

## Figure 1

Site Location Map  
Virginia 1-22  
SESW S22 T5N R65W  
Weld County, Colorado

Drawn By: DBA  
Date: 02/28/2014



DRAWN BY: ESS

DATE: 1/13/2014

**Facility Diagram**  
 PDC Energy – DJ Basin  
 Virginia 1-22  
 SESW S22 T5N R65W  
 Weld County, CO

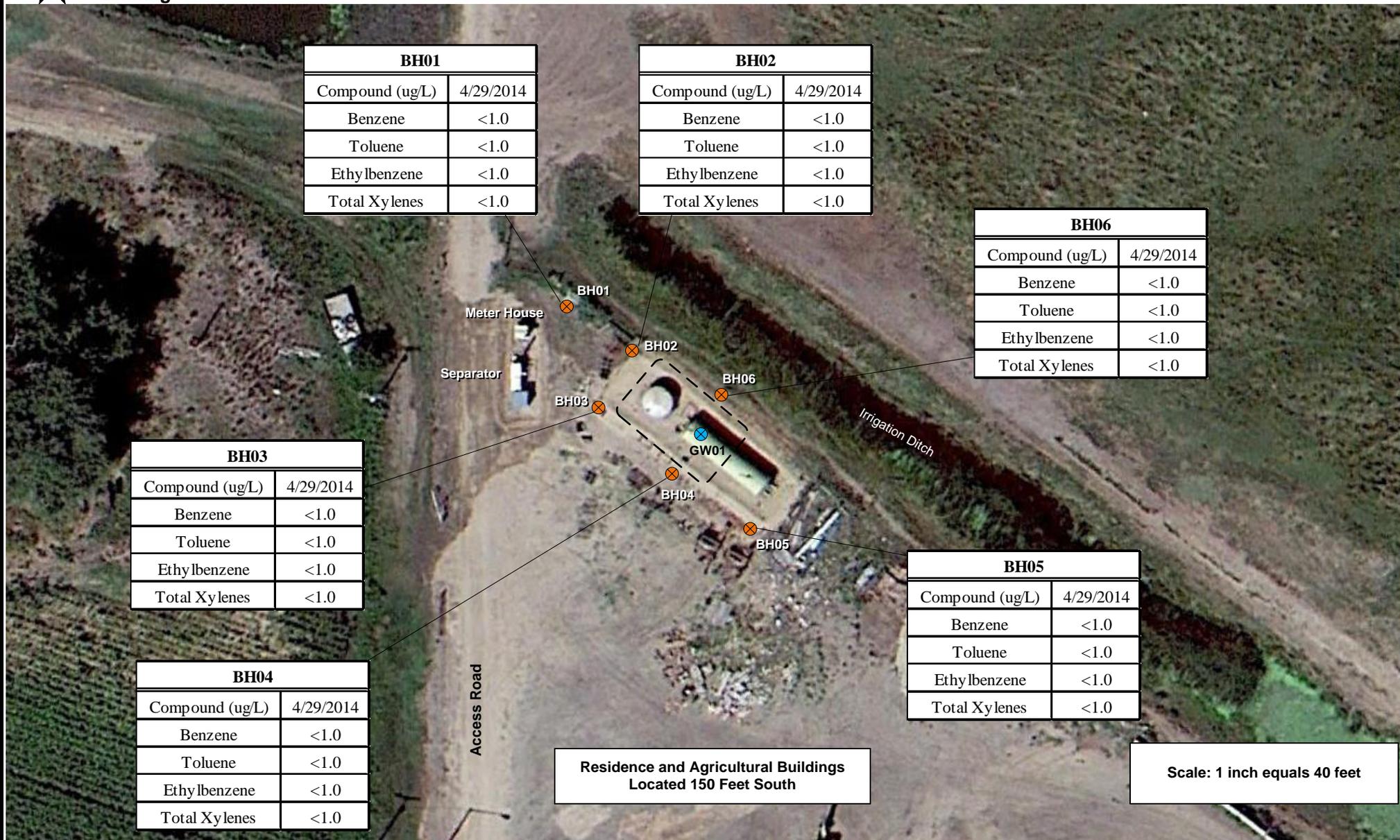


6899 Pecos Street  
 Unit C  
 Denver, CO 80221

**LEGEND**

-  Approximate Area of Excavation
-  Soil Sample Location
-  Groundwater Sample Location
-  SS01 Soil Sample Location Subsequently Excavated

