

0 375 750 1,500 Feet



## Figure 1

Site Location Map  
Jerke Up 8-7  
SENE S7 T4N R65W  
Weld County, Colorado

Drawn By: DBA  
Date: 11/22/2013



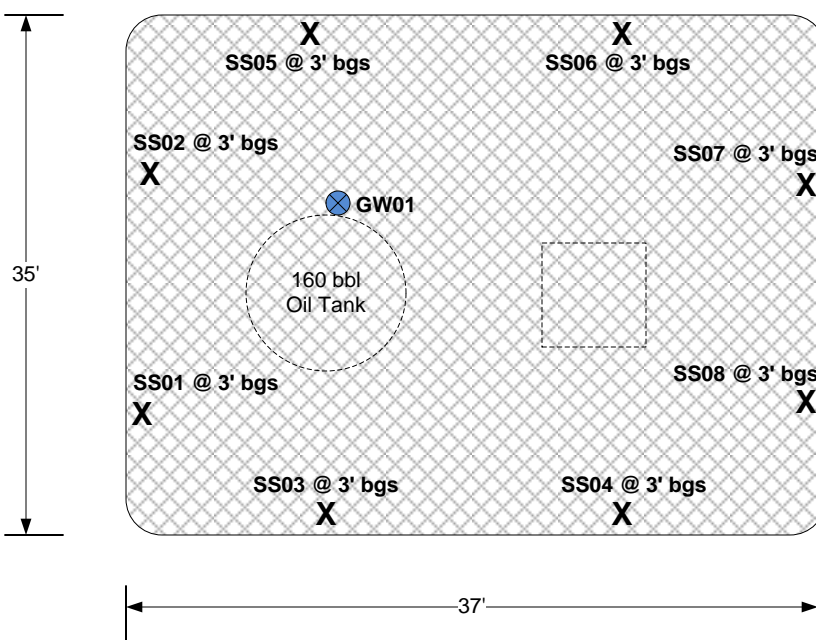
Surface  
Drainage

Noble Tank Battery

X TP01 @ 2.5' bgs

M

Agriculture



Separator

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

Agriculture

DRAWN BY: CAW

DATE: 11/11/2013

**Facility Diagram**  
PDC Energy – DJ Basin  
Jerke Up 8-7  
SENE S7 T4N 65W  
Weld County, CO

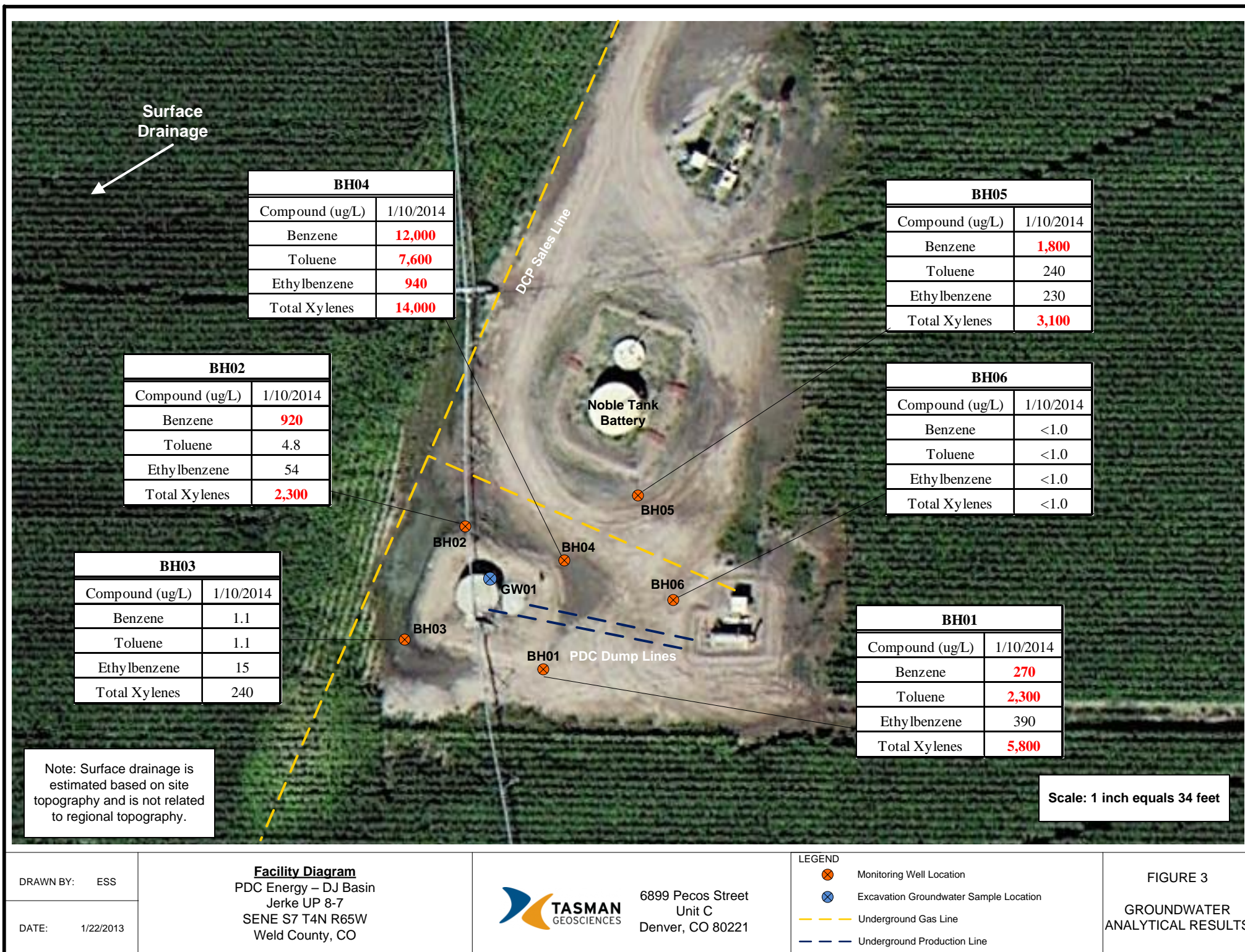


6899 Pecos Street  
Unit C  
Denver, CO 80221

**LEGEND**  
— Former Tank Location  
— Earthen Berm  
- - - Buried Gas Line  
Approximate Area of Excavation  
X Soil Sample Location  
Groundwater Sample Location

**FIGURE 2**  
**EXCAVATION**  
**SITE MAP**  
Not to Scale





DRAWN BY: ESS

DATE: 1/22/2013

**Facility Diagram**  
PDC Energy – DJ Basin  
Jerke UP 8-7  
SENE S7 T4N R65W  
Weld County, CO



6899 Pecos Street  
Unit C  
Denver, CO 80221

FIGURE 3  
GROUNDWATER  
ANALYTICAL RESULTS

**TABLE 1**  
**JERKE UP 8-7**  
**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)
TP01	11/6/2013	2.5	178	0.022	0.0058	0.032	0.73	<0.010	4.6
SS01	11/7/2013	3	89	<0.002	<0.005	<0.005	<0.010	<0.010	0.82
SS02	11/8/2013	3	67	<0.002	<0.005	<0.005	<0.010	<0.010	0.88
SS03	11/8/2013	3	85	0.003	<0.005	<0.005	0.022	<0.010	0.54
SS04	11/8/2013	3	26.2	0.017	0.064	0.085	1.40	0.022	21.0
SS05	11/11/2013	3	190	<0.002	<0.005	0.0096	0.16	<0.010	1.8
SS06	11/11/2013	3	225	0.010	<0.005	0.020	0.37	<0.010	4.3
SS07	11/11/2013	3	210	0.019	<0.005	0.013	0.21	<0.010	1.1
SS08	11/11/2013	3	115	0.100	0.053	0.050	0.79	<0.010	4.0
<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 April 1, 2009.

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**  
**JERKE UP 8-7**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
GW01	11/12/2013	<b>230</b>	370	160	<b>2,220</b>
BH01	1/10/2014	<b>270</b>	<b>2,300</b>	390	<b>5,800</b>
