

**PDC Energy, Inc.**  
First Quarter 2018 Groundwater Monitoring Summary

April 12, 2018

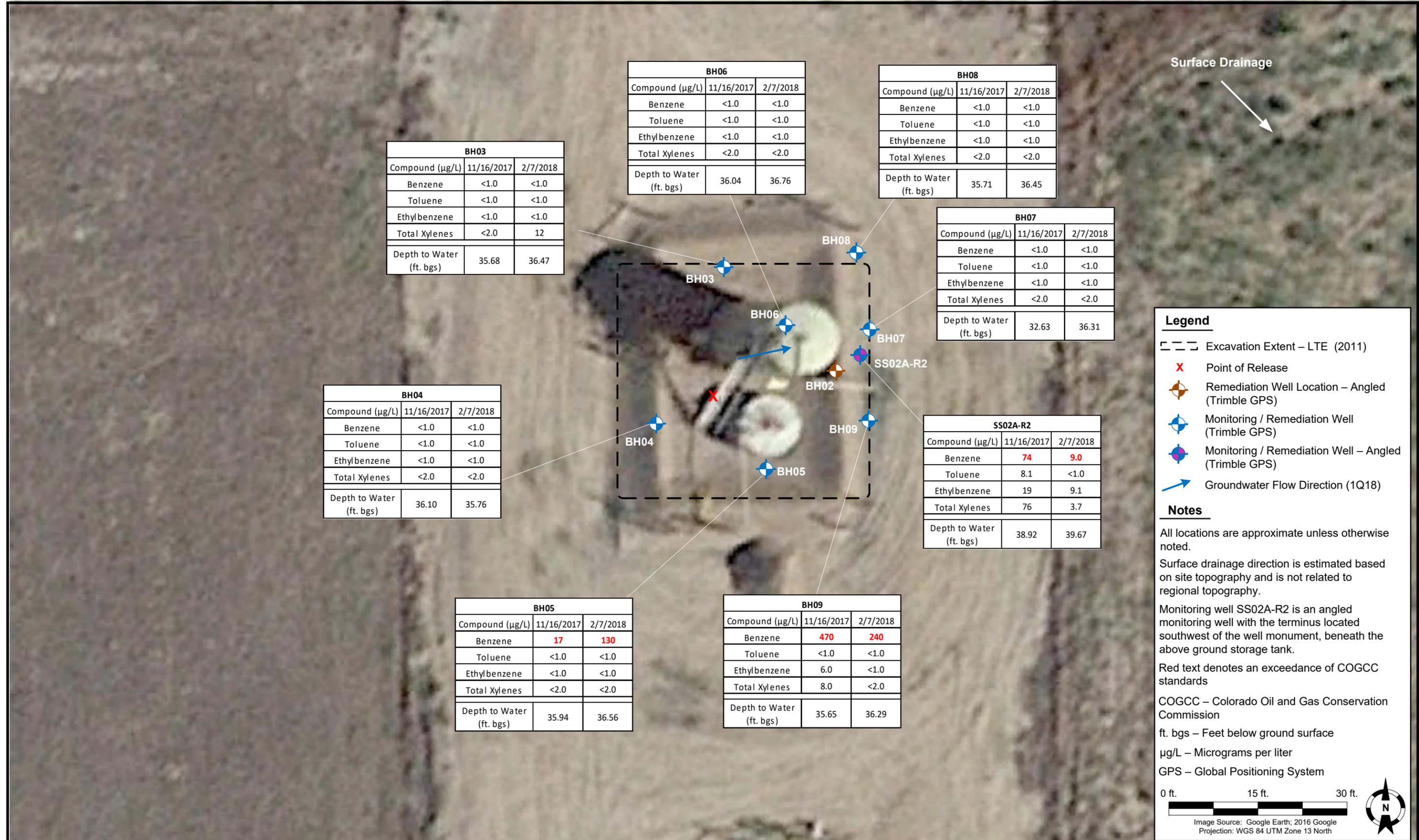
Barrell 41-4 Tank Battery  
NENE Section 4 T6N R64W  
Spill Point ID # 2213128  
Remediation # 7846