**FIGURE 2**  
**EXCAVATION**  
**SITE MAP**



DRAWN BY: ESS

DATE: 5/7/2014

**Facility Diagram**  
 PDC Energy – DJ Basin  
 Virginia 1-22  
 SESW S22 T5N R65W  
 Weld County, CO



6899 Pecos Street  
 Unit C  
 Denver, CO 80221

LEGEND

- Approximate Area of Excavation
- ⊗ Groundwater Sample Location
- ⊗ Temporary Monitoring Well

FIGURE 3  
 GROUNDWATER  
 ANALYTICAL  
 RESULTS MAP

**TABLE 1**  
**VIRGINIA 1-22**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth (Feet bgs)	PID Readings (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(2)</sup> (mg/kg)
SS01	12/27/2013	2	1,624	0.0032	<0.005	0.015	0.57	0.019	<b>780</b>
SS02	12/27/2013	2	16.7	<0.002	<0.005	<0.005	<0.010	<0.010	<b>3,500</b>
SS03	12/27/2013	2	75.9	<0.002	<0.005	<0.005	0.052	<0.010	2.6
SS04	12/27/2013	2	2,458	0.034	<0.050	<0.050	150	0.62	<b>6,400</b>
SS05	1/13/2014	2	4.3	<0.002	<0.005	<0.005	<0.010	<0.010	<50
SS06	1/13/2014	2	8.9	<0.002	<0.005	<0.005	<0.010	<0.010	<50
SS07	1/13/2014	2	47.7	<0.002	<0.005	<0.005	<0.010	<0.010	<50
SS08	1/13/2014	2	25.6	<0.002	<0.005	<0.005	<0.010	<0.010	<50
SS09	1/13/2014	2	10.4	<0.002	<0.005	<0.005	<0.010	<0.010	<50
<b>COGCC standards for soil</b>									
<b>(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>

Notes:

- 1). Standards for Soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.
  - 2). TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.
- GRO - Gasoline range organics.                      DRO - Diesel range organics.  
mg/kg - Milligrams per kilogram.                      bgs - Below ground surface.  
ppm - Parts per million
- Bold** red values indicate an exceedance of the COGCC soil standards for the Site.

**TABLE 2**  
**VIRGINIA 1-22**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
GW01	12/27/2013	<b>65</b>	11	22	<b>2,900</b>
BH01	4/29/2014	<1.0	<1.0	<1.0	<1.0
BH02	4/29/2014	<1.0	<1.0	<1.0	<1.0
BH03	4/29/2014	<1.0	<1.0	<1.0	<1.0
BH04	4/29/2014	<1.0	<1.0	<1.0	<1.0
BH05	4/29/2014	<1.0	<1.0	<1.0	<1.0
BH06	4/29/2014	<1.0	<1.0	<1.0	<1.0
<b>COGCC standards for groundwater (ug/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>

Notes:

1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

**Bold** red values indicate an exceedance of the COGCC groundwater standards for the Site.

ug/L - Micrograms per liter.