BH02	1/10/2014	<b>920</b>	4.8	54	<b>2,300</b>
BH03	1/10/2014	1.1	1.1	15	240
BH04	1/10/2014	<b>12,000</b>	<b>7,600</b>	<b>940</b>	<b>14,000</b>
BH05	1/10/2014	<b>1,800</b>	240	230	<b>3,100</b>
BH06	1/10/2014	<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

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 06, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Jerke Up 8-7

Enclosed are the results of analyses for samples received by Summit Scientific on 11/06/13 12:00. 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' or '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: Jerke Up 8-7

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/06/13 17:45

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP01@2.5'	R311041-01	Soil	11/06/13 10:30	11/06/13 12:00

Summit Scientific  
R311041

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

Client: PDC Energy  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: 11/10/2002

Project Manager: Brandon Davis  
E-Mail: \_\_\_\_\_  
Project Name: LOCKUP 8-7  
Project Number: \_\_\_\_\_

Page 1 of 1

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
11/06/13 17:45

**TP01@2.5'**  
**R311041-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 11/06/13 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3110512	11/06/13	11/06/13	8015M	

Date Sampled: 11/06/13 10:30

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

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

Date Sampled: 11/06/13 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3110511	11/06/13	11/06/13	EPA 8260B	
Benzene	0.022	0.0020	"	"	"	"	"	"	
Toluene	0.0058	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.032	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.73	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	4.6	0.50	"	"	"	"	"	"	

Date Sampled: 11/06/13 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/06/13 17:45

