

**TABLE 1**  
**STATE 5519 8-34, 43, 33-8, 8A 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 @ 6"	1/8/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS02 @ 1'	1/8/2018	1	<0.0020	<0.0050	0.0055	0.072	0.034	63.5
SS03 @ 6"	1/8/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS04 @ 6"	1/8/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	0.062	253.8
SS05 @ 6"	1/8/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	0.015	130.70
SS06 @ 6"	1/8/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	0.023	141.1
SS07 @ 6"	1/8/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	0.58

**Notes:**

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective January 30, 2015.

2. TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

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

**BOLD** = Analytical result is in exceedance of COGCC soil 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

January 09, 2018

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: State 5519 8-34, 43, 33-8, 8A

Enclosed are the results of analyses for samples received by Summit Scientific on 01/08/18 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury

President



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

Project: State 5519 8-34, 43, 33-8, 8A

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@6"	1801069-01	Soil	01/08/18 10:00	01/08/18 16:00
SS02@1'	1801069-02	Soil	01/08/18 10:44	01/08/18 16:00
SS03@6"	1801069-03	Soil	01/08/18 10:08	01/08/18 16:00
SS04@6"	1801069-04	Soil	01/08/18 10:12	01/08/18 16:00
SS05@6"	1801069-05	Soil	01/08/18 10:16	01/08/18 16:00
SS06@6"	1801069-06	Soil	01/08/18 10:20	01/08/18 16:00
SS07@6"	1801069-07	Soil	01/08/18 11:16	01/08/18 16:00

Summit Scientific

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

Project: State 5519 8-34, 43, 33-8, 8A

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
01/09/18 06:34

### Sample Receipt Checklist

S2 Work Order: 1801069

Client: PDC

Client Project ID: State 5519 8-34, 43, 33-8, 8A

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

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

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

Cooler ID					
Temp (°C)	<u>2.9</u>				

Thermometer ID: T006

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is waived 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 short holding time analytes or samples with HTs due within 48 hours present?	<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"/>			
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, etc.				
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 P.  
Custodian Printed Name

MA 1-8-18  
Signature or Initials of Custodian

17:00  
Date/Time



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

Project: State 5519 8-34, 43, 33-8, 8A

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

**SS01@6"**  
**1801069-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/08/18 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1801076	01/08/18	01/08/18	8015M	

Date Sampled: **01/08/18 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		115 %	30-150		"	"	"	"	

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

Date Sampled: **01/08/18 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1801075	01/08/18	01/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/08/18 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		90.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

Summit Scientific

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

Project: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

**SS02@1'**  
**1801069-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/08/18 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>55</b>	50	mg/kg	1	1801076	01/08/18	01/08/18	8015M	

Date Sampled: **01/08/18 10:44**

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

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

Date Sampled: **01/08/18 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.034</b>	0.010	mg/kg	1	1801075	01/08/18	01/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.0055</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.072</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>8.5</b>	0.50	"	"	"	"	"	"	

Date Sampled: **01/08/18 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		89.2 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.5 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

**SS03@6"**  
**1801069-03 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/08/18 10:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1801076	01/08/18	01/08/18	8015M	

Date Sampled: **01/08/18 10:08**

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

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

Date Sampled: **01/08/18 10:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1801075	01/08/18	01/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/08/18 10:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		89.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

**SS04@6"**  
**1801069-04 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/08/18 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>250</b>	50	mg/kg	1	1801076	01/08/18	01/08/18	8015M	

Date Sampled: **01/08/18 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		128 %	30-150		"	"	"	"	

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

Date Sampled: **01/08/18 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.062</b>	0.010	mg/kg	1	1801075	01/08/18	01/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.8</b>	0.50	"	"	"	"	"	"	

Date Sampled: **01/08/18 10:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		89.7 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.9 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.8 %	21-167		"	"	"	"	

Summit Scientific

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

Project: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

**SS05@6"**  
**1801069-05 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/08/18 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>130</b>	50	mg/kg	1	1801076	01/08/18	01/09/18	8015M	

Date Sampled: **01/08/18 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		113 %	30-150		"	"	"	"	

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

Date Sampled: **01/08/18 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.015</b>	0.010	mg/kg	1	1801075	01/08/18	01/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.70</b>	0.50	"	"	"	"	"	"	

Date Sampled: **01/08/18 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		92.4 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %	21-167		"	"	"	"	

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

Project: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

**SS06@6"**  
**1801069-06 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/08/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>140</b>	50	mg/kg	1	1801076	01/08/18	01/09/18	8015M	