**ATTACHMENT A**

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

December 29, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Virginia 1-22

Enclosed are the results of analyses for samples received by Summit Scientific on 12/27/13 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'BS', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury  
President / Laboratory Manager



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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/13 19:51

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@2'	R312172-01	Soil	12/27/13 08:30	12/27/13 16:45
SS02@2'	R312172-02	Soil	12/27/13 08:30	12/27/13 16:45
SS03@2'	R312172-03	Soil	12/27/13 08:30	12/27/13 16:45
SS04@2'	R312172-04	Soil	12/27/13 08:30	12/27/13 16:45
GW01	R312172-05	Water	12/27/13 08:30	12/27/13 16:45

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
12/29/13 19:51

**SS01@2'**  
**R312172-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>680</b>	50	mg/kg	1	3122715	12/27/13	12/28/13	8015M	

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		116 %	30-150		"	"	"	"	

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

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.019</b>	0.010	mg/kg	1	3122714	12/27/13	12/28/13	EPA 8260B	
<b>Benzene</b>	<b>0.0032</b>	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.015</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.57</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>100</b>	0.50	"	"	"	"	"	"	

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		93.3 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		123 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		110 %	21-167		"	"	"	"	

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Denver CO, 80203

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/13 19:51

**SS02@2'**  
**R312172-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	3500	50	mg/kg	1	3122715	12/27/13	12/28/13	8015M	

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		127 %	30-150		"	"	"	"	

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

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3122714	12/27/13	12/27/13	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: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

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 Denver CO, 80203

Project: Virginia 1-22  
 Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 12/29/13 19:51

**SS03@2'**  
**R312172-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/27/13 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3122715	12/27/13	12/28/13	8015M	

Date Sampled: **12/27/13 08:30**

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

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

Date Sampled: **12/27/13 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3122714	12/27/13	12/27/13	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.052</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.6</b>	0.50	"	"	"	"	"	"	

Date Sampled: **12/27/13 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

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1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/13 19:51

**SS04@2'**  
**R312172-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3122715	12/27/13	12/28/13	8015M	

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		110 %	30-150		"	"	"	"	

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

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.62</b>	0.10	mg/kg	10	3122714	12/27/13	12/27/13	EPA 8260B	
<b>Benzene</b>	<b>0.034</b>	0.020	"	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	"	
Ethylbenzene	ND	0.050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>150</b>	0.10	"	"	"	"	"	"	E
<b>Gasoline Range Hydrocarbons</b>	<b>6400</b>	5.0	"	"	"	"	"	"	E

Date Sampled: 12/27/13 08:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		72.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		870 %	20-170		"	"	"	"	S-02
Surrogate: 4-Bromofluorobenzene		398 %	21-167		"	"	"	"	S-02

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 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 12/29/13 19:51

**GW01**  
**R312172-05 (Water)**

**Summit Scientific**

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

Date Sampled: **12/27/13 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>65</b>	1.0	ug/l	1	3122602	12/27/13	12/28/13	EPA 8260B	
<b>Toluene</b>	<b>11</b>	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>22</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>2900</b>	100	"	100	"	"	12/27/13	"	

Date Sampled: **12/27/13 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		86.3 %	37-154		"	"	12/28/13	"	
<i>Surrogate: Toluene-d8</i>		136 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	45-146		"	"	"	"	

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 Denver CO, 80203

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 12/29/13 19:51

**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 3122715 - EPA 3550A**

**Blank (3122715-BLK1)**

Prepared: 12/27/13 Analyzed: 12/28/13

C10-C28 (DRO) ND 50 mg/kg

**LCS (3122715-BS1)**

Prepared: 12/27/13 Analyzed: 12/28/13

C10-C28 (DRO) 508 50 mg/kg 488 104 73-134

**Matrix Spike (3122715-MS1)**

**Source: R312174-01**

Prepared: 12/27/13 Analyzed: 12/28/13

C10-C28 (DRO) 493 50 mg/kg 476 30.1 97.3 50-148

**Matrix Spike Dup (3122715-MSD1)**

**Source: R312174-01**

Prepared: 12/27/13 Analyzed: 12/28/13

C10-C28 (DRO) 466 50 mg/kg 468 30.1 93.0 50-148 5.84 13

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

Project: Virginia 1-22  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
12/29/13 19:51