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

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

**Batch 3110512 - EPA 3550A**

**Blank (3110512-BLK1)**

Prepared & Analyzed: 11/05/13

C10-C28 (DRO) ND 50 mg/kg

**LCS (3110512-BS1)**

Prepared & Analyzed: 11/05/13

C10-C28 (DRO) 467 50 mg/kg 501 93.3 73-134

**LCS Dup (3110512-BSD1)**

Prepared & Analyzed: 11/05/13

C10-C28 (DRO) 471 50 mg/kg 501 93.9 73-134 0.681 11

**Matrix Spike (3110512-MS1)**

**Source: R311015-03**

Prepared: 11/05/13 Analyzed: 11/06/13

C10-C28 (DRO) 448 50 mg/kg 451 20.0 94.9 50-148

**Matrix Spike Dup (3110512-MSD1)**

**Source: R311015-03**

Prepared: 11/05/13 Analyzed: 11/06/13

C10-C28 (DRO) 463 50 mg/kg 462 20.0 95.8 50-148 3.26 13

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
11/06/13 17:45

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

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

**Batch 3110511 - EPA 5030 Soil MS**

**Blank (3110511-BLK1)**

Prepared: 11/05/13 Analyzed: 11/06/13

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	0.0386	"	0.0397	97.2	23-173
Surrogate: Toluene-d8	0.0374	"	0.0400	93.4	20-170
Surrogate: 4-Bromofluorobenzene	0.0360	"	0.0400	90.1	21-167

**LCS (3110511-BS1)**

Prepared: 11/05/13 Analyzed: 11/06/13

Naphthalene	0.138	0.010	mg/kg	0.150	92.0	66-138
Benzene	0.149	0.0020	"	0.150	99.2	58-130
Toluene	0.159	0.0050	"	0.150	106	61-134
Ethylbenzene	0.160	0.0050	"	0.150	107	74-139
m,p-Xylene	0.324	0.010	"	0.300	108	73-137
o-Xylene	0.162	0.0050	"	0.150	108	73-141

Surrogate: 1,2-Dichloroethane-d4	0.0291	"	0.0397	73.3	23-173
Surrogate: Toluene-d8	0.0389	"	0.0400	97.3	20-170
Surrogate: 4-Bromofluorobenzene	0.0383	"	0.0400	95.7	21-167

**LCS Dup (3110511-BSD1)**

Prepared: 11/05/13 Analyzed: 11/06/13

Naphthalene	0.151	0.010	mg/kg	0.150	100	66-138	8.79	12
Benzene	0.142	0.0020	"	0.150	94.6	58-130	4.66	13
Toluene	0.148	0.0050	"	0.150	98.6	61-134	7.52	16
Ethylbenzene	0.152	0.0050	"	0.150	102	74-139	5.03	12
m,p-Xylene	0.309	0.010	"	0.300	103	73-137	4.59	14
o-Xylene	0.155	0.0050	"	0.150	104	73-141	4.38	12

Surrogate: 1,2-Dichloroethane-d4	0.0360	"	0.0397	90.7	23-173
Surrogate: Toluene-d8	0.0378	"	0.0400	94.5	20-170
Surrogate: 4-Bromofluorobenzene	0.0383	"	0.0400	95.7	21-167

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/06/13 17:45

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

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

**Batch 3110511 - EPA 5030 Soil MS**

**Matrix Spike (3110511-MS1)**

**Source: R311013-01**

Prepared: 11/05/13

Analyzed: 11/06/13

Naphthalene	0.127	0.010	mg/kg	0.148	ND	85.5	10-158		
Benzene	0.124	0.0020	"	0.148	ND	84.0	30-131		
Toluene	0.131	0.0050	"	0.148	ND	88.3	30-134		
Ethylbenzene	0.129	0.0050	"	0.148	ND	86.9	22-153		
m,p-Xylene	0.263	0.010	"	0.296	ND	89.0	10-159		
o-Xylene	0.132	0.0050	"	0.148	ND	89.1	31-151		
Surrogate: 1,2-Dichloroethane-d4	0.0381		"	0.0392		97.4	23-173		
Surrogate: Toluene-d8	0.0377		"	0.0394		95.5	20-170		
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0394		96.8	21-167		

**Matrix Spike Dup (3110511-MSD1)**

**Source: R311013-01**

Prepared: 11/05/13

Analyzed: 11/06/13

Naphthalene	0.135	0.010	mg/kg	0.146	ND	92.6	10-158	6.41	42
Benzene	0.127	0.0020	"	0.146	ND	87.3	30-131	2.29	34
Toluene	0.133	0.0050	"	0.146	ND	91.4	30-134	1.97	30
Ethylbenzene	0.133	0.0050	"	0.146	ND	91.4	22-153	3.53	24
m,p-Xylene	0.272	0.010	"	0.291	ND	93.3	10-159	3.07	68
o-Xylene	0.136	0.0050	"	0.146	ND	93.4	31-151	3.19	38
Surrogate: 1,2-Dichloroethane-d4	0.0386		"	0.0385		100	23-173		
Surrogate: Toluene-d8	0.0375		"	0.0388		96.4	20-170		
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0388		98.3	21-167		

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/06/13 17:45

### 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

A handwritten signature in black ink, appearing to be 'JMB'.

