



**Figure 1**  
 Site Location Map  
 Johnson Oly 1  
 NWNE S32 T6N R65W  
 Weld County, Colorado

Drawn By: DBA  
 Date: 06/24/2014





Surface  
Drainage →



Note: Surface drainage direction is estimated based on site topography and is not related to regional topography.

Scale: 1 inch equals 15 feet

DRAWN BY: ESS

DATE: 10/2/2014

**Facility Diagram**  
 PDC Energy – DJ Basin  
 Johnson Oly 1  
 NWNE Sec 32 T6N R65W  
 Weld County, CO

6899 Pecos Street,  
 Unit C  
 Denver, CO 80221  
 Office: 303 487 1228

LEGEND	
	Approximate Area of Excavation
	Buried Production Line
	Soil Sample Location
	Soil Sample Location Subsequently Excavated
	Horizontal Remediation Pipe Location

FIGURE 2  
 EXCAVATION  
 SITE MAP



Surface  
Drainage →



Note: Surface drainage direction is estimated based on site topography and is not related to regional topography.

Scale: 1 inch equals 15 feet

DRAWN BY: ESS

---

DATE: 10/2/2014

**Facility Diagram**  
 PDC Energy – DJ Basin  
 Johnson Oly 1  
 NWNE Sec 32 T6N R65W  
 Weld County, CO



6899 Pecos Street,  
 Unit C  
 Denver, CO 80221  
 Office: 303 487 1228

LEGEND	
	Approximate Area of Excavation
	Buried Production Line
	PDC Dump Lines
	Soil Sample Location
	Soil Boring Location
	Horizontal Remediation Pipe Location

FIGURE 3  
 SOIL BORING  
 LOCATION MAP

**TABLE 1**  
**JOHNSON OLY 1**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	PID Reading (ppm)	Sample Depth (ft bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzne (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(2)</sup> (mg/kg)
TP01@4'	6/17/2014	6.6	4	0.064	0.24	0.016	0.23	<0.010	1.8
TP01@8'	6/17/2014	43.5	8	0.10	0.22	0.0086	0.11	<0.010	0.84
TP01@12'	6/17/2014	36.2	12	0.069	0.21	0.010	0.14	<0.010	0.93
TP01@16'	6/17/2014	37.7	16	0.051	0.11	0.0083	0.13	<0.010	0.93
SS01@8'	6/17/2014	200	8	<b>0.60</b>	1.4	0.053	0.60	<0.010	7.8
SS02@8'	6/17/2014	150	8	0.086	0.11	<0.0050	0.069	<0.010	1.1
SS03@18'	6/17/2014	485	18	<b>4.1</b>	64	21	160	3.0	<b>7,700</b>
SS04@10'	6/17/2014	1379	10	<b>1.4</b>	26	6.8	67	1.2	<b>3,800</b>
SS05@8'	6/18/2014	0.3	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS06@14'	6/18/2014	283	14	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS07@8'	6/19/2014	0.3	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS08@14'	6/19/2014	0.8	14	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS09@8'	6/19/2014	900	8	<b>14</b>	80	23	150	4.4	<b>12,400</b>
SS10@14'	6/19/2014	1000	14	<b>8.8</b>	59	14	110	2.8	<b>8,200</b>
SS11@8'	6/19/2014	2.7	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS12@14'	6/19/2014	18.8	14	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS13@8'	6/19/2014	2.1	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS14@14'	6/19/2014	525	14	0.0055	0.020	0.016	0.29	0.020	68.6
SS15@8'	6/19/2014	51.2	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS16@14'	6/19/2014	402	14	0.083	0.030	0.0076	0.13	<0.010	2.5
BH01@18-24'	8/19/2014	2787	18-24	<b>7.5</b>	58	12	150	1.0	<b>2,810</b>
BH01@30-32'	8/19/2014	650	30-32	<b>14</b>	<b>89</b>	11	12	1.3	<b>3,800</b>
BH01D@38'	9/5/2014	582	38	<b>11</b>	75	11	130	1.4	<b>4,200</b>
BH02@18-20'	9/5/2014	236	18-20	0.019	0.014	<0.005	0.019	<0.010	<50
BH02@25-27'	9/5/2014	338	25-27	<b>0.63</b>	0.73	0.025	0.33	<0.010	3.1
BH02@37'	9/5/2014	1901	37	<b>0.31</b>	0.55	0.028	0.35	<0.010	3.4
BH03@18-20'	9/5/2014	160	18-20	0.010	0.0088	<0.005	<0.010	<0.010	<50
BH03@27-29'	9/5/2014	374	27-29	<b>0.62</b>	0.69	0.020	0.27	<0.010	2.6
BH03@35'	9/5/2014	387	37	<b>0.23</b>	0.29	0.0098	0.14	<0.010	<50
<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>

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

PPM - Parts per million

ft bgs - Feet below ground surface

**Bold red** values indicate an exceedence 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

June 20, 2014

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Johnson OLY 1

Enclosed are the results of analyses for samples received by Summit Scientific on 06/17/14 18:41. 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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/20/14 10:51

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@8'	1406121-01	Soil	06/17/14 11:30	06/17/14 18:41
SS02@8'	1406121-02	Soil	06/17/14 11:20	06/17/14 18:41
SS03@18'	1406121-03	Soil	06/17/14 13:00	06/17/14 18:41
SS04@10'	1406121-04	Soil	06/17/14 13:15	06/17/14 18:41
TP01@4'	1406121-05	Soil	06/17/14 13:30	06/17/14 18:41
TP01@8'	1406121-06	Soil	06/17/14 13:35	06/17/14 18:41
TP01@12'	1406121-07	Soil	06/17/14 13:40	06/17/14 18:41
TP01@16'	1406121-08	Soil	06/17/14 13:45	06/17/14 18:41