**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 3122602 - EPA 5030 Water MS**

**Blank (3122602-BLK1)**

Prepared & Analyzed: 12/27/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.3</i>		<i>"</i>	<i>13.2</i>		<i>101</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.0</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.2</i>		<i>"</i>	<i>13.3</i>		<i>98.8</i>	<i>45-146</i>			

**LCS (3122602-BS1)**

Prepared & Analyzed: 12/27/13

Benzene	48.1	1.0	ug/l	50.0		96.2	51-132			
Toluene	47.0	1.0	"	50.0		93.9	51-138			
Ethylbenzene	47.8	1.0	"	50.0		95.5	58-146			
m,p-Xylene	94.7	2.0	"	100		94.7	57-144			
o-Xylene	49.0	1.0	"	50.0		98.0	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.2</i>		<i>"</i>	<i>13.2</i>		<i>107</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.9</i>		<i>"</i>	<i>13.3</i>		<i>96.7</i>	<i>45-146</i>			

**LCS (3122602-BS2)**

Prepared & Analyzed: 12/27/13

Benzene	46.3	1.0	ug/l	50.0		92.5	51-132			
Toluene	45.5	1.0	"	50.0		91.1	51-138			
Ethylbenzene	47.3	1.0	"	50.0		94.5	58-146			
m,p-Xylene	93.8	2.0	"	100		93.8	57-144			
o-Xylene	48.6	1.0	"	50.0		97.2	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.2</i>		<i>"</i>	<i>13.2</i>		<i>108</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>99.5</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>			

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
12/29/13 19:51

**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 3122602 - EPA 5030 Water MS**

<b>Matrix Spike (3122602-MS1)</b>		<b>Source: R312135-01</b>			<b>Prepared &amp; Analyzed: 12/27/13</b>						
Benzene	48.2	1.0	ug/l	50.0	ND	96.4	34-141				
Toluene	47.9	1.0	"	50.0	ND	95.8	27-151				
Ethylbenzene	50.3	1.0	"	50.0	ND	101	29-160				
m,p-Xylene	101	2.0	"	100	ND	101	20-166				
o-Xylene	51.0	1.0	"	50.0	ND	102	33-159				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.1</i>		<i>"</i>	<i>13.2</i>		<i>99.5</i>	<i>37-154</i>				
<i>Surrogate: Toluene-d8</i>	<i>13.7</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>45-149</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.7</i>	<i>45-146</i>				

<b>Matrix Spike (3122602-MS2)</b>		<b>Source: R312135-02</b>			<b>Prepared &amp; Analyzed: 12/27/13</b>						
Benzene	48.0	1.0	ug/l	50.0	ND	96.0	34-141				
Toluene	46.7	1.0	"	50.0	ND	93.5	27-151				
Ethylbenzene	49.5	1.0	"	50.0	ND	98.9	29-160				
m,p-Xylene	99.8	2.0	"	100	ND	99.8	20-166				
o-Xylene	50.9	1.0	"	50.0	ND	102	33-159				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.1</i>		<i>"</i>	<i>13.2</i>		<i>99.5</i>	<i>37-154</i>				
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>45-149</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.4</i>	<i>45-146</i>				

<b>Matrix Spike Dup (3122602-MSD1)</b>		<b>Source: R312135-01</b>			<b>Prepared &amp; Analyzed: 12/27/13</b>						
Benzene	47.9	1.0	ug/l	50.0	ND	95.8	34-141	0.666	32		
Toluene	47.2	1.0	"	50.0	ND	94.5	27-151	1.45	25		
Ethylbenzene	50.9	1.0	"	50.0	ND	102	29-160	1.15	50		
m,p-Xylene	99.7	2.0	"	100	ND	99.7	20-166	0.839	36		
o-Xylene	51.5	1.0	"	50.0	ND	103	33-159	0.955	26		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.0</i>		<i>"</i>	<i>13.2</i>		<i>98.6</i>	<i>37-154</i>				
<i>Surrogate: Toluene-d8</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.3</i>	<i>45-149</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>96.3</i>	<i>45-146</i>				