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 08, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Jerke Up 8-7

Enclosed are the results of analyses for samples received by Summit Scientific on 11/07/13 17:00. 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' or '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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
11/08/13 18:11

**SS01@3'**  
**R311046-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 11/07/13 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3110709	11/07/13	11/07/13	8015M	

Date Sampled: 11/07/13 10:10

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

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

Date Sampled: 11/07/13 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3110708	11/07/13	11/07/13	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.82	0.50	"	"	"	"	"	"	

Date Sampled: 11/07/13 10:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/08/13 18:11

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

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

**Batch 3110709 - EPA 3550A**

**Blank (3110709-BLK1)**

Prepared & Analyzed: 11/07/13

C10-C28 (DRO) ND 50 mg/kg

**LCS (3110709-BS1)**

Prepared & Analyzed: 11/07/13

C10-C28 (DRO) 549 50 mg/kg 501 110 73-134

**Matrix Spike (3110709-MS1)**

**Source: R311045-01**

Prepared & Analyzed: 11/07/13

C10-C28 (DRO) 474 50 mg/kg 469 ND 101 50-148

**Matrix Spike Dup (3110709-MSD1)**

**Source: R311045-01**

Prepared & Analyzed: 11/07/13

C10-C28 (DRO) 476 50 mg/kg 474 ND 101 50-148 0.515 13

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
11/08/13 18:11

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

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

**Batch 3110708 - EPA 5030 Soil MS**

**Blank (3110708-BLK1)**

Prepared & Analyzed: 11/07/13

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	0.0420		"	0.0397	106	23-173				
Surrogate: Toluene-d8	0.0405		"	0.0400	101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400	100	21-167				

**LCS (3110708-BS1)**

Prepared: 11/07/13 Analyzed: 11/08/13

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0942	0.0020	"	0.100	94.2	58-130				
Toluene	0.0979	0.0050	"	0.100	97.9	61-134				
Ethylbenzene	0.103	0.0050	"	0.100	103	74-139				
m,p-Xylene	0.207	0.010	"	0.200	104	73-137				
o-Xylene	0.0997	0.0050	"	0.100	99.7	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0408		"	0.0397	103	23-173				
Surrogate: Toluene-d8	0.0398		"	0.0400	99.4	20-170				
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400	101	21-167				

**Matrix Spike (3110708-MS1)**

Source: R311045-01

Prepared & Analyzed: 11/07/13

Naphthalene	ND	0.010	mg/kg		ND	10-158				
Benzene	0.0936	0.0020	"	0.0986	ND	94.9	30-131			
Toluene	0.0970	0.0050	"	0.0986	ND	98.3	30-134			
Ethylbenzene	0.101	0.0050	"	0.0986	ND	103	22-153			
m,p-Xylene	0.201	0.010	"	0.197	ND	102	10-159			
o-Xylene	0.0978	0.0050	"	0.0986	ND	99.1	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0405		"	0.0392	103	23-173				
Surrogate: Toluene-d8	0.0399		"	0.0394	101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0394	98.4	21-167				

Summit Scientific

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
11/08/13 18:11

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

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

**Batch 3110708 - EPA 5030 Soil MS**

Matrix Spike Dup (3110708-MSD1)		Source: R311045-01			Prepared & Analyzed: 11/07/13					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0933	0.0020	"	0.0984	ND	94.8	30-131	0.324	34	
Toluene	0.0972	0.0050	"	0.0984	ND	98.8	30-134	0.229	30	
Ethylbenzene	0.102	0.0050	"	0.0984	ND	103	22-153	0.444	24	
m,p-Xylene	0.202	0.010	"	0.197	ND	103	10-159	0.684	68	
o-Xylene	0.0984	0.0050	"	0.0984	ND	100	31-151	0.647	38	
Surrogate: 1,2-Dichloroethane-d4	0.0415		"	0.0391		106	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0394		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0384		"	0.0394		97.4	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: Jerke Up 8-7

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/08/13 18:11

### Notes and Definitions

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

A handwritten signature in black ink, appearing to be 'JMB'.



# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 10, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Jerke Up 8-7

Enclosed are the results of analyses for samples received by Summit Scientific on 11/08/13 17:00. 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' or '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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/10/13 21:03

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS02@3'	R311053-01	Soil	11/08/13 13:00	11/08/13 17:00
SS03@3'	R311053-02	Soil	11/08/13 13:10	11/08/13 17:00
SS04@3'	R311053-03	Soil	11/08/13 13:20	11/08/13 17:00

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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
11/10/13 21:03

**SS02@3'**  
**R311053-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 11/08/13 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3110809	11/08/13	11/10/13	8015M	

Date Sampled: 11/08/13 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.9 %	30-150		"	"	"	"	

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

Date Sampled: 11/08/13 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3110808	11/08/13	11/08/13	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.88	0.50	"	"	"	"	"	"	

Date Sampled: 11/08/13 13:00

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

Summit Scientific

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





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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/10/13 21:03

**SS03@3'**  
**R311053-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 11/08/13 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3110809	11/08/13	11/10/13	8015M	

Date Sampled: 11/08/13 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.1 %	30-150		"	"	"	"	

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

Date Sampled: 11/08/13 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3110808	11/08/13	11/08/13	EPA 8260B	
<b>Benzene</b>	<b>0.0030</b>	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.022</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.54</b>	0.50	"	"	"	"	"	"	

Date Sampled: 11/08/13 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/10/13 21:03

**SS04@3'**  
**R311053-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 11/08/13 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3110809	11/08/13	11/10/13	8015M	

Date Sampled: 11/08/13 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.4 %	30-150		"	"	"	"	