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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/20/14 10:51

# Summit Scientific 1406121

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
303-277-9910 • 303-374-5933 Fax

Page 1 of 1

Client: PDC Energy  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Sampler Name: Don Bruns  
 Project Manager: Brandon Bruns  
 E-Mail: Brandon.Brunns@PDC.com  
 Project Name: Johnson Oly 1  
 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)			
SS01@8'	6/17	1136	1	X				X						
SS02@8'		1120												
SS03@18'		1300												
SS04@18'		1315												
TP01@4'		1330												
TP01@8'		1335												
TP01@12'		1340												
TP01@16'		1345												
Requisitioned by: <u>D. Bruns</u>	Date/Time: <u>6/17/14 1835</u>	Received by: <u>[Signature]</u>	Date/Time: <u>6/17/14 1655</u>	Turn Around Time (Check): Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 72 Hours <input type="checkbox"/> Standard <input type="checkbox"/>	Notes:									
Requisitioned by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Log Receipt: <input checked="" type="checkbox"/>										
Requisitioned by:	Date/Time:	Received in Lab by:	Date/Time:											



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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/20/14 10:51

**SS01@8'**  
**1406121-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/17/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406124	06/17/14	06/17/14	8015M	

Date Sampled: **06/17/14 11:30**

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

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

Date Sampled: **06/17/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406123	"	06/17/14	EPA 8260B	
<b>Benzene</b>	<b>0.60</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>1.4</b>	0.0050	"	"	"	"	"	"	E
<b>Ethylbenzene</b>	<b>0.053</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.60</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>7.8</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/17/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/20/14 10:51

**SS02@8'**  
**1406121-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/17/14 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406124	06/17/14	06/17/14	8015M	

Date Sampled: **06/17/14 11:20**

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

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

Date Sampled: **06/17/14 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406123	"	06/17/14	EPA 8260B	
<b>Benzene</b>	<b>0.086</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.11</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.069</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.1</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/17/14 11:20**

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

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/20/14 10:51

**SS03@18'**  
**1406121-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/17/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>3400</b>	50	mg/kg	1	1406124	06/17/14	06/17/14	8015M	

Date Sampled: **06/17/14 13:00**

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: **06/17/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>3.0</b>	0.10	mg/kg	10	1406123	"	06/17/14	EPA 8260B	
<b>Benzene</b>	<b>4.1</b>	0.020	"	"	"	"	"	"	
<b>Toluene</b>	<b>64</b>	0.050	"	"	"	"	"	"	E
<b>Ethylbenzene</b>	<b>21</b>	0.050	"	"	"	"	"	"	E
<b>Xylenes (total)</b>	<b>160</b>	0.10	"	"	"	"	"	"	E
<b>Gasoline Range Hydrocarbons</b>	<b>4300</b>	5.0	"	"	"	"	"	"	E

Date Sampled: **06/17/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		97.4 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		1260 %	20-170		"	"	"	"	S-02
<i>Surrogate: 4-Bromofluorobenzene</i>		425 %	21-167		"	"	"	"	S-02

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
06/20/14 10:51

**SS04@10'**  
**1406121-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/17/14 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>2000</b>	50	mg/kg	1	1406124	06/17/14	06/17/14	8015M	

Date Sampled: **06/17/14 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		62.1 %	30-150		"	"	"	"	

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

Date Sampled: **06/17/14 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>1.2</b>	0.10	mg/kg	10	1406123	"	06/17/14	EPA 8260B	
<b>Benzene</b>	<b>1.4</b>	0.020	"	"	"	"	"	"	
<b>Toluene</b>	<b>26</b>	0.050	"	"	"	"	"	"	E
<b>Ethylbenzene</b>	<b>6.8</b>	0.050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>67</b>	0.10	"	"	"	"	"	"	E
<b>Gasoline Range Hydrocarbons</b>	<b>1800</b>	5.0	"	"	"	"	"	"	E

Date Sampled: **06/17/14 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		83.3 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		251 %	20-170		"	"	"	"	S-02
<i>Surrogate: 4-Bromofluorobenzene</i>		224 %	21-167		"	"	"	"	S-02

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/20/14 10:51

**TP01@4'**  
**1406121-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/17/14 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406124	06/17/14	06/17/14	8015M	

Date Sampled: **06/17/14 13:30**

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

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

Date Sampled: **06/17/14 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406123	"	06/17/14	EPA 8260B	
<b>Benzene</b>	<b>0.064</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.24</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.016</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.23</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.8</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/17/14 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/20/14 10:51

**TP01@8'**  
**1406121-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/17/14 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406124	06/17/14	06/17/14	8015M	

Date Sampled: **06/17/14 13:35**

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

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

Date Sampled: **06/17/14 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406123	"	06/17/14	EPA 8260B	
<b>Benzene</b>	<b>0.10</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.22</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.0086</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.11</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.84</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/17/14 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	21-167		"	"	"	"	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/20/14 10:51

**TP01@12'**  
**1406121-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/17/14 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406124	06/17/14	06/17/14	8015M	

Date Sampled: **06/17/14 13:40**

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

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

Date Sampled: **06/17/14 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406123	"	06/17/14	EPA 8260B	
<b>Benzene</b>	<b>0.069</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.21</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.010</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.14</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.93</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/17/14 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/20/14 10:51

**TP01@16'**  
**1406121-08 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/17/14 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406124	06/17/14	06/17/14	8015M	

Date Sampled: **06/17/14 13:45**

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: **06/17/14 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406123	"	06/17/14	EPA 8260B	
<b>Benzene</b>	<b>0.051</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.11</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.0083</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.13</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.93</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/17/14 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		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: Johnson OLY 1  
 Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 06/20/14 10:51