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*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: Virginia 1-22  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
12/29/13 19:51

**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 3122602 - EPA 5030 Water MS**

Matrix Spike Dup (3122602-MSD2)	Source: R312135-02			Prepared & Analyzed: 12/27/13						
Benzene	48.8	1.0	ug/l	50.0	ND	97.5	34-141	1.53	32	
Toluene	48.0	1.0	"	50.0	ND	95.9	27-151	2.62	25	
Ethylbenzene	50.0	1.0	"	50.0	ND	100	29-160	1.11	50	
m,p-Xylene	98.8	2.0	"	100	ND	98.8	20-166	1.07	36	
o-Xylene	50.5	1.0	"	50.0	ND	101	33-159	0.730	26	
Surrogate: 1,2-Dichloroethane-d4	13.1		"	13.2		99.5	37-154			
Surrogate: Toluene-d8	13.5		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.8	45-146			

**Batch 3122714 - EPA 5030 Soil MS**

Blank (3122714-BLK1)	Prepared: 12/27/13 Analyzed: 12/28/13									
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	0.0364		"	0.0378		96.4	23-173			
Surrogate: Toluene-d8	0.0369		"	0.0382		96.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0382		99.8	21-167			

LCS (3122714-BS1)	Prepared: 12/27/13 Analyzed: 12/28/13									
Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0931	0.0020	"	0.0977		95.4	58-130			
Toluene	0.115	0.0050	"	0.0977		118	61-134			
Ethylbenzene	0.113	0.0050	"	0.0977		115	74-139			
m,p-Xylene	0.258	0.010	"	0.195		132	73-137			
o-Xylene	0.126	0.0050	"	0.0977		129	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0372		"	0.0387		96.1	23-173			
Surrogate: Toluene-d8	0.0401		"	0.0391		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0391		99.0	21-167			

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
12/29/13 19:51

**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 3122714 - EPA 5030 Soil MS**

**Matrix Spike (3122714-MS1)**

Source: R312174-01

Prepared: 12/27/13 Analyzed: 12/28/13

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0924	0.0020	"	0.0982	ND	94.1	30-131			
Toluene	0.116	0.0050	"	0.0982	0.00341	114	30-134			
Ethylbenzene	0.139	0.0050	"	0.0982	ND	141	22-153			
m,p-Xylene	0.257	0.010	"	0.196	0.00572	128	10-159			
o-Xylene	0.124	0.0050	"	0.0982	ND	126	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0395		"	0.0389		102	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0393		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0375		"	0.0393		95.5	21-167			

**Matrix Spike Dup (3122714-MSD1)**

Source: R312174-01

Prepared: 12/27/13 Analyzed: 12/28/13

Naphthalene	ND	0.010	mg/kg		ND		10-158			42
Benzene	0.0974	0.0020	"	0.0998	ND	97.6	30-131	5.28		34
Toluene	0.121	0.0050	"	0.0998	0.00341	117	30-134	4.33		30
Ethylbenzene	0.146	0.0050	"	0.0998	ND	146	22-153	5.24		24
m,p-Xylene	0.269	0.010	"	0.200	0.00572	132	10-159	4.60		68
o-Xylene	0.131	0.0050	"	0.0998	ND	131	31-151	5.29		38
Surrogate: 1,2-Dichloroethane-d4	0.0399		"	0.0395		101	23-173			
Surrogate: Toluene-d8	0.0395		"	0.0399		99.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0399		96.6	21-167			

Summit Scientific

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
12/29/13 19:51

### 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.
- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- 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

January 13, 2014

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Virginia 1-22

Enclosed are the results of analyses for samples received by Summit Scientific on 01/13/14 15:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury  
President / Laboratory Manager



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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/13/14 23:03

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS05@2'	1401053-01	Soil	01/13/14 12:30	01/13/14 15:15
SS06@2'	1401053-02	Soil	01/13/14 12:35	01/13/14 15:15
SS07@2'	1401053-03	Soil	01/13/14 13:00	01/13/14 15:15
SS08@2'	1401053-04	Soil	01/13/14 13:05	01/13/14 15:15
SS09@2'	1401053-05	Soil	01/13/14 13:35	01/13/14 15:15