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

Date Sampled: 11/08/13 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.022	0.010	mg/kg	1	3110808	11/08/13	11/08/13	EPA 8260B	
Benzene	0.017	0.0020	"	"	"	"	"	"	
Toluene	0.064	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.085	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.4	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	21	0.50	"	"	"	"	"	"	

Date Sampled: 11/08/13 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		129 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/10/13 21:03

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

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

**Batch 3110809 - EPA 3550A**

**Blank (3110809-BLK1)**

Prepared: 11/08/13 Analyzed: 11/10/13

C10-C28 (DRO) ND 50 mg/kg

**LCS (3110809-BS1)**

Prepared: 11/08/13 Analyzed: 11/10/13

C10-C28 (DRO) 506 50 mg/kg 501 101 73-134

**LCS Dup (3110809-BSD1)**

Prepared: 11/08/13 Analyzed: 11/10/13

C10-C28 (DRO) 515 50 mg/kg 501 103 73-134 1.77 11

**Matrix Spike (3110809-MS1)**

**Source: R311052-01**

Prepared: 11/08/13 Analyzed: 11/10/13

C10-C28 (DRO) 438 50 mg/kg 485 28.8 84.2 50-148

**Matrix Spike Dup (3110809-MSD1)**

**Source: R311052-01**

Prepared: 11/08/13 Analyzed: 11/10/13

C10-C28 (DRO) 429 50 mg/kg 488 28.8 81.9 50-148 2.07 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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/10/13 21:03

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

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

**Batch 3110808 - EPA 5030 Soil MS**

**Blank (3110808-BLK1)**

Prepared & Analyzed: 11/08/13

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	0.0428		"	0.0397	108	23-173				
Surrogate: Toluene-d8	0.0402		"	0.0400	100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400	102	21-167				

**LCS (3110808-BS1)**

Prepared & Analyzed: 11/08/13

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0906	0.0020	"	0.100	90.6	58-130				
Toluene	0.105	0.0050	"	0.100	105	61-134				
Ethylbenzene	0.130	0.0050	"	0.100	130	74-139				
m,p-Xylene	0.247	0.010	"	0.200	123	73-137				
o-Xylene	0.120	0.0050	"	0.100	120	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0421		"	0.0397	106	23-173				
Surrogate: Toluene-d8	0.0388		"	0.0400	97.0	20-170				
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400	100	21-167				

**LCS Dup (3110808-BSD1)**

Prepared & Analyzed: 11/08/13

Naphthalene	ND	0.010	mg/kg			66-138		12		
Benzene	0.0913	0.0020	"	0.100	91.3	58-130	0.792	13		
Toluene	0.109	0.0050	"	0.100	109	61-134	4.01	16		
Ethylbenzene	0.130	0.0050	"	0.100	130	74-139	0.00	12		
m,p-Xylene	0.247	0.010	"	0.200	124	73-137	0.207	14		
o-Xylene	0.120	0.0050	"	0.100	120	73-141	0.0752	12		
Surrogate: 1,2-Dichloroethane-d4	0.0419		"	0.0397	105	23-173				
Surrogate: Toluene-d8	0.0401		"	0.0400	100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400	99.2	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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/10/13 21:03

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

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

**Batch 3110808 - EPA 5030 Soil MS**

**Matrix Spike (3110808-MS1)**

**Source: R311052-01**

Prepared & Analyzed: 11/08/13

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0904	0.0020	"	0.0990	ND	91.4	30-131			
Toluene	0.104	0.0050	"	0.0990	ND	105	30-134			
Ethylbenzene	0.129	0.0050	"	0.0990	ND	130	22-153			
m,p-Xylene	0.244	0.010	"	0.198	ND	123	10-159			
o-Xylene	0.118	0.0050	"	0.0990	ND	119	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0431		"	0.0393		110	23-173			
Surrogate: Toluene-d8	0.0393		"	0.0396		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0396		99.5	21-167			

**Matrix Spike Dup (3110808-MSD1)**

**Source: R311052-01**

Prepared & Analyzed: 11/08/13

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0885	0.0020	"	0.0977	ND	90.6	30-131	2.17	34	
Toluene	0.106	0.0050	"	0.0977	ND	108	30-134	1.66	30	
Ethylbenzene	0.127	0.0050	"	0.0977	ND	130	22-153	1.61	24	
m,p-Xylene	0.239	0.010	"	0.195	ND	122	10-159	2.09	68	
o-Xylene	0.118	0.0050	"	0.0977	ND	120	31-151	0.550	38	
Surrogate: 1,2-Dichloroethane-d4	0.0431		"	0.0388		111	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0391		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0391		101	21-167			

Summit Scientific

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



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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/10/13 21:03

### 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

A handwritten signature in black ink, appearing to be 'JMB'.

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 12, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Jerke Up 8-7

Enclosed are the results of analyses for samples received by Summit Scientific on 11/11/13 16:30. 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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/12/13 20:40

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS05@3'	R311063-01	Soil	11/11/13 09:15	11/11/13 16:30
SS06@3'	R311063-02	Soil	11/11/13 09:20	11/11/13 16:30
SS07@3'	R311063-03	Soil	11/11/13 13:00	11/11/13 16:30
SS08@3'	R311063-04	Soil	11/11/13 13:15	11/11/13 16:30

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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
11/12/13 20:40

SS05@3'  
R311063-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 11/11/13 09:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3111114	11/11/13	11/11/13	8015M	

Date Sampled: 11/11/13 09:15

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 11/11/13 09:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3111113	11/11/13	11/11/13	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.0096	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.16	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.8	0.50	"	"	"	"	"	"	

Date Sampled: 11/11/13 09:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.1 %	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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/12/13 20:40

**SS06@3'**  
**R311063-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 11/11/13 09:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3111114	11/11/13	11/11/13	8015M	

Date Sampled: 11/11/13 09:20

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

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

Date Sampled: 11/11/13 09:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3111113	11/11/13	11/11/13	EPA 8260B	
<b>Benzene</b>	<b>0.010</b>	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.020</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.37</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>4.3</b>	0.50	"	"	"	"	"	"	

Date Sampled: 11/11/13 09:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.2 %	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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/12/13 20:40

**SS07@3'**  
**R311063-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 11/11/13 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3111114	11/11/13	11/11/13	8015M	

Date Sampled: 11/11/13 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.8 %	30-150		"	"	"	"	

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

Date Sampled: 11/11/13 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3111113	11/11/13	11/11/13	EPA 8260B	
<b>Benzene</b>	<b>0.019</b>	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.013</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.21</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.1</b>	0.50	"	"	"	"	"	"	

Date Sampled: 11/11/13 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	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: Jerke Up 8-7

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/12/13 20:40

**SS08@3'**  
**R311063-04 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 11/11/13 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3111114	11/11/13	11/11/13	8015M	

Date Sampled: 11/11/13 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.4 %	30-150		"	"	"	"	

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

Date Sampled: 11/11/13 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3111113	11/11/13	11/11/13	EPA 8260B	
<b>Benzene</b>	<b>0.10</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.053</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.050</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.79</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>4.0</b>	0.50	"	"	"	"	"	"	

Date Sampled: 11/11/13 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/12/13 20:40

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

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

**Batch 3111114 - EPA 3550A**

**Blank (3111114-BLK1)**

Prepared & Analyzed: 11/11/13

C10-C28 (DRO) ND 50 mg/kg

**LCS (3111114-BS1)**

Prepared & Analyzed: 11/11/13

C10-C28 (DRO) 512 50 mg/kg 501 102 73-134

**Matrix Spike (3111114-MS1)**

**Source: R311062-01**

Prepared & Analyzed: 11/11/13

C10-C28 (DRO) 521 50 mg/kg 467 20.3 107 50-148

**Matrix Spike Dup (3111114-MSD1)**

**Source: R311062-01**

Prepared: 11/11/13 Analyzed: 11/12/13

C10-C28 (DRO) 470 50 mg/kg 461 20.3 97.4 50-148 10.3 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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
11/12/13 20:40

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

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

**Batch 3111113 - EPA 5030 Soil MS**

**Blank (3111113-BLK1)**

Prepared & Analyzed: 11/11/13

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	0.0419		"	0.0397		105	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	21-167			

**LCS (3111113-BS1)**

Prepared & Analyzed: 11/11/13

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0914	0.0020	"	0.100		91.4	58-130			
Toluene	0.106	0.0050	"	0.100		106	61-134			
Ethylbenzene	0.129	0.0050	"	0.100		129	74-139			
m,p-Xylene	0.243	0.010	"	0.200		122	73-137			
o-Xylene	0.119	0.0050	"	0.100		119	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0397		107	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400		101	21-167			

**Matrix Spike (3111113-MS1)**

Source: R311062-01

Prepared & Analyzed: 11/11/13

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0846	0.0020	"	0.0933	ND	90.7	30-131			
Toluene	0.0982	0.0050	"	0.0933	ND	105	30-134			
Ethylbenzene	0.120	0.0050	"	0.0933	ND	129	22-153			
m,p-Xylene	0.226	0.010	"	0.187	ND	121	10-159			
o-Xylene	0.112	0.0050	"	0.0933	ND	120	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0414		"	0.0370		112	23-173			
Surrogate: Toluene-d8	0.0372		"	0.0373		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0372		"	0.0373		99.6	21-167			

Summit Scientific

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
11/12/13 20:40

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

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

**Batch 3111113 - EPA 5030 Soil MS**

Matrix Spike Dup (3111113-MSD1)		Source: R311062-01			Prepared & Analyzed: 11/11/13					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0816	0.0020	"	0.0898	ND	90.9	30-131	3.61	34	
Toluene	0.0947	0.0050	"	0.0898	ND	105	30-134	3.67	30	
Ethylbenzene	0.117	0.0050	"	0.0898	ND	130	22-153	3.24	24	
m,p-Xylene	0.220	0.010	"	0.180	ND	123	10-159	2.80	68	
o-Xylene	0.108	0.0050	"	0.0898	ND	120	31-151	3.82	38	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	0.0388		"	0.0356		109	23-173			
Surrogate: Toluene-d8	0.0356		"	0.0359		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0357		"	0.0359		99.5	21-167			

Summit Scientific

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/12/13 20:40

### 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

A handwritten signature in black ink, appearing to be 'JMB'.