**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 1406124 - EPA 3550A**

<b>Blank (1406124-BLK1)</b>				Prepared & Analyzed: 06/17/14						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1406124-BS1)</b>				Prepared & Analyzed: 06/17/14						
C10-C28 (DRO)	536	50	mg/kg	491	109	73-134				
<b>Matrix Spike (1406124-MS1)</b>				<b>Source: 1406113-01</b>		Prepared & Analyzed: 06/17/14				
C10-C28 (DRO)	584	50	mg/kg	499	102	96.4	50-148			
<b>Matrix Spike Dup (1406124-MSD1)</b>				<b>Source: 1406113-01</b>		Prepared & Analyzed: 06/17/14				
C10-C28 (DRO)	581	50	mg/kg	494	102	96.8	50-148	0.503	13	

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: Johnson OLY 1  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/20/14 10:51

**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 1406123 - EPA 5030 Soil MS**

**Blank (1406123-BLK1)**

Prepared & Analyzed: 06/17/14

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>0.0423</i>		<i>"</i>	<i>0.0397</i>		<i>106</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0410</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0434</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>	<i>21-167</i>			

**LCS (1406123-BS1)**

Prepared & Analyzed: 06/17/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.115	0.0020	"	0.100		115	58-130			
Toluene	0.123	0.0050	"	0.100		123	61-134			
Ethylbenzene	0.114	0.0050	"	0.0992		115	74-139			
m,p-Xylene	0.213	0.010	"	0.200		107	73-137			
o-Xylene	0.107	0.0050	"	0.0984		109	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0406</i>		<i>"</i>	<i>0.0397</i>		<i>102</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0418</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0430</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>	<i>21-167</i>			

**Matrix Spike (1406123-MS1)**

Source: 1406113-01

Prepared & Analyzed: 06/17/14

Naphthalene	0.0384	0.010	mg/kg		0.0450		10-158			
Benzene	0.121	0.0020	"	0.100	0.00567	115	30-131			
Toluene	0.126	0.0050	"	0.100	ND	126	30-134			
Ethylbenzene	0.122	0.0050	"	0.0992	0.0110	112	22-153			
m,p-Xylene	0.219	0.010	"	0.200	0.00924	105	10-159			
o-Xylene	0.112	0.0050	"	0.0984	0.00660	107	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0415</i>		<i>"</i>	<i>0.0397</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0414</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0409</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>21-167</i>			

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 06/20/14 10:51

**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		

**Batch 1406123 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1406123-MSD1)</b>	<b>Source: 1406113-01</b>			<b>Prepared &amp; Analyzed: 06/17/14</b>						
Naphthalene	0.0384	0.010	mg/kg		0.0450		10-158	0.00	42	
Benzene	0.121	0.0020	"	0.100	0.00567	116	30-131	0.223	34	
Toluene	0.125	0.0050	"	0.100	ND	125	30-134	0.120	30	
Ethylbenzene	0.124	0.0050	"	0.0992	0.0110	114	22-153	1.78	24	
m,p-Xylene	0.223	0.010	"	0.200	0.00924	107	10-159	1.60	68	
o-Xylene	0.116	0.0050	"	0.0984	0.00660	112	31-151	3.76	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0428</i>		<i>"</i>	<i>0.0397</i>		<i>108</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0412</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0427</i>		<i>"</i>	<i>0.0400</i>		<i>107</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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/20/14 10:51

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 19, 2014

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Johnson OLY 1

Enclosed are the results of analyses for samples received by Summit Scientific on 06/18/14 17:35. 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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/19/14 01:03

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS05@8'	1406128-01	Soil	06/18/14 08:30	06/18/14 17:35
SS06@14	1406128-02	Soil	06/18/14 08:45	06/18/14 17:35

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.*





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

Project: Johnson OLY 1

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 06/19/14 01:03

**SS05@8'**  
**1406128-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406139	06/18/14	06/18/14	8015M	

Date Sampled: **06/18/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		100 %	30-150		"	"	"	"	

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

Date Sampled: **06/18/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406138	06/18/14	06/18/14	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: **06/18/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		47.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %	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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/19/14 01:03

**SS06@14**  
**1406128-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/18/14 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406139	06/18/14	06/18/14	8015M	

Date Sampled: **06/18/14 08:45**

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

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

Date Sampled: **06/18/14 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406138	06/18/14	06/18/14	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: **06/18/14 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	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: Johnson OLY 1  
 Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 06/19/14 01:03

**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 1406139 - EPA 3550A**

<b>Blank (1406139-BLK1)</b>				Prepared & Analyzed: 06/18/14							
C10-C28 (DRO)	ND	50	mg/kg								
<b>LCS (1406139-BS1)</b>				Prepared & Analyzed: 06/18/14							
C10-C28 (DRO)	532	50	mg/kg	501	106	73-134					
<b>Matrix Spike (1406139-MS1)</b>				<b>Source: 1406123-01</b>		Prepared & Analyzed: 06/18/14					
C10-C28 (DRO)	469	50	mg/kg	501	ND	93.7	50-148				
<b>Matrix Spike Dup (1406139-MSD1)</b>				<b>Source: 1406123-01</b>		Prepared & Analyzed: 06/18/14					
C10-C28 (DRO)	502	50	mg/kg	501	ND	100	50-148	6.77	13		

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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/19/14 01:03

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 22, 2014

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Johnson OLY 1

Enclosed are the results of analyses for samples received by Summit Scientific on 06/19/14 17:30. 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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/22/14 21:02