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the Barrell 41-4 tank battery. On February 7, 2018, groundwater monitoring was conducted at all eight monitoring well locations (BH03 – BH09, SS02A-R2). Eight groundwater samples were submitted to Summit Scientific Laboratory for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8260B. Analytical results are summarized in Table 1 and the laboratory report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. First quarter 2018 analytical results indicate that benzene concentrations are above applicable COGCC Table 910-1 groundwater standard in monitoring wells BH05, BH09, and SS02A-R2. BTEX concentrations are below applicable regulatory standards in five sample locations.

A solar SVE system was installed at the site during first quarter 2013. The SVE system was operational for six months before being decommissioned during the third quarter 2013. During the solar SCE period of operation, approximately 1.82 pounds of hydrocarbon mass was removed from the subsurface. Enhanced fluid recovery (EFR) which extracted soil vapor only was conducted between May 2014 and March 2015. A summary of EFR/AS operation data is provided in Table 2.

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the fourth quarter 2017 and will remain as the selected remediation strategy through the second quarter 2018, while additional remediation strategies are being evaluated.

Second quarter 2018 groundwater sampling will be conducted during May 2018. Plans to install point of compliance wells per the COGCC February 8, 2018 Condition of Approval (COA) are in progress and will be completed following source mass removal activities. An updated figure will be included in the second quarter 2018 groundwater monitoring report.



DATE: February 26, 2018

DESIGNED BY: C. Hamlin

DRAWN BY: C. Armbruster



**Tasman Geosciences, Inc.**  
6899 Pecos Street – Unit C  
Denver, CO 80221

**PDC Energy, Inc. – DJ Basin**  
**Barrell 41-4 Tank Battery**  
NENE, Section 4, Township 6 North, Range 64 West  
Weld County, Colorado

**GROUNDWATER**  
**ANALYTICAL RESULTS**  
**MAP**

**FIGURE**  
**1**

**TABLE 1**  
**BARRELL 41-4 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 <sup>(2)</sup> (feet)
<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>	
SS02A-R2 <sup>(3)</sup>	9/22/2017	<b>120</b>	150	120	1,200	39.08
SS02A-R2 <sup>(3)</sup>	11/16/2017	<b>74</b>	8.1	19	76	38.92
SS02A-R2 <sup>(3)</sup>	2/7/2018	<b>9.0</b>	<1.0	9.1	3.7	39.67
BH03	10/16/2017	<1.0	<1.0	<1.0	<2.0	35.74
BH03	11/16/2017	<1.0	<1.0	<1.0	<2.0	35.68
BH03	2/7/2018	<1.0	<1.0	<1.0	12	36.47
BH04	10/16/2017	<1.0	1.7	<1.0	<2.0	36.21
BH04	11/16/2017	<1.0	<1.0	<1.0	<2.0	36.10
BH04	2/7/2018	<1.0	<1.0	<1.0	<2.0	35.76
BH05	10/16/2017	<1.0	<1.0	<1.0	<2.0	36.07
BH05	11/16/2017	<b>17</b>	<1.0	<1.0	<2.0	35.94
BH05	2/7/2018	<b>130</b>	<1.0	<1.0	<2.0	36.56
BH06	10/16/2017	<1.0	<1.0	<1.0	<2.0	36.14
BH06	11/16/2017	<1.0	<1.0	<1.0	<2.0	36.04
BH06	2/7/2018	<1.0	<1.0	<1.0	<2.0	36.76
BH07	11/16/2017	<1.0	<1.0	<1.0	<2.0	32.63
BH07	2/7/2018	<1.0	<1.0	<1.0	<2.0	36.31
BH08	11/16/2017	<1.0	<1.0	<1.0	<2.0	35.71
BH08	2/7/2018	<1.0	<1.0	<1.0	<2.0	36.45
BH09	11/16/2017	<b>470</b>	<1.0	6.0	8.0	35.65
BH09	2/7/2018	<b>240</b>	<1.0	<1.0	<2.0	36.29

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective January 30, 2015.
2. Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data and product thickness to reflect depth of water from ground surface.
3. Monitoring well SS02A-R2 was drilled as an angled remediation well. Depth to water does not represent correct groundwater elevation.