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 19, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Jerke Up 8-7

Enclosed are the results of analyses for samples received by Summit Scientific on 11/12/13 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 be 'BS' or 'Shrewsbury', written in a cursive style.

Ben Shrewsbury  
President / Laboratory Manager





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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
11/19/13 15:58

**GW01**  
**R311075-01 (Water)**

**Summit Scientific**

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

Date Sampled: 11/12/13 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>230</b>	100	ug/l	100	3111706	11/17/13	11/18/13	EPA 8260B	
<b>Toluene</b>	<b>370</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>160</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>2200</b>	100	"	"	"	"	"	"	

Date Sampled: 11/12/13 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		99.4 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.1 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.7 %	45-146		"	"	"	"	

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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/19/13 15:58

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

### Summit Scientific

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

#### Batch 3111706 - EPA 5030 Water MS

##### Blank (3111706-BLK1)

Prepared & Analyzed: 11/17/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2	104	37-154				
Surrogate: Toluene-d8	13.2		"	13.3	99.4	45-149				
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3	102	45-146				

##### LCS (3111706-BS1)

Prepared & Analyzed: 11/17/13

Benzene	30.1	1.0	ug/l	33.3	90.3	51-132				
Toluene	31.8	1.0	"	33.3	95.3	51-138				
Ethylbenzene	33.7	1.0	"	33.3	101	58-146				
m,p-Xylene	65.1	2.0	"	66.7	97.6	57-144				
o-Xylene	32.7	1.0	"	33.3	98.2	53-146				
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2	104	37-154				
Surrogate: Toluene-d8	13.3		"	13.3	100	45-149				
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3	98.3	45-146				

##### LCS (3111706-BS2)

Prepared & Analyzed: 11/17/13

Benzene	30.7	1.0	ug/l	33.3	92.1	51-132				
Toluene	32.8	1.0	"	33.3	98.3	51-138				
Ethylbenzene	34.3	1.0	"	33.3	103	58-146				
m,p-Xylene	67.0	2.0	"	66.7	101	57-144				
o-Xylene	33.3	1.0	"	33.3	99.9	53-146				
Surrogate: 1,2-Dichloroethane-d4	14.7		"	13.2	111	37-154				
Surrogate: Toluene-d8	13.5		"	13.3	101	45-149				
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3	97.8	45-146				

Summit Scientific

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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
11/19/13 15:58

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

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

**Batch 3111706 - EPA 5030 Water MS**

Matrix Spike (3111706-MS1)		Source: R311091-04			Prepared & Analyzed: 11/17/13					
Benzene	31.1	1.0	ug/l	33.3	1.86	87.7	34-141			
Toluene	32.1	1.0	"	33.3	ND	96.2	27-151			
Ethylbenzene	38.9	1.0	"	33.3	5.70	99.7	29-160			
m,p-Xylene	76.3	2.0	"	66.7	15.5	91.3	20-166			
o-Xylene	33.4	1.0	"	33.3	ND	100	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.2		106	37-154			
Surrogate: Toluene-d8	13.8		"	13.3		103	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.7	45-146			

Matrix Spike (3111706-MS2)		Source: R311091-05			Prepared & Analyzed: 11/17/13					
Benzene	30.4	1.0	ug/l	33.3	ND	91.2	34-141			
Toluene	33.3	1.0	"	33.3	ND	99.9	27-151			
Ethylbenzene	34.0	1.0	"	33.3	ND	102	29-160			
m,p-Xylene	66.2	2.0	"	66.7	ND	99.3	20-166			
o-Xylene	33.0	1.0	"	33.3	ND	99.1	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.2		109	37-154			
Surrogate: Toluene-d8	13.6		"	13.3		102	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.4	45-146			

Matrix Spike Dup (3111706-MSD1)		Source: R311091-04			Prepared & Analyzed: 11/17/13					
Benzene	31.1	1.0	ug/l	33.3	1.86	87.8	34-141	0.129	32	
Toluene	32.5	1.0	"	33.3	ND	97.4	27-151	1.18	25	
Ethylbenzene	42.1	1.0	"	33.3	5.70	109	29-160	7.90	50	
m,p-Xylene	80.8	2.0	"	66.7	15.5	98.0	20-166	5.70	36	
o-Xylene	34.4	1.0	"	33.3	ND	103	33-159	3.04	26	
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.2		105	37-154			
Surrogate: Toluene-d8	13.7		"	13.3		103	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.3	45-146			

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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
11/19/13 15:58

### 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

A handwritten signature in black ink, appearing to be 'JMB'.

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 16, 2014

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Jerke Up 8-7

Enclosed are the results of analyses for samples received by Summit Scientific on 01/10/14 15:13. 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' or 'Shrewsbury', written in a cursive style.