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS07@8'	1406140-01	Soil	06/19/14 10:00	06/19/14 17:30
SS08@14'	1406140-02	Soil	06/19/14 10:05	06/19/14 17:30
SS09@8'	1406140-03	Soil	06/19/14 12:00	06/19/14 17:30
SS10@14'	1406140-04	Soil	06/19/14 12:05	06/19/14 17:30
SS11@8'	1406140-05	Soil	06/19/14 13:00	06/19/14 17:30
SS12@14'	1406140-06	Soil	06/19/14 13:05	06/19/14 17:30
SS13@8'	1406140-07	Soil	06/19/14 14:00	06/19/14 17:30
SS14@14'	1406140-08	Soil	06/19/14 14:05	06/19/14 17:30
SS15@8'	1406140-09	Soil	06/19/14 14:20	06/19/14 17:30
SS16@14'	1406140-10	Soil	06/19/14 14:25	06/19/14 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.*



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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

Summit Scientific 1406140

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

Client: PDC Energy Page 1 of 1  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Sampler Name: Dow Backlogs  
 Project Manager: Brandon Bruns  
 E-Mail: Brandon.Brun@PDC.com  
 Project Name: Johnson Oly  
 Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:	Special Instructions				
				HCl	HNO <sub>3</sub>	Zone	Other (Specify)	Soil	Air - Canister Serial #	Other (Specify)	BTX (EPA)			NAFH	GR0	DRO (R015)	
SS07 @ 8'	6/19	1000	1			X											
SS08 @ 14'		1005															
SS09 @ 8'		1200															
SS10 @ 14'		1205															
SS11 @ 6'		1300															
SS12 @ 14'		1305															
SS13 @ 8'		1400															
SS14 @ 14'		1405															
SS15 @ 8'		1420															
SS16 @ 14'		1425															
Retinquired by: <u>Dow Backlogs</u>				Date/Time:	6/19/14	1400	Received by: <u>MB</u>				Date/Time:	6/19/14	1300	Notes: Both 1400 & 1405 - Add SS10 @ 8' 5/11 @ 14'			
Retinquired by: <u>Dow Backlogs</u>				Date/Time:	6/19/14	1400	Received by: <u>MB</u>				Date/Time:	6/19/14	1300				
Turn Around Time (Check)												Same Day		72 Hours		Standard	
Sample Integrity:												Temperature Upon Receipt: <u>-1°C</u>		Intact: (Yes) <input type="checkbox"/> No <input type="checkbox"/>			



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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS07@8'**  
**1406140-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 10:00**

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

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

Date Sampled: **06/19/14 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406155	06/19/14	06/20/14	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: **06/19/14 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/22/14 21:02

**SS08@14'**  
**1406140-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 10:05**

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: **06/19/14 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406155	06/19/14	06/20/14	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: **06/19/14 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		123 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		35.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		248 %	21-167		"	"	"	"	S-02

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS09@8'**  
**1406140-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>7400</b>	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		130 %	30-150		"	"	"	"	

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

Date Sampled: **06/19/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>4.4</b>	0.10	mg/kg	10	1406155	06/19/14	06/20/14	EPA 8260B	
<b>Benzene</b>	<b>14</b>	0.020	"	"	"	"	"	"	E
<b>Toluene</b>	<b>80</b>	0.050	"	"	"	"	"	"	E
<b>Ethylbenzene</b>	<b>23</b>	0.050	"	"	"	"	"	"	E
<b>Xylenes (total)</b>	<b>150</b>	0.10	"	"	"	"	"	"	E
<b>Gasoline Range Hydrocarbons</b>	<b>5000</b>	5.0	"	"	"	"	"	"	E

Date Sampled: **06/19/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.9 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		300 %	20-170		"	"	"	"	S-02
<i>Surrogate: 4-Bromofluorobenzene</i>		444 %	21-167		"	"	"	"	S-02

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS10@14'**  
**1406140-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>4600</b>	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		214 %	30-150		"	"	"	"	S-02

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

Date Sampled: **06/19/14 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>2.8</b>	0.10	mg/kg	10	1406155	06/19/14	06/20/14	EPA 8260B	
<b>Benzene</b>	<b>8.8</b>	0.020	"	"	"	"	"	"	
<b>Toluene</b>	<b>59</b>	0.050	"	"	"	"	"	"	E
<b>Ethylbenzene</b>	<b>14</b>	0.050	"	"	"	"	"	"	E
<b>Xylenes (total)</b>	<b>110</b>	0.10	"	"	"	"	"	"	E
<b>Gasoline Range Hydrocarbons</b>	<b>3600</b>	5.0	"	"	"	"	"	"	E

Date Sampled: **06/19/14 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		90.9 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		304 %	20-170		"	"	"	"	S-02
<i>Surrogate: 4-Bromofluorobenzene</i>		375 %	21-167		"	"	"	"	S-02

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS11@8'**  
**1406140-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		111 %	30-150		"	"	"	"	

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

Date Sampled: **06/19/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406155	06/19/14	06/20/14	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: **06/19/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS12@14'**  
**1406140-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 13:05**

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: **06/19/14 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406155	06/19/14	06/20/14	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: **06/19/14 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		121 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS13@8'**  
**1406140-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 14:00**

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

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

Date Sampled: **06/19/14 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406155	06/19/14	06/20/14	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: **06/19/14 14:00**

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		110 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS14@14'**  
**1406140-08 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>60</b>	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 14:05**

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

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

Date Sampled: **06/19/14 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.020</b>	0.010	mg/kg	1	1406155	06/19/14	06/20/14	EPA 8260B	
<b>Benzene</b>	<b>0.0055</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.020</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.016</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.29</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>8.6</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/19/14 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		102 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		108 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		113 %	21-167		"	"	"	"	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS15@8'**  
**1406140-09 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 14:20**