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*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: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
01/13/14 23:03

**SS05@2'**  
**1401053-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401048	01/13/14	01/13/14	8015M	

Date Sampled: **01/13/14 12:30**

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

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

Date Sampled: **01/13/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401047	01/13/14	01/13/14	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: **01/13/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.1 %	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: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/13/14 23:03

**SS06@2'**  
**1401053-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/14 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401048	01/13/14	01/13/14	8015M	

Date Sampled: **01/13/14 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		109 %	30-150		"	"	"	"	

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

Date Sampled: **01/13/14 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401047	01/13/14	01/13/14	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: **01/13/14 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	21-167		"	"	"	"	

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/13/14 23:03

**SS07@2'**  
**1401053-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401048	01/13/14	01/13/14	8015M	

Date Sampled: **01/13/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		104 %	30-150		"	"	"	"	

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

Date Sampled: **01/13/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401047	01/13/14	01/13/14	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: **01/13/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.7 %	21-167		"	"	"	"	

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/13/14 23:03

**SS08@2'**  
**1401053-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/14 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401048	01/13/14	01/13/14	8015M	

Date Sampled: **01/13/14 13:05**

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

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

Date Sampled: **01/13/14 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401047	01/13/14	01/13/14	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: **01/13/14 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/13/14 23:03

**SS09@2'**  
**1401053-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/14 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1401048	01/13/14	01/13/14	8015M	

Date Sampled: **01/13/14 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		104 %	30-150		"	"	"	"	

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

Date Sampled: **01/13/14 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1401047	01/13/14	01/13/14	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: **01/13/14 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 01/13/14 23:03

**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 1401048 - EPA 3550A**

<b>Blank (1401048-BLK1)</b>				Prepared & Analyzed: 01/13/14							
C10-C28 (DRO)	ND	50	mg/kg								
<b>LCS (1401048-BS1)</b>				Prepared & Analyzed: 01/13/14							
C10-C28 (DRO)	411	50	mg/kg	499	82.4	73-134					
<b>Matrix Spike (1401048-MS1)</b>				<b>Source: 1401053-01</b>		Prepared & Analyzed: 01/13/14					
C10-C28 (DRO)	515	50	mg/kg	498	36.4	96.2	50-148				
<b>Matrix Spike Dup (1401048-MSD1)</b>				<b>Source: 1401053-01</b>		Prepared & Analyzed: 01/13/14					
C10-C28 (DRO)	564	50	mg/kg	500	36.4	106	50-148	9.06	13		

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
01/13/14 23:03

**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 1401047 - EPA 5030 Soil MS**

**Blank (1401047-BLK1)**

Prepared & Analyzed: 01/13/14

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0424</i>		<i>"</i>	<i>0.0388</i>		<i>109</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0372</i>		<i>"</i>	<i>0.0391</i>		<i>95.1</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0391</i>		<i>102</i>	<i>21-167</i>			

**LCS (1401047-BS1)**

Prepared & Analyzed: 01/13/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0837	0.0020	"	0.0969		86.4	58-130			
Toluene	0.0845	0.0050	"	0.0969		87.2	61-134			
Ethylbenzene	0.0992	0.0050	"	0.0969		102	74-139			
m,p-Xylene	0.192	0.010	"	0.194		99.0	73-137			
o-Xylene	0.0956	0.0050	"	0.0969		98.6	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0427</i>		<i>"</i>	<i>0.0385</i>		<i>111</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0385</i>		<i>"</i>	<i>0.0388</i>		<i>99.3</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0390</i>		<i>"</i>	<i>0.0388</i>		<i>101</i>	<i>21-167</i>			