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

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

TABLE 2  
 BARRELL 41-45 TANK BATTERY  
 EFR / AS OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)	Average Air Flow Rate (cfm)
<b>Second Quarter 2014</b>						
5/15/2014	BH02	6	0	N/A	N/A	N/A
5/29/2014	BH02	6	0		N/A	N/A
6/12/2014	BH02	6	0		N/A	N/A
<b>Quarterly Totals</b>		<b>18</b>	<b>0</b>		-	-
<b>Third Quarter 2014</b>						
9/3/2014	BH02	6	0	N/A	N/A	N/A
<b>Quarterly Totals</b>		<b>6</b>	<b>0</b>		-	-
<b>Fourth Quarter 2014</b>						
12/17/2014	BH02	6	0	N/A	N/A	N/A
<b>Quarterly Totals</b>		<b>6</b>	<b>0</b>		-	-
<b>First Quarter 2015</b>						
1/29/2015	BH02	6	0	N/A	N/A	N/A
1/30/2015		6	0		N/A	N/A
2/3/2015		6	0		N/A	N/A
2/10/2015		6	0		N/A	N/A
2/17/2015		6	0		N/A	N/A
3/5/2015	BH01	6	0		N/A	N/A
<b>Quarterly Totals</b>		<b>36</b>	<b>0</b>		-	-

**Notes:**

EFR = Enhanced fluid recovery

AS = Air sparge

psi = Pounds per square inch

cfm = Cubic feet per minute

## **ATTACHMENT A**

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 14, 2018

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Barrell 41-4

Enclosed are the results of analyses for samples received by Summit Scientific on 02/07/18 15:11. 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: Barrell 41-4

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
02/14/18 14:36

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS02A-R2	1802049-01	Water	02/07/18 10:40	02/07/18 15:11
BH03	1802049-02	Water	02/07/18 10:20	02/07/18 15:11
BH04	1802049-03	Water	02/07/18 10:30	02/07/18 15:11
BH05	1802049-04	Water	02/07/18 10:35	02/07/18 15:11
BH06	1802049-05	Water	02/07/18 10:20	02/07/18 15:11
BH07	1802049-06	Water	02/07/18 11:00	02/07/18 15:11
BH08	1802049-07	Water	02/07/18 10:50	02/07/18 15:11
BH09	1802049-08	Water	02/07/18 10:55	02/07/18 15:11

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**

1802049

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

Client: PDC / Tasman Client Project ID: Barrell 41-4

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

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

Cooler ID					
Temp (°C)	2.7				

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.	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 short holding time analytes or samples with HTs 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.

Murip.  
Custodian Printed Name

PA 2-7-19  
Signature or Initials of Custodian

19:00  
Date/Time



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

Project: Barrell 41-4  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**SS02A-R2**  
**1802049-01 (Water)**

**Summit Scientific**

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

Date Sampled: **02/07/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>9.0</b>	1.0	ug/l	1	1802091	02/10/18	02/10/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>9.1</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>3.7</b>	2.0	"	"	"	"	"	"	

Date Sampled: **02/07/18 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		101 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	45-146		"	"	"	"	

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

Project: Barrell 41-4

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**BH03**  
**1802049-02 (Water)**

**Summit Scientific**

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

Date Sampled: **02/07/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1802091	02/10/18	02/10/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>12</b>	<b>2.0</b>	"	"	"	"	"	"	

Date Sampled: **02/07/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>114 %</i>	<i>37-154</i>		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>100 %</i>	<i>45-149</i>		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>106 %</i>	<i>45-146</i>		"	"	"	"	

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

Project: Barrell 41-4  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**BH04**  
**1802049-03 (Water)**