Date Sampled: **01/08/18 10:20**

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

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

Date Sampled: **01/08/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.023</b>	0.010	mg/kg	1	1801075	01/08/18	01/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.1</b>	0.50	"	"	"	"	"	"	

Date Sampled: **01/08/18 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		93.4 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		100 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %	21-167		"	"	"	"	

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

Project: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

**SS07@6"**  
**1801069-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/08/18 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1801076	01/08/18	01/09/18	8015M	

Date Sampled: **01/08/18 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	30-150		"	"	"	"	

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

Date Sampled: **01/08/18 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1801075	01/08/18	01/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.58</b>	0.50	"	"	"	"	"	"	

Date Sampled: **01/08/18 11:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		88.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	21-167		"	"	"	"	

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

Project: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

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

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

**Batch 1801076 - EPA 3550A**

**Blank (1801076-BLK1)**

Prepared & Analyzed: 01/08/18

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 12.9 " 12.5 104 30-150

**LCS (1801076-BS1)**

Prepared & Analyzed: 01/08/18

C10-C28 (DRO) 548 50 mg/kg 499 110 73-134

Surrogate: o-Terphenyl 17.6 " 12.5 141 30-150

**Matrix Spike (1801076-MS1)**

Source: 1801069-01

Prepared & Analyzed: 01/08/18

C10-C28 (DRO) 583 50 mg/kg 499 11.1 115 50-148

Surrogate: o-Terphenyl 18.5 " 12.5 148 30-150

**Matrix Spike Dup (1801076-MSD1)**

Source: 1801069-01

Prepared & Analyzed: 01/08/18

C10-C28 (DRO) 562 50 mg/kg 499 11.1 110 50-148 3.72 20

Surrogate: o-Terphenyl 17.4 " 12.5 139 30-150

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

Project: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

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

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

**Batch 1801075 - EPA 5030 Soil MS**

**Blank (1801075-BLK1)**

Prepared & Analyzed: 01/08/18

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0338		"	0.0400		84.5	23-173			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.3	21-167			

**LCS (1801075-BS1)**

Prepared & Analyzed: 01/08/18

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0935	0.0020	"	0.100		93.5	58-130			
Toluene	0.0960	0.0050	"	0.100		96.0	61-134			
Ethylbenzene	0.0981	0.0050	"	0.0992		98.9	74-139			
m,p-Xylene	0.185	0.010	"	0.200		92.8	73-137			
o-Xylene	0.0926	0.0050	"	0.0980		94.5	73-141			
Xylenes (total)	0.278	0.010	"				0-200			
Gasoline Range Hydrocarbons	2.51	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0328		"	0.0400		82.0	23-173			
Surrogate: Toluene-d8	0.0438		"	0.0400		110	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	21-167			

**Matrix Spike (1801075-MS1)**

Source: 1801069-01

Prepared & Analyzed: 01/08/18

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0972	0.0020	"	0.100	ND	97.2	30-131			
Toluene	0.100	0.0050	"	0.100	ND	100	30-134			
Ethylbenzene	0.106	0.0050	"	0.0992	ND	107	22-153			
m,p-Xylene	0.202	0.010	"	0.200	ND	101	10-159			
o-Xylene	0.0993	0.0050	"	0.0980	ND	101	31-151			
Xylenes (total)	0.301	0.010	"		ND		30-160			
Gasoline Range Hydrocarbons	2.73	0.50	"		ND		30-160			
Surrogate: 1,2-Dichloroethane-d4	0.0354		"	0.0400		88.6	23-173			
Surrogate: Toluene-d8	0.0423		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.5	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: State 5519 8-34, 43, 33-8, 8A  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
01/09/18 06:34

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

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

**Batch 1801075 - EPA 5030 Soil MS**

Matrix Spike Dup (1801075-MSD1)	Source: 1801069-01			Prepared & Analyzed: 01/08/18						
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.106	0.0020	"	0.100	ND	106	30-131	9.02	34	
Toluene	0.110	0.0050	"	0.100	ND	110	30-134	9.08	30	
Ethylbenzene	0.119	0.0050	"	0.0992	ND	120	22-153	11.6	24	
m,p-Xylene	0.227	0.010	"	0.200	ND	114	10-159	12.0	68	
o-Xylene	0.112	0.0050	"	0.0980	ND	114	31-151	11.9	38	
Xylenes (total)	0.339	0.010	"		ND		30-160	11.9	30	
Gasoline Range Hydrocarbons	2.96	0.50	"		ND		30-160	8.05	30	
Surrogate: 1,2-Dichloroethane-d4	0.0362		"	0.0400		90.5	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.7	21-167			

Summit Scientific

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

Project: State 5519 8-34, 43, 33-8, 8A

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
01/09/18 06:34

### 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