**Matrix Spike (1401047-MS1)**

Source: 1401053-01

Prepared & Analyzed: 01/13/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0840	0.0020	"	0.0963	ND	87.2	30-131			
Toluene	0.0862	0.0050	"	0.0963	ND	89.5	30-134			
Ethylbenzene	0.102	0.0050	"	0.0963	ND	106	22-153			
m,p-Xylene	0.197	0.010	"	0.193	ND	102	10-159			
o-Xylene	0.100	0.0050	"	0.0963	ND	104	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0434</i>		<i>"</i>	<i>0.0382</i>		<i>113</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0382</i>		<i>"</i>	<i>0.0385</i>		<i>99.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0399</i>		<i>"</i>	<i>0.0385</i>		<i>104</i>	<i>21-167</i>			

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Bruns

Reported:  
 01/13/14 23:03

**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 1401047 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1401047-MSD1)</b>	<b>Source: 1401053-01</b>			<b>Prepared &amp; Analyzed: 01/13/14</b>						
Naphthalene	ND	0.010	mg/kg	ND	ND	10-158			42	
Benzene	0.0861	0.0020	"	0.0986	ND	87.4	30-131	2.49	34	
Toluene	0.0879	0.0050	"	0.0986	ND	89.2	30-134	2.01	30	
Ethylbenzene	0.103	0.0050	"	0.0986	ND	104	22-153	0.880	24	
m,p-Xylene	0.196	0.010	"	0.197	ND	99.7	10-159	0.320	68	
o-Xylene	0.100	0.0050	"	0.0986	ND	101	31-151	0.462	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0450</i>		<i>"</i>	<i>0.0391</i>		<i>115</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0390</i>		<i>"</i>	<i>0.0394</i>		<i>98.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0395</i>		<i>"</i>	<i>0.0394</i>		<i>100</i>	<i>21-167</i>			

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/13/14 23:03

### 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

May 06, 2014

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Virginia 1-22

Enclosed are the results of analyses for samples received by Summit Scientific on 04/30/14 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'B. Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury  
President / Laboratory Manager



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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/06/14 16:05

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1405004-01	Water	04/29/14 16:40	04/30/14 16:45
BH02	1405004-02	Water	04/29/14 17:10	04/30/14 16:45
BH03	1405004-03	Water	04/29/14 16:50	04/30/14 16:45
BH04	1405004-04	Water	04/29/14 17:10	04/30/14 16:45
BH05	1405004-05	Water	04/29/14 17:20	04/30/14 16:45
BH06	1405004-06	Water	04/29/14 17:00	04/30/14 16:45

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 05/06/14 16:05

**BH01**  
**1405004-01 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/14 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1405009	05/02/14	05/02/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/14 16:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		100 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	45-146		"	"	"	"	

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 05/06/14 16:05

**BH02**  
**1405004-02 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/14 17:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1405009	05/02/14	05/02/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/14 17:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>106 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>99.8 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>104 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 05/06/14 16:05

**BH03**  
**1405004-03 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/14 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1405009	05/02/14	05/02/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/14 16:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>106 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>98.0 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>105 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 05/06/14 16:05

**BH04**  
**1405004-04 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/14 17:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1405009	05/02/14	05/02/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/14 17:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>106 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>98.0 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>104 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 05/06/14 16:05

**BH05**  
**1405004-05 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/14 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1405009	05/02/14	05/02/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/14 17:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>105 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>97.7 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>106 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 05/06/14 16:05

**BH06**  
**1405004-06 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/14 17:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1405009	05/02/14	05/02/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/14 17:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		108 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.4 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		103 %	45-146		"	"	"	"	

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
05/06/14 16:05

**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 1405009 - EPA 5030 Water MS**

**Blank (1405009-BLK1)**

Prepared & Analyzed: 05/02/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.2		106	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		99.5	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		103	45-146			

**LCS (1405009-BS1)**

Prepared & Analyzed: 05/02/14

Benzene	42.4	1.0	ug/l	33.2		128	51-132			
Toluene	43.0	1.0	"	33.3		129	51-138			
Ethylbenzene	45.1	1.0	"	33.1		136	58-146			
m,p-Xylene	91.2	2.0	"	66.7		137	57-144			
o-Xylene	46.7	1.0	"	32.9		142	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.2		108	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.8	45-149			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.3	45-146			

**LCS (1405009-BS2)**

Prepared & Analyzed: 05/02/14

Benzene	42.3	1.0	ug/l	33.2		127	51-132			
Toluene	43.0	1.0	"	33.3		129	51-138			
Ethylbenzene	44.6	1.0	"	33.1		135	58-146			
m,p-Xylene	91.2	2.0	"	66.7		137	57-144			
o-Xylene	46.2	1.0	"	32.9		140	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.2		104	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.8	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	45-146			

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
05/06/14 16:05

**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 1405009 - EPA 5030 Water MS**

<b>Matrix Spike (1405009-MS1)</b>	<b>Source: 1405003-01</b>			<b>Prepared &amp; Analyzed: 05/02/14</b>						
Benzene	43.8	1.0	ug/l	33.2	ND	132	34-141			
Toluene	44.8	1.0	"	33.3	ND	134	27-151			
Ethylbenzene	45.8	1.0	"	33.1	ND	139	29-160			
m,p-Xylene	93.6	2.0	"	66.7	ND	140	20-166			
o-Xylene	47.0	1.0	"	32.9	ND	143	33-159			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.0</i>		<i>"</i>	<i>13.2</i>		<i>106</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>101</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>			

<b>Matrix Spike (1405009-MS2)</b>	<b>Source: 1405003-02</b>			<b>Prepared &amp; Analyzed: 05/02/14</b>						
Benzene	44.0	1.0	ug/l	33.2	ND	133	34-141			
Toluene	45.4	1.0	"	33.3	ND	136	27-151			
Ethylbenzene	46.1	1.0	"	33.1	ND	139	29-160			
m,p-Xylene	95.2	2.0	"	66.7	ND	143	20-166			
o-Xylene	47.4	1.0	"	32.9	ND	144	33-159			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.1</i>		<i>"</i>	<i>13.2</i>		<i>107</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>100</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.6</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>45-146</i>			

<b>Matrix Spike Dup (1405009-MSD1)</b>	<b>Source: 1405003-01</b>			<b>Prepared &amp; Analyzed: 05/02/14</b>						
Benzene	44.2	1.0	ug/l	33.2	ND	133	34-141	0.931	32	
Toluene	45.3	1.0	"	33.3	ND	136	27-151	1.13	25	
Ethylbenzene	46.1	1.0	"	33.1	ND	139	29-160	0.631	50	
m,p-Xylene	94.4	2.0	"	66.7	ND	142	20-166	0.830	36	
o-Xylene	46.8	1.0	"	32.9	ND	142	33-159	0.320	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.2</i>		<i>"</i>	<i>13.2</i>		<i>107</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.5</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>45-146</i>			

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

Project: Virginia 1-22

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 05/06/14 16:05

**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 1405009 - EPA 5030 Water MS**

<b>Matrix Spike Dup (1405009-MSD2)</b>	<b>Source: 1405003-02</b>			<b>Prepared &amp; Analyzed: 05/02/14</b>						
Benzene	44.0	1.0	ug/l	33.2	ND	132	34-141	0.182	32	
Toluene	44.3	1.0	"	33.3	ND	133	27-151	2.50	25	
Ethylbenzene	46.3	1.0	"	33.1	ND	140	29-160	0.411	50	
m,p-Xylene	95.1	2.0	"	66.7	ND	143	20-166	0.105	36	
o-Xylene	47.4	1.0	"	32.9	ND	144	33-159	0.0633	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.5</i>		<i>"</i>	<i>13.2</i>		<i>110</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>99.7</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.0</i>		<i>"</i>	<i>13.3</i>		<i>105</i>	<i>45-146</i>			

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

Project: Virginia 1-22

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/06/14 16:05

### 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

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Summit Scientific

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