**Summit Scientific**

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

Date Sampled: **02/07/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1802091	02/11/18	02/11/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **02/07/18 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	45-146		"	"	"	"	

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

Project: Barrell 41-4  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**BH05**  
**1802049-04 (Water)**

**Summit Scientific**

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

Date Sampled: **02/07/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>130</b>	1.0	ug/l	1	1802091	02/11/18	02/11/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **02/07/18 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.6 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	45-146		"	"	"	"	

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

Project: Barrell 41-4  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**BH06**  
**1802049-05 (Water)**

**Summit Scientific**

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

Date Sampled: **02/07/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1802091	02/11/18	02/11/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **02/07/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.3 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	45-146		"	"	"	"	

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

Project: Barrell 41-4  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**BH07**  
**1802049-06 (Water)**

**Summit Scientific**

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

Date Sampled: **02/07/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1802091	02/11/18	02/11/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **02/07/18 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	45-146		"	"	"	"	

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

Project: Barrell 41-4  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**BH08**  
**1802049-07 (Water)**

**Summit Scientific**

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

Date Sampled: **02/07/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1802091	02/11/18	02/11/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **02/07/18 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Barrell 41-4  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**BH09**  
**1802049-08 (Water)**

**Summit Scientific**

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

Date Sampled: **02/07/18 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>240</b>	1.0	ug/l	1	1802091	02/11/18	02/11/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **02/07/18 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		115 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.0 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Barrell 41-4  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
02/14/18 14:36

**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 1802091 - EPA 5030 Water MS**

**Blank (1802091-BLK1)**

Prepared & Analyzed: 02/10/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.9</i>		<i>"</i>	<i>13.3</i>		<i>104</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.1</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>100</i>	<i>45-146</i>			

**LCS (1802091-BS1)**

Prepared & Analyzed: 02/10/18

Benzene	35.7	1.0	ug/l	33.3		107	51-132			
Toluene	36.7	1.0	"	33.3		110	51-138			
Ethylbenzene	40.3	1.0	"	33.1		122	58-146			
m,p-Xylene	78.6	2.0	"	66.5		118	57-144			
o-Xylene	38.7	1.0	"	32.7		118	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.3</i>		<i>"</i>	<i>13.3</i>		<i>107</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.6</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.7</i>		<i>"</i>	<i>13.3</i>		<i>103</i>	<i>45-146</i>			

**Matrix Spike (1802091-MS1)**

Source: 1802049-02

Prepared & Analyzed: 02/10/18

Benzene	36.6	1.0	ug/l	33.3	ND	110	34-141			
Toluene	37.3	1.0	"	33.3	ND	112	27-151			
Ethylbenzene	41.7	1.0	"	33.1	ND	126	29-160			
m,p-Xylene	80.7	2.0	"	66.5	3.52	116	20-166			
o-Xylene	40.0	1.0	"	32.7	ND	122	33-159			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.6</i>		<i>"</i>	<i>13.3</i>		<i>109</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>99.8</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.5</i>	<i>45-146</i>			

Summit Scientific

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

Project: Barrell 41-4  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 02/14/18 14:36

**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 1802091 - EPA 5030 Water MS**

<b>Matrix Spike Dup (1802091-MSD1)</b>	<b>Source: 1802049-02</b>			<b>Prepared &amp; Analyzed: 02/10/18</b>						
Benzene	37.4	1.0	ug/l	33.3	ND	112	34-141	2.24	32	
Toluene	38.1	1.0	"	33.3	ND	114	27-151	2.20	25	
Ethylbenzene	43.5	1.0	"	33.1	ND	132	29-160	4.39	50	
m,p-Xylene	83.4	2.0	"	66.5	3.52	120	20-166	3.39	36	
o-Xylene	41.3	1.0	"	32.7	ND	126	33-159	3.25	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.9</i>		<i>"</i>	<i>13.3</i>		<i>112</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.6</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>45-146</i>			

Summit Scientific

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02/14/18 14:36

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference