	84.9	70-130				
Toluene	0.0928	0.0050	"	0.100	ND	92.8	70-130				
Ethylbenzene	0.0926	0.0050	"	0.100	ND	92.6	70-130				
m,p-Xylene	0.178	0.010	"	0.200	ND	88.8	70-130				
o-Xylene	0.0828	0.0050	"	0.100	ND	82.8	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0395		"	0.0396		99.8	23-173				
Surrogate: Toluene-d8	0.0433		"	0.0400		108	20-170				
Surrogate: 4-Bromofluorobenzene	0.0384		"	0.0400		95.9	21-167				

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/18/18 05:49

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

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

**Batch 1807177 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1807177-MSD1)</b>	<b>Source: 1807174-01</b>			<b>Prepared &amp; Analyzed: 07/17/18</b>						
Benzene	0.0942	0.0020	mg/kg	0.100	ND	94.2	70-130	10.4	30	
Toluene	0.105	0.0050	"	0.100	ND	105	70-130	12.1	30	
Ethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	17.8	30	
m,p-Xylene	0.211	0.010	"	0.200	ND	106	70-130	17.4	30	
o-Xylene	0.0996	0.0050	"	0.100	ND	99.6	70-130	18.4	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0407</i>		<i>"</i>	<i>0.0396</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0401</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>97.1</i>	<i>21-167</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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/18/18 05:49

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

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

**Batch 1807176 - EPA 3550A**

<b>Blank (1807176-BLK1)</b>				Prepared: 07/17/18 Analyzed: 07/18/18						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1807176-BS1)</b>				Prepared: 07/17/18 Analyzed: 07/18/18						
C10-C28 (DRO)	475	50	mg/kg			70-130				
<b>Matrix Spike (1807176-MS1)</b>				<b>Source: 1807174-01</b>		Prepared: 07/17/18 Analyzed: 07/18/18				
C10-C28 (DRO)	474	50	mg/kg		29.2	70-130				
<b>Matrix Spike Dup (1807176-MSD1)</b>				<b>Source: 1807174-01</b>		Prepared: 07/17/18 Analyzed: 07/18/18				
C10-C28 (DRO)	491	50	mg/kg		29.2	70-130	3.51	20		

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/18/18 05:49

### Notes and Definitions

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

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 19, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 07/18/18 14:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/19/18 11:06

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS34	1807221-01	Soil	07/18/18 11:31	07/18/18 14:30
CS35	1807221-02	Soil	07/18/18 11:24	07/18/18 14:30
CS36	1807221-03	Soil	07/18/18 11:17	07/18/18 14:30
CS37	1807221-04	Soil	07/18/18 11:14	07/18/18 14:30

Summit Scientific

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

1807221

# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page  2  of  1

Client:  PDL Energy   
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name:  CHRISA

Project Manager:  Mark Longhurst   
E-Mail: \_\_\_\_\_  
Project Name:  S. tzmen 10   
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:				Special Instructions		
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)						
CS34	7/18/18	1131	/			/						GBTEXN	(PH) DRO-GRO				
CS35	↓	1124	/			/						/	/				
CS36	↓	1117	/			/						/	/				
CS37	↓	1114	/			/						/	/				
Relinquished by: <u> Chris A </u>	Date/Time: <u> 7/18/18 1430 </u>	Received by: <u> [Signature] </u>	Date/Time: <u> 7.18.18 1430 </u>	Turn Around Time (Check)				Notes:									
				Same Day	<input checked="" type="checkbox"/>	72 Hours	<input type="checkbox"/>										
				24 Hours	<input type="checkbox"/>	Standard	<input type="checkbox"/>										
				48 Hours	<input type="checkbox"/>		<input type="checkbox"/>										
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:													
				Temperature Upon Receipt:	<u> 11.9 </u>												
				Intact:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No											

1807221

Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: PDC Energy Client Project ID: Sitzman IV

Shipped Via: Hand Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C) 11.9

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? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
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 <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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.