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: **06/19/14 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406155	06/19/14	06/20/14	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: **06/19/14 14:20**

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		113 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**SS16@14'**  
**1406140-10 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/19/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1406156	06/19/14	06/19/14	8015M	

Date Sampled: **06/19/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		111 %	30-150		"	"	"	"	

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

Date Sampled: **06/19/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1406155	06/19/14	06/20/14	EPA 8260B	
<b>Benzene</b>	<b>0.083</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.030</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.0076</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.13</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.5</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/19/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 06/22/14 21:02

**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 1406156 - EPA 3550A**

<b>Blank (1406156-BLK1)</b>			Prepared: 06/19/14 Analyzed: 06/20/14								
C10-C28 (DRO)	ND	50	mg/kg								
<b>LCS (1406156-BS1)</b>			Prepared: 06/19/14 Analyzed: 06/20/14								
C10-C28 (DRO)	462	50	mg/kg	501		92.3	73-134				
<b>LCS (1406156-BS2)</b>			Prepared: 06/19/14 Analyzed: 06/20/14								
C10-C28 (DRO)	462	50	mg/kg	501		92.2	73-134				
<b>Matrix Spike (1406156-MS1)</b>			<b>Source: 1406126-01</b>			Prepared: 06/19/14 Analyzed: 06/20/14					
C10-C28 (DRO)	502	50	mg/kg	499	ND	101	50-148				
<b>Matrix Spike (1406156-MS2)</b>			<b>Source: 1406126-02</b>			Prepared: 06/19/14 Analyzed: 06/20/14					
C10-C28 (DRO)	639	50	mg/kg	484	ND	132	50-148				
<b>Matrix Spike Dup (1406156-MSD2)</b>			<b>Source: 1406126-02</b>			Prepared: 06/19/14 Analyzed: 06/20/14					
C10-C28 (DRO)	607	50	mg/kg	484	ND	126	50-148	5.11		13	

Summit Scientific

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

Project: Johnson OLY 1  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**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 1406155 - EPA 5030 Soil MS**

**Blank (1406155-BLK1)**

Prepared: 06/19/14 Analyzed: 06/20/14

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>0.0410</i>		<i>"</i>	<i>0.0397</i>		<i>103</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0427</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0459</i>		<i>"</i>	<i>0.0400</i>		<i>115</i>		<i>21-167</i>		

**LCS (1406155-BS1)**

Prepared: 06/19/14 Analyzed: 06/20/14

Naphthalene	ND	0.010	mg/kg					66-138		
Benzene	0.127	0.0020	"	0.100		127		58-130		
Toluene	0.146	0.0050	"	0.100		146		61-134		
Ethylbenzene	0.110	0.0050	"	0.0992		111		74-139		
m,p-Xylene	0.205	0.010	"	0.200		103		73-137		
o-Xylene	0.106	0.0050	"	0.0984		107		73-141		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0372</i>		<i>"</i>	<i>0.0397</i>		<i>93.6</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0444</i>		<i>"</i>	<i>0.0400</i>		<i>111</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0431</i>		<i>"</i>	<i>0.0400</i>		<i>108</i>		<i>21-167</i>		

**LCS (1406155-BS2)**

Prepared: 06/19/14 Analyzed: 06/20/14

Naphthalene	ND	0.010	mg/kg					66-138		
Benzene	0.128	0.0020	"	0.100		128		58-130		
Toluene	0.151	0.0050	"	0.100		151		61-134		
Ethylbenzene	0.114	0.0050	"	0.0992		115		74-139		
m,p-Xylene	0.217	0.010	"	0.200		109		73-137		
o-Xylene	0.108	0.0050	"	0.0984		110		73-141		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0392</i>		<i>"</i>	<i>0.0397</i>		<i>98.8</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0446</i>		<i>"</i>	<i>0.0400</i>		<i>111</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0462</i>		<i>"</i>	<i>0.0400</i>		<i>116</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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/22/14 21:02

**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 1406155 - EPA 5030 Soil MS**

**Matrix Spike (1406155-MS1)**

Source: 1406126-01

Prepared: 06/19/14

Analyzed: 06/20/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.122	0.0020	"	0.0986	ND	123	30-131			
Toluene	0.143	0.0050	"	0.0986	0.00324	142	30-134			
Ethylbenzene	0.112	0.0050	"	0.0978	ND	114	22-153			
m,p-Xylene	0.210	0.010	"	0.197	0.00605	103	10-159			
o-Xylene	0.104	0.0050	"	0.0970	ND	107	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0371		"	0.0392		94.8	23-173			
Surrogate: Toluene-d8	0.0413		"	0.0394		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0438		"	0.0394		111	21-167			

**Matrix Spike (1406155-MS2)**

Source: 1406126-02

Prepared: 06/19/14

Analyzed: 06/20/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.121	0.0020	"	0.0928	0.00493	125	30-131			
Toluene	0.140	0.0050	"	0.0928	ND	151	30-134			
Ethylbenzene	0.107	0.0050	"	0.0920	ND	116	22-153			
m,p-Xylene	0.199	0.010	"	0.185	0.00535	105	10-159			
o-Xylene	0.0986	0.0050	"	0.0913	ND	108	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0378		"	0.0368		103	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0371		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0420		"	0.0371		113	21-167			