W  
Custodian Printed Name or Initials

[Signature]  
Signature or Initials of Custodian

7.18.18 1617  
Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/19/18 11:06

**CS34**  
**1807221-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/18/18 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807215	07/18/18	07/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.032</b>	0.010	"	"	"	"	"	"	
<b>Naphthalene</b>	<b>0.014</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>22</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/18/18 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/18 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807216	07/18/18	07/19/18	EPA 8015M	

Date Sampled: **07/18/18 11:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		120 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/19/18 11:06

**CS35**  
**1807221-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/18/18 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807215	07/18/18	07/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>6.2</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/18/18 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/18 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807216	07/18/18	07/19/18	EPA 8015M	

Date Sampled: **07/18/18 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		113 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/19/18 11:06

**CS36**  
**1807221-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/18/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807215	07/18/18	07/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.033</b>	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>20</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/18/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807216	07/18/18	07/19/18	EPA 8015M	

Date Sampled: **07/18/18 11:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/19/18 11:06

**CS37**  
**1807221-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/18/18 11:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807215	07/18/18	07/18/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.055</b>	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>24</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/18/18 11:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/18/18 11:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807216	07/18/18	07/19/18	EPA 8015M	

Date Sampled: **07/18/18 11:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/19/18 11:06

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

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

**Batch 1807215 - EPA 5030 Soil MS**

**Blank (1807215-BLK1)**

Prepared: 07/18/18 Analyzed: 07/19/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0386		"	0.0396		97.5	23-173			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0400		101	21-167			

**LCS (1807215-BS1)**

Prepared: 07/18/18 Analyzed: 07/19/18

Benzene	0.0856	0.0020	mg/kg	0.100		85.6	70-130			
Toluene	0.0892	0.0050	"	0.100		89.2	70-130			
Ethylbenzene	0.0900	0.0050	"	0.100		90.0	70-130			
m,p-Xylene	0.165	0.010	"	0.200		82.7	70-130			
o-Xylene	0.0796	0.0050	"	0.100		79.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0374		"	0.0396		94.3	23-173			
Surrogate: Toluene-d8	0.0432		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	21-167			

**Matrix Spike (1807215-MS1)**

Source: 1807210-01

Prepared: 07/18/18 Analyzed: 07/19/18

Benzene	0.0976	0.0020	mg/kg	0.100	ND	97.6	70-130			
Toluene	0.102	0.0050	"	0.100	ND	102	70-130			
Ethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130			
m,p-Xylene	0.196	0.010	"	0.200	ND	97.8	70-130			
o-Xylene	0.0950	0.0050	"	0.100	ND	95.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0415		"	0.0396		105	23-173			
Surrogate: Toluene-d8	0.0421		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	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: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/19/18 11:06

**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 1807215 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1807215-MSD1)</b>	<b>Source: 1807210-01</b>			Prepared: 07/18/18		Analyzed: 07/19/18				
Benzene	0.0984	0.0020	mg/kg	0.100	ND	98.4	70-130	0.796	30	
Toluene	0.103	0.0050	"	0.100	ND	103	70-130	1.28	30	
Ethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130	5.79	30	
m,p-Xylene	0.209	0.010	"	0.200	ND	104	70-130	6.46	30	
o-Xylene	0.0997	0.0050	"	0.100	ND	99.7	70-130	4.90	30	
Surrogate: 1,2-Dichloroethane-d4	0.0430		"	0.0396		109	23-173			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.6	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: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/19/18 11:06

**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 1807216 - EPA 3580A**

**Blank (1807216-BLK1)**

Prepared: 07/18/18 Analyzed: 07/19/18

C10-C28 (DRO) ND 50 mg/kg

**LCS (1807216-BS1)**

Prepared: 07/18/18 Analyzed: 07/19/18

C10-C28 (DRO) 503 50 mg/kg 70-130

**Matrix Spike (1807216-MS1)**

**Source: 1807210-01**

Prepared: 07/18/18 Analyzed: 07/19/18

C10-C28 (DRO) 507 50 mg/kg 30.7 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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/19/18 11:06

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 22, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 07/20/18 14:27. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/18 13:02

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS38	1807274-01	Soil	07/20/18 10:35	07/20/18 14:27
CS39	1807274-02	Soil	07/20/18 10:41	07/20/18 14:27
CS40	1807274-03	Soil	07/20/18 10:47	07/20/18 14:27
CS41	1807274-04	Soil	07/20/18 10:53	07/20/18 14:27

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.*

1807274

# Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 1

Client: PDC Energy  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Chris A

Project Manager: Mark Longhurst  
E-Mail: \_\_\_\_\_  
Project Name: Sitzman 10  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:						Special Instructions			
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)									
CS38	7/20/18	10:35	1			/		/				GBTEXN								
CS39	↓	10:41	1			/		/				/								
CS40	↓	10:47	1			/		/				/								
CS41	↓	10:53	1			/		/				/								
Relinquished by: <u>Chris A</u>	Date/Time: <u>7/20/18 1906</u>	Received by: <u>[Signature]</u>	Date/Time: <u>7.20.18 1406</u>	Turn Around Time (Check)				Notes:												
				Same Day	<input checked="" type="checkbox"/>	72 Hours	<input type="checkbox"/>													
				24 Hours	<input type="checkbox"/>	Standard	<input type="checkbox"/>													
				48 Hours	<input type="checkbox"/>															
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:																
				Temperature Upon Receipt:	<u>4.8</u>															
				Intact:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No														

1807274

Sample Receipt Checklist

S2 Work Order: \_\_\_\_\_

Client: PCC Client Project ID: Sitzman IV

Shipped Via: Hand Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C)	4.8
-----------	-----

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"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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) <sup>(1)</sup> ? 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 <sup>(1)</sup> ? 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):

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

W  
Custodian Printed Name or Initials

[Signature]  
Signature or Initials of Custodian

7.20.18 1730  
Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/22/18 13:02

**CS38**  
**1807274-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/20/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807262	07/20/18	07/20/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.6</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/20/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		141 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/20/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>74</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1807263</b>	<b>07/20/18</b>	<b>07/20/18</b>	<b>EPA 8015M</b>	

Date Sampled: **07/20/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/22/18 13:02

**CS39**  
**1807274-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/20/18 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807262	07/20/18	07/21/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.0</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/20/18 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		144 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/20/18 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>56</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1807263</b>	<b>07/20/18</b>	<b>07/20/18</b>	<b>EPA 8015M</b>	

Date Sampled: **07/20/18 10:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.4 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/22/18 13:02

**CS40**  
**1807274-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/20/18 10:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807262	07/20/18	07/21/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.7</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/20/18 10:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		152 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/20/18 10:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>140</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1807263</b>	<b>07/20/18</b>	<b>07/21/18</b>	<b>EPA 8015M</b>	

Date Sampled: **07/20/18 10:47**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		101 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/22/18 13:02

**CS41**  
**1807274-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/20/18 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807262	07/20/18	07/21/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.93</b>	0.50	"	"	"	"	"	"	

Date Sampled: **07/20/18 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		135 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/20/18 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>61</b>	50	mg/kg	1	1807263	07/20/18	07/21/18	EPA 8015M	

Date Sampled: **07/20/18 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.2 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/22/18 13:02

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

#### Summit Scientific

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

#### Batch 1807262 - EPA 5030 Soil MS

##### Blank (1807262-BLK1)

Prepared & Analyzed: 07/20/18

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
Naphthalene	ND	0.010	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
Surrogate: 1,2-Dichloroethane-d4	0.0430		"	0.0396		109	23-173				
Surrogate: Toluene-d8	0.0415		"	0.0400		104	20-170				
Surrogate: 4-Bromofluorobenzene	0.0420		"	0.0400		105	21-167				

##### LCS (1807262-BS1)

Prepared & Analyzed: 07/20/18

Benzene	0.0963	0.0020	mg/kg	0.100		96.3	70-130				
Toluene	0.100	0.0050	"	0.100		100	70-130				
Ethylbenzene	0.116	0.0050	"	0.100		116	70-130				
m,p-Xylene	0.200	0.010	"	0.200		100	70-130				
o-Xylene	0.0987	0.0050	"	0.100		98.7	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0426		"	0.0396		108	23-173				
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400		107	21-167				

##### Matrix Spike (1807262-MS1)

Source: 1807273-01

Prepared & Analyzed: 07/20/18

Benzene	0.0968	0.0020	mg/kg	0.100	ND	96.8	70-130				
Toluene	0.0995	0.0050	"	0.100	ND	99.5	70-130				
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130				
m,p-Xylene	0.196	0.010	"	0.200	ND	98.1	70-130				
o-Xylene	0.0994	0.0050	"	0.100	ND	99.4	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0430		"	0.0396		109	23-173				
Surrogate: Toluene-d8	0.0408		"	0.0400		102	20-170				
Surrogate: 4-Bromofluorobenzene	0.0431		"	0.0400		108	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: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

Reported:  
 07/22/18 13:02

**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 1807262 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1807262-MSD1)</b>	<b>Source: 1807273-01</b>			<b>Prepared &amp; Analyzed: 07/20/18</b>						
Benzene	0.0991	0.0020	mg/kg	0.100	ND	99.1	70-130	2.33	30	
Toluene	0.103	0.0050	"	0.100	ND	103	70-130	3.03	30	
Ethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130	1.78	30	
m,p-Xylene	0.201	0.010	"	0.200	ND	100	70-130	2.39	30	
o-Xylene	0.101	0.0050	"	0.100	ND	101	70-130	1.20	30	
Surrogate: 1,2-Dichloroethane-d4	0.0438		"	0.0396		111	23-173			
Surrogate: Toluene-d8	0.0413		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400		107	21-167			

Summit Scientific

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



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

Project: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/22/18 13:02

**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 1807263 - EPA 3550A**

<b>Blank (1807263-BLK1)</b>			Prepared & Analyzed: 07/20/18								
C10-C28 (DRO)	ND	50	mg/kg								
<b>LCS (1807263-BS1)</b>			Prepared & Analyzed: 07/20/18								
C10-C28 (DRO)	472	50	mg/kg				70-130				
<b>Matrix Spike (1807263-MS1)</b>			<b>Source: 1807273-01</b>		Prepared & Analyzed: 07/20/18						
C10-C28 (DRO)	498	50	mg/kg		35.2		70-130				
<b>Matrix Spike Dup (1807263-MSD1)</b>			<b>Source: 1807273-01</b>		Prepared & Analyzed: 07/20/18						
C10-C28 (DRO)	528	50	mg/kg		35.2		70-130	5.80		20	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/18 13:02

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 24, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Sitzman 1U

Enclosed are the results of analyses for samples received by Summit Scientific on 07/23/18 15:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
Laboratory Manager



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/24/18 06:01

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS42	1807284-01	Soil	07/23/18 10:15	07/23/18 15:35
CS43	1807284-02	Soil	07/23/18 10:17	07/23/18 15:35
CS44	1807284-03	Soil	07/23/18 10:27	07/23/18 15:35
GW01	1807284-04	Water	07/23/18 14:40	07/23/18 15:35

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

741 Corporate Circle Suite I ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

BO284

Page 1 of 1

Client: PDC Energy  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Chris A

Project Manager: Mark Longhurst  
E-Mail: \_\_\_\_\_  
Project Name: Sitzman 10  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:				Special Instructions		
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GREXN	PPH ProGeo	BTEX			
CS 42	7/23	10:15	1			/						/	/				
CS 43		10:17	1			/						/	/				
CS 44		10:27	1			/						/	/				
GWol		2:40	3			/								/			
Relinquished by: <u>[Signature]</u> Date/Time: <u>7/23/19 1535</u>				Received by: <u>[Signature]</u> Date/Time: <u>723.18 1535</u>				Turn Around Time (Check)				Notes:					
Relinquished by: _____ Date/Time: _____				Received by: _____ Date/Time: _____				Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/>				24 Hours <input type="checkbox"/> Standard <input type="checkbox"/>				on ice	
Relinquished by: _____ Date/Time: _____				Received in Lab by: _____ Date/Time: _____				48 Hours <input type="checkbox"/>				Sample Integrity: Temperature Upon Receipt: <u>3.9</u>					
								Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									

**Sample Receipt Checklist**

S2 Work Order: 1807284

Client: POC Energy Client Project ID: Sitman 10

Shipped Via: Hand Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C)	3.9
-----------	-----

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> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<small>NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.</small>				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<small>Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect</small>				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<small>Record the pH in Comments.</small>				
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<u>Additional Comments (if any):</u>   				

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

UP  
Custodian Printed Name or Initials

[Signature]  
Signature or Initials of Custodian

7.23.18 1648  
Date/Time



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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/24/18 06:01

**CS42**  
**1807284-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/23/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807281	07/23/18	07/23/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.6</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/23/18 10:15**

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

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/23/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>60</b>	50	mg/kg	1	1807282	07/23/18	07/23/18	EPA 8015M	

Date Sampled: **07/23/18 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		98.4 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/24/18 06:01

**CS43**  
**1807284-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/23/18 10:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807281	07/23/18	07/23/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>25</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/23/18 10:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		128 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/23/18 10:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>53</b>	<b>50</b>	<b>mg/kg</b>	<b>1</b>	<b>1807282</b>	<b>07/23/18</b>	<b>07/23/18</b>	<b>EPA 8015M</b>	

Date Sampled: **07/23/18 10:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/24/18 06:01

**CS44**  
**1807284-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **07/23/18 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1807281	07/23/18	07/23/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>11</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **07/23/18 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		125 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **07/23/18 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1807282	07/23/18	07/23/18	EPA 8015M	

Date Sampled: **07/23/18 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/24/18 06:01

**GW01**  
**1807284-04 (Water)**

**Summit Scientific**

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

Date Sampled: **07/23/18 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1807283	07/23/18	07/24/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **07/23/18 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/24/18 06:01

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

#### Summit Scientific

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

#### Batch 1807281 - EPA 5030 Soil MS

##### Blank (1807281-BLK1)

Prepared & Analyzed: 07/23/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0403		"	0.0396		102	23-173			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0413		"	0.0400		103	21-167			

##### LCS (1807281-BS1)

Prepared & Analyzed: 07/23/18

Benzene	0.0968	0.0020	mg/kg	0.100		96.8	70-130			
Toluene	0.100	0.0050	"	0.100		100	70-130			
Ethylbenzene	0.115	0.0050	"	0.100		115	70-130			
m,p-Xylene	0.201	0.010	"	0.200		100	70-130			
o-Xylene	0.0998	0.0050	"	0.100		99.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0399		"	0.0396		101	23-173			
Surrogate: Toluene-d8	0.0417		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0419		"	0.0400		105	21-167			

##### Matrix Spike (1807281-MS1)

Source: 1807285-01

Prepared & Analyzed: 07/23/18

Benzene	0.0973	0.0020	mg/kg	0.100	ND	97.3	70-130			
Toluene	0.101	0.0050	"	0.100	ND	101	70-130			
Ethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130			
m,p-Xylene	0.204	0.010	"	0.200	ND	102	70-130			
o-Xylene	0.101	0.0050	"	0.100	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0396		105	23-173			
Surrogate: Toluene-d8	0.0412		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0428		"	0.0400		107	21-167			

Summit Scientific

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

Project: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/24/18 06:01

**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 1807281 - EPA 5030 Soil MS**

Matrix Spike Dup (1807281-MSD1)	Source: 1807285-01			Prepared & Analyzed: 07/23/18						
Benzene	0.0977	0.0020	mg/kg	0.100	ND	97.7	70-130	0.492	30	
Toluene	0.101	0.0050	"	0.100	ND	101	70-130	0.327	30	
Ethylbenzene	0.120	0.0050	"	0.100	ND	120	70-130	1.56	30	
m,p-Xylene	0.206	0.010	"	0.200	ND	103	70-130	0.571	30	
o-Xylene	0.103	0.0050	"	0.100	ND	103	70-130	2.00	30	
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0396		106	23-173			
Surrogate: Toluene-d8	0.0410		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0425		"	0.0400		106	21-167			

**Batch 1807283 - EPA 5030 Water MS**

Blank (1807283-BLK1)	Prepared: 07/23/18 Analyzed: 07/24/18									
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.8		"	13.2		96.7	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		101	20-170			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	21-167			
LCS (1807283-BS1)	Prepared: 07/23/18 Analyzed: 07/24/18									
Benzene	33.0	1.0	ug/l	33.3		99.1	70-130			
Toluene	32.7	1.0	"	33.3		98.1	70-130			
Ethylbenzene	37.6	1.0	"	33.3		113	70-130			
m,p-Xylene	65.2	2.0	"	66.7		97.8	70-130			
o-Xylene	32.9	1.0	"	33.3		98.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.0		"	13.2		98.1	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		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: Sitzman 1U

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
07/24/18 06:01

**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 1807283 - EPA 5030 Water MS**

<b>Matrix Spike (1807283-MS1)</b>	<b>Source: 1807284-04</b>			Prepared: 07/23/18		Analyzed: 07/24/18	
Benzene	33.1	1.0	ug/l	33.3	ND	99.3	70-130
Toluene	32.4	1.0	"	33.3	ND	97.1	70-130
Ethylbenzene	39.0	1.0	"	33.3	ND	117	70-130
m,p-Xylene	66.4	2.0	"	66.7	ND	99.7	70-130
o-Xylene	33.4	1.0	"	33.3	ND	100	70-130
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>12.8</i>		<i>"</i>	<i>13.2</i>		<i>97.0</i>	<i>23-173</i>
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>20-170</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.3</i>		<i>"</i>	<i>13.3</i>		<i>107</i>	<i>21-167</i>

<b>Matrix Spike Dup (1807283-MSD1)</b>	<b>Source: 1807284-04</b>			Prepared: 07/23/18		Analyzed: 07/24/18			
Benzene	33.7	1.0	ug/l	33.3	ND	101	70-130	1.88	30
Toluene	32.9	1.0	"	33.3	ND	98.6	70-130	1.53	30
Ethylbenzene	38.2	1.0	"	33.3	ND	115	70-130	2.02	30
m,p-Xylene	65.3	2.0	"	66.7	ND	97.9	70-130	1.78	30
o-Xylene	32.9	1.0	"	33.3	ND	98.7	70-130	1.54	30
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.9</i>		<i>"</i>	<i>13.2</i>		<i>105</i>	<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.2</i>		<i>"</i>	<i>13.3</i>		<i>106</i>	<i>21-167</i>		

Summit Scientific

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

Project: Sitzman 1U  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 07/24/18 06:01

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

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

**Batch 1807282 - EPA 3550A**

<b>Blank (1807282-BLK1)</b>				Prepared & Analyzed: 07/23/18						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1807282-BS1)</b>				Prepared & Analyzed: 07/23/18						
C10-C28 (DRO)	408	50	mg/kg			70-130				
<b>Matrix Spike (1807282-MS1)</b>				<b>Source: 1807285-01</b>		Prepared & Analyzed: 07/23/18				
C10-C28 (DRO)	493	50	mg/kg		29.5	70-130				
<b>Matrix Spike Dup (1807282-MSD1)</b>				<b>Source: 1807285-01</b>		Prepared & Analyzed: 07/23/18				
C10-C28 (DRO)	507	50	mg/kg		29.5	70-130	2.67		20	

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### 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