**Matrix Spike Dup (1406155-MSD1)**

Source: 1406126-01

Prepared: 06/19/14

Analyzed: 06/20/14

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.125	0.0020	"	0.0969	ND	129	30-131	2.71	34	
Toluene	0.146	0.0050	"	0.0969	0.00324	148	30-134	2.21	30	
Ethylbenzene	0.109	0.0050	"	0.0961	ND	114	22-153	2.16	24	
m,p-Xylene	0.208	0.010	"	0.193	0.00605	104	10-159	0.930	68	
o-Xylene	0.104	0.0050	"	0.0953	ND	109	31-151	0.0963	38	
Surrogate: 1,2-Dichloroethane-d4	0.0387		"	0.0385		101	23-173			
Surrogate: Toluene-d8	0.0414		"	0.0388		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0427		"	0.0388		110	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: Johnson OLY 1

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 06/22/14 21:02

**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 1406155 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1406155-MSD2)</b>	<b>Source: 1406126-02</b>			Prepared: 06/19/14	Analyzed: 06/20/14					
Naphthalene	ND	0.010	mg/kg	ND	ND	10-158				42
Benzene	0.153	0.0020	"	0.0986	0.00493	150	30-131	23.2		34
Toluene	0.141	0.0050	"	0.0986	ND	143	30-134	0.659		30
Ethylbenzene	0.116	0.0050	"	0.0978	ND	119	22-153	8.69		24
m,p-Xylene	0.217	0.010	"	0.197	0.00535	108	10-159	8.68		68
o-Xylene	0.110	0.0050	"	0.0970	ND	113	31-151	10.6		38
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0439</i>		<i>"</i>	<i>0.0392</i>		<i>112</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0384</i>		<i>"</i>	<i>0.0394</i>		<i>97.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0446</i>		<i>"</i>	<i>0.0394</i>		<i>113</i>	<i>21-167</i>			

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/22/14 21:02

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 20, 2014

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Johnson OLY 1

Enclosed are the results of analyses for samples received by Summit Scientific on 08/19/14 16:00. 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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/20/14 00:03

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@18-24'	1408122-01	Soil	08/19/14 10:30	08/19/14 16:00
BH01@30-32'	1408122-02	Soil	08/19/14 14:40	08/19/14 16:00

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.*





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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
08/20/14 00:03

**BH01@18-24'**  
**1408122-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/19/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>910</b>	50	mg/kg	1	1408175	08/19/14	08/19/14	8015M	

Date Sampled: **08/19/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		90.6 %	30-150		"	"	"	"	

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

Date Sampled: **08/19/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>1.0</b>	0.10	mg/kg	10	1408174	08/19/14	08/19/14	EPA 8260B	
<b>Benzene</b>	<b>7.5</b>	0.020	"	"	"	"	"	"	
<b>Toluene</b>	<b>58</b>	0.050	"	"	"	"	"	"	E
<b>Ethylbenzene</b>	<b>12</b>	0.050	"	"	"	"	"	"	E
<b>Xylenes (total)</b>	<b>150</b>	0.10	"	"	"	"	"	"	E
<b>Gasoline Range Hydrocarbons</b>	<b>1900</b>	5.0	"	"	"	"	"	"	E

Date Sampled: **08/19/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		428 %	23-173		"	"	"	"	S-02
<i>Surrogate: Toluene-d8</i>		786 %	20-170		"	"	"	"	S-02
<i>Surrogate: 4-Bromofluorobenzene</i>		206 %	21-167		"	"	"	"	S-02

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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/20/14 00:03

**BH01@30-32'**  
**1408122-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/19/14 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>1900</b>	50	mg/kg	1	1408175	08/19/14	08/19/14	8015M	

Date Sampled: **08/19/14 14:40**

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: **08/19/14 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>1.3</b>	0.10	mg/kg	10	1408174	08/19/14	08/19/14	EPA 8260B	
<b>Benzene</b>	<b>14</b>	0.020	"	"	"	"	"	"	E
<b>Toluene</b>	<b>89</b>	0.050	"	"	"	"	"	"	E
<b>Ethylbenzene</b>	<b>11</b>	0.050	"	"	"	"	"	"	E
<b>Xylenes (total)</b>	<b>120</b>	0.10	"	"	"	"	"	"	E
<b>Gasoline Range Hydrocarbons</b>	<b>1900</b>	5.0	"	"	"	"	"	"	E

Date Sampled: **08/19/14 14:40**

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>		789 %	20-170		"	"	"	"	S-02
<i>Surrogate: 4-Bromofluorobenzene</i>		179 %	21-167		"	"	"	"	S-02

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: Johnson OLY 1  
 Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 08/20/14 00:03

**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 1408175 - EPA 3550A**

<b>Blank (1408175-BLK1)</b>				Prepared & Analyzed: 08/19/14						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1408175-BS1)</b>				Prepared & Analyzed: 08/19/14						
C10-C28 (DRO)	440	50	mg/kg	491		89.6	73-134			
<b>Matrix Spike (1408175-MS1)</b>				Source: 1408123-01 Prepared & Analyzed: 08/19/14						
C10-C28 (DRO)	533	50	mg/kg	498	ND	107	50-148			
<b>Matrix Spike Dup (1408175-MSD1)</b>				Source: 1408123-01 Prepared & Analyzed: 08/19/14						
C10-C28 (DRO)	563	50	mg/kg	498	ND	113	50-148	5.42	13	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
08/20/14 00:03

**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 1408174 - EPA 5030 Soil MS**

**Blank (1408174-BLK1)**

Prepared & Analyzed: 08/19/14

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>0.0370</i>		<i>"</i>	<i>0.0376</i>		<i>98.3</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0385</i>		<i>"</i>	<i>0.0380</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0391</i>		<i>"</i>	<i>0.0380</i>		<i>103</i>	<i>21-167</i>			

**LCS (1408174-BS1)**

Prepared & Analyzed: 08/19/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.112	0.0020	"	0.0936		119	58-130			
Toluene	0.111	0.0050	"	0.0936		119	61-134			
Ethylbenzene	0.120	0.0050	"	0.0929		129	74-139			
m,p-Xylene	0.237	0.010	"	0.187		127	73-137			
o-Xylene	0.115	0.0050	"	0.0921		125	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0361</i>		<i>"</i>	<i>0.0371</i>		<i>97.3</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0381</i>		<i>"</i>	<i>0.0375</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0368</i>		<i>"</i>	<i>0.0375</i>		<i>98.3</i>	<i>21-167</i>			

**Matrix Spike (1408174-MS1)**

Source: 1408123-01

Prepared & Analyzed: 08/19/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.112	0.0020	"	0.0956	ND	117	30-131			
Toluene	0.110	0.0050	"	0.0956	ND	116	30-134			
Ethylbenzene	0.121	0.0050	"	0.0948	ND	128	22-153			
m,p-Xylene	0.243	0.010	"	0.191	ND	127	10-159			
o-Xylene	0.117	0.0050	"	0.0941	ND	125	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0385</i>		<i>"</i>	<i>0.0379</i>		<i>102</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0396</i>		<i>"</i>	<i>0.0382</i>		<i>103</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0375</i>		<i>"</i>	<i>0.0382</i>		<i>98.2</i>	<i>21-167</i>			

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
 Project Manager: Brandon Brunns

Reported:  
 08/20/14 00:03

**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 1408174 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1408174-MSD1)</b>	<b>Source: 1408123-01</b>			<b>Prepared &amp; Analyzed: 08/19/14</b>						
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.117	0.0020	"	0.0978	ND	119	30-131	4.20	34	
Toluene	0.114	0.0050	"	0.0978	ND	117	30-134	3.46	30	
Ethylbenzene	0.126	0.0050	"	0.0971	ND	129	22-153	3.87	24	
m,p-Xylene	0.255	0.010	"	0.195	ND	130	10-159	4.91	68	
o-Xylene	0.122	0.0050	"	0.0963	ND	127	31-151	4.26	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0404</i>		<i>"</i>	<i>0.0387</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0404</i>		<i>"</i>	<i>0.0391</i>		<i>103</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0397</i>		<i>"</i>	<i>0.0391</i>		<i>101</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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/20/14 00:03

### 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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 08, 2014

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Johnson OLY 1

Enclosed are the results of analyses for samples received by Summit Scientific on 09/05/14 15:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ben 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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/08/14 11:33

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01D@38'	1409039-01	Soil	09/05/14 10:10	09/05/14 15:00
BH02@18-20'	1409039-02	Soil	09/05/14 11:05	09/05/14 15:00
BH02@25-27'	1409039-03	Soil	09/05/14 11:30	09/05/14 15:00
BH02@37'	1409039-04	Soil	09/05/14 11:50	09/05/14 15:00
BH03@18-20'	1409039-05	Soil	09/05/14 12:40	09/05/14 15:00
BH03@27-29'	1409039-06	Soil	09/05/14 13:00	09/05/14 15:00
BH03@35'	1409039-07	Soil	09/05/14 13:15	09/05/14 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.*



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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/08/14 11:33

1409039

# Summit Scientific

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

Page 1 of 1

Client PDC/Tasman  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Eric Siegel

Project Manager: Brandon Bruns  
E-Mail: \_\_\_\_\_  
Project Name: Johnson Oly 1  
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)	8200 BTEX	8200B CBTEXN	
RH01 @ 36'	9/5/14	10:10	2			X						X	X	
RH02 @ 18-20'		11:05												
RH02 @ 25-27'		11:30												
RH02 @ 37'		11:50												
RH03 @ 18-20'		12:40												
RH03 @ 27-35'		13:00												
RH03 @ 35'	↓	13:15	↓			↓						↓	↓	

  

Relinquished by: <u>Eric A. Siegel</u>	Date/Time: <u>9/5/14</u>	Received by: <u>[Signature]</u>	Date/Time: <u>9/5/14</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input checked="" type="checkbox"/>	Notes: <u>Results by 9/8</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:		
				Sample Integrity: Temperature Upon Receipt: Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/08/14 11:33

**BH01D@38'**  
**1409039-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/05/14 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>1100</b>	50	mg/kg	1	1409045	09/05/14	09/05/14	8015M	

Date Sampled: **09/05/14 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		101 %	30-150		"	"	"	"	

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

Date Sampled: **09/05/14 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>1.4</b>	1.0	mg/kg	100	1409044	09/05/14	09/06/14	EPA 8260B	
<b>Benzene</b>	<b>11</b>	0.20	"	"	"	"	"	"	
<b>Toluene</b>	<b>75</b>	0.50	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>11</b>	0.50	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>130</b>	1.0	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3100</b>	50	"	"	"	"	"	"	

Date Sampled: **09/05/14 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		86.8 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		127 %	21-167		"	"	"	"	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/08/14 11:33

**BH02@18-20'**  
**1409039-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/05/14 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1409045	09/05/14	09/05/14	8015M	

Date Sampled: **09/05/14 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.9 %	30-150		"	"	"	"	

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

Date Sampled: **09/05/14 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1409044	09/05/14	09/06/14	EPA 8260B	
<b>Benzene</b>	<b>0.019</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.014</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.019</b>	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/05/14 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.4 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/08/14 11:33

**BH02@25-27'**  
**1409039-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/05/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1409045	09/05/14	09/05/14	8015M	

Date Sampled: **09/05/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.4 %	30-150		"	"	"	"	

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

Date Sampled: **09/05/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1409044	09/05/14	09/06/14	EPA 8260B	
<b>Benzene</b>	<b>0.63</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.73</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.025</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.33</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.1</b>	0.50	"	"	"	"	"	"	

Date Sampled: **09/05/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/08/14 11:33

**BH02@37'**  
**1409039-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/05/14 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1409045	09/05/14	09/05/14	8015M	

Date Sampled: **09/05/14 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.1 %	30-150		"	"	"	"	

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

Date Sampled: **09/05/14 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1409044	09/05/14	09/06/14	EPA 8260B	
<b>Benzene</b>	<b>0.31</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.55</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.028</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.35</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.4</b>	0.50	"	"	"	"	"	"	

Date Sampled: **09/05/14 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/08/14 11:33

**BH03@18-20'**  
**1409039-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/05/14 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1409045	09/05/14	09/05/14	8015M	

Date Sampled: **09/05/14 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		99.2 %	30-150		"	"	"	"	

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

Date Sampled: **09/05/14 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1409044	09/05/14	09/06/14	EPA 8260B	
<b>Benzene</b>	<b>0.010</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.0088</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/05/14 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/08/14 11:33

**BH03@27-29'**  
**1409039-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/05/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1409045	09/05/14	09/05/14	8015M	

Date Sampled: **09/05/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		99.0 %	30-150		"	"	"	"	

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

Date Sampled: **09/05/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1409044	09/05/14	09/06/14	EPA 8260B	
<b>Benzene</b>	<b>0.62</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.69</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.020</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.27</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.6</b>	0.50	"	"	"	"	"	"	

Date Sampled: **09/05/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/08/14 11:33

**BH03@35'**  
**1409039-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/05/14 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1409045	09/05/14	09/05/14	8015M	

Date Sampled: **09/05/14 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		100 %	30-150		"	"	"	"	

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

Date Sampled: **09/05/14 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1409044	09/05/14	09/06/14	EPA 8260B	
<b>Benzene</b>	<b>0.23</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.29</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.0098</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.14</b>	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/05/14 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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

Project: Johnson OLY 1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 09/08/14 11:33

**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 1409045 - EPA 3550A**

<b>Blank (1409045-BLK1)</b>				Prepared & Analyzed: 09/05/14						
C10-C28 (DRO)	ND	50	mg/kg							
<b>LCS (1409045-BS1)</b>				Prepared & Analyzed: 09/05/14						
C10-C28 (DRO)	457	50	mg/kg	501	37.9	80.7	73-134			
<b>Matrix Spike (1409045-MS1)</b>				Source: 1409039-02 Prepared & Analyzed: 09/05/14						
C10-C28 (DRO)	436	50	mg/kg	493	37.9	80.7	50-148			
<b>Matrix Spike Dup (1409045-MSD1)</b>				Source: 1409039-02 Prepared & Analyzed: 09/05/14						
C10-C28 (DRO)	446	50	mg/kg	495	37.9	82.4	50-148	2.22	13	

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

Project: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
09/08/14 11:33

**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 1409044 - EPA 5030 Soil MS**

**Blank (1409044-BLK1)**

Prepared: 09/05/14 Analyzed: 09/06/14

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>0.0421</i>		<i>"</i>	<i>0.0396</i>		<i>106</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>94.1</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>21-167</i>			

**LCS (1409044-BS1)**

Prepared: 09/05/14 Analyzed: 09/06/14

Naphthalene	0.135	0.010	mg/kg	0.150		89.9	66-138			
Benzene	0.139	0.0020	"	0.150		92.8	58-130			
Toluene	0.139	0.0050	"	0.150		92.9	61-134			
Ethylbenzene	0.143	0.0050	"	0.150		95.2	74-139			
m,p-Xylene	0.284	0.010	"	0.300		94.6	73-137			
o-Xylene	0.144	0.0050	"	0.150		95.7	73-141			
<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>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.3</i>	<i>21-167</i>			

**Matrix Spike (1409044-MS1)**

Source: 1409039-05

Prepared: 09/05/14 Analyzed: 09/06/14

Naphthalene	0.0285	0.010	mg/kg	0.146	ND	19.6	10-158			
Benzene	0.107	0.0020	"	0.146	0.0101	66.8	30-131			
Toluene	0.0891	0.0050	"	0.146	0.00885	55.1	30-134			
Ethylbenzene	0.0758	0.0050	"	0.146	ND	52.0	22-153			
m,p-Xylene	0.148	0.010	"	0.291	ND	50.7	10-159			
o-Xylene	0.0749	0.0050	"	0.146	ND	51.4	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0467</i>		<i>"</i>	<i>0.0384</i>		<i>121</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0395</i>		<i>"</i>	<i>0.0388</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0395</i>		<i>"</i>	<i>0.0388</i>		<i>102</i>	<i>21-167</i>			

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

Project: Johnson OLY 1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 09/08/14 11:33

**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 1409044 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1409044-MSD1)</b>	<b>Source: 1409039-05</b>			Prepared: 09/05/14		Analyzed: 09/06/14				
Naphthalene	0.0115	0.010	mg/kg	0.148	ND	7.76	10-158	85.3	42	QM-07
Benzene	0.0991	0.0020	"	0.148	0.0101	60.3	30-131	8.09	34	
Toluene	0.0762	0.0050	"	0.148	0.00885	45.6	30-134	15.6	30	
Ethylbenzene	0.0582	0.0050	"	0.148	ND	39.4	22-153	26.2	24	QM-07
m,p-Xylene	0.111	0.010	"	0.295	ND	37.5	10-159	28.5	68	
o-Xylene	0.0581	0.0050	"	0.148	ND	39.3	31-151	25.3	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0472</i>		<i>"</i>	<i>0.0390</i>		<i>121</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0396</i>		<i>"</i>	<i>0.0394</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0399</i>		<i>"</i>	<i>0.0394</i>		<i>101</i>	<i>21-167</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: Johnson OLY 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
09/08/14 11:33

### 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

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