Ben Shrewsbury  
President / Laboratory Manager



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

Project: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
01/16/14 16:39

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1401044-01	Water	01/10/14 12:40	01/10/14 15:13
BH02	1401044-02	Water	01/10/14 12:45	01/10/14 15:13
BH03	1401044-03	Water	01/10/14 12:50	01/10/14 15:13
BH04	1401044-04	Water	01/10/14 12:55	01/10/14 15:13
BH05	1401044-05	Water	01/10/14 13:00	01/10/14 15:13
BH06	1401044-06	Water	01/10/14 13:05	01/10/14 15:13

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: Jerke Up 8-7

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/16/14 16:39

Summit Scientific

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

302-2179310 • 302-314-5933 FAX

Page 1 of 1

Client: DEL himan

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Project Manager: Brandon Bruns

E-Mail: \_\_\_\_\_

Project Name: Jerke v P 8-7

Project Number: \_\_\_\_\_

Sample Name: EAL 56d

Client: PDL/TLS

Address \_\_\_\_\_

City/State/Zip:

Pharm

101

Sampler Name: Eric S. S. S.

[illegible]

[www.s2scientific.com](http://www.s2scientific.com)

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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/16/14 16:39

**BH01**  
**1401044-01 (Water)**

**Summit Scientific**

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

Date Sampled: **01/10/14 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>270</b>	1.0	ug/l	1	1401046	01/14/14	01/14/14	EPA 8260B	
<b>Toluene</b>	<b>2300</b>	50	"	50	"	"	01/14/14	"	
<b>Ethylbenzene</b>	<b>390</b>	50	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>5800</b>	50	"	"	"	"	"	"	

Date Sampled: **01/10/14 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		93.2 %	37-154		"	"	01/14/14	"	
<i>Surrogate: Toluene-d8</i>		112 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.6 %	45-146		"	"	"	"	

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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/16/14 16:39

**BH02**  
**1401044-02 (Water)**

**Summit Scientific**

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

Date Sampled: **01/10/14 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Benzene</b>	<b>920</b>	50	ug/l	50	1401046	01/14/14	01/14/14	EPA 8260B	
<b>Toluene</b>	<b>4.8</b>	1.0	"	1	"	"	01/14/14	"	
<b>Ethylbenzene</b>	<b>54</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>2300</b>	50	"	50	"	"	01/14/14	"	

Date Sampled: **01/10/14 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<i>Surrogate: 1,2-Dichloroethane-d4</i>		113 %	37-154		"	"	01/14/14	"	
<i>Surrogate: Toluene-d8</i>		106 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.1 %	45-146		"	"	"	"	

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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
01/16/14 16:39

**BH03**  
**1401044-03 (Water)**

**Summit Scientific**

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

Date Sampled: **01/10/14 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>1.1</b>	1.0		ug/l	1	1401046	01/14/14	01/14/14	EPA 8260B	
<b>Toluene</b>	<b>1.1</b>	1.0		"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>15</b>	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>240</b>	1.0		"	"	"	"	"	"	

Date Sampled: **01/10/14 12:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.3 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %		45-146		"	"	"	"	

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: Jerke Up 8-7  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
01/16/14 16:39

**BH04**  
**1401044-04 (Water)**

**Summit Scientific**

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

Date Sampled: **01/10/14 12:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>12000</b>	50		ug/l	50	1401046	01/14/14	01/14/14	EPA 8260B	
<b>Toluene</b>	<b>7600</b>	50		"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>940</b>	50		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>14000</b>	50		"	"	"	"	"	"	

Date Sampled: **01/10/14 12:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		97.6 %		37-154		"	"	01/14/14	"	
<i>Surrogate: Toluene-d8</i>		134 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		92.4 %		45-146		"	"	"	"	

Summit Scientific

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Project Manager: Brandon Brunns

**Reported:**  
01/16/14 16:39

**BH05**  
**1401044-05 (Water)**

**Summit Scientific**

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

Date Sampled: **01/10/14 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Benzene</b>	<b>1800</b>	50	ug/l	50	1401046	01/14/14	01/14/14	EPA 8260B	
<b>Toluene</b>	<b>240</b>	1.0	"	1	"	"	01/14/14	"	
<b>Ethylbenzene</b>	<b>230</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>3100</b>	50	"	50	"	"	01/14/14	"	

Date Sampled: **01/10/14 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<i>Surrogate: 1,2-Dichloroethane-d4</i>		95.2 %	37-154		"	"	01/14/14	"	
<i>Surrogate: Toluene-d8</i>		103 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.7 %	45-146		"	"	"	"	

Summit Scientific

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Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
01/16/14 16:39

**BH06**  
**1401044-06 (Water)**

**Summit Scientific**

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

Date Sampled: **01/10/14 13:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1401046	01/14/14	01/14/14	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **01/10/14 13:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		107 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		96.0 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		45-146		"	"	"	"	

Summit Scientific

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Project Manager: Brandon Bruns

Reported:  
01/16/14 16:39

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

### Summit Scientific

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

#### Batch 1401046 - EPA 5030 Water MS

##### Blank (1401046-BLK1)

Prepared & Analyzed: 01/14/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.2		110	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.9	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		104	45-146			

##### LCS (1401046-BS1)

Prepared & Analyzed: 01/14/14

Benzene	31.8	1.0	ug/l	33.3		95.4	51-132			
Toluene	31.1	1.0	"	33.3		93.2	51-138			
Ethylbenzene	33.5	1.0	"	33.3		100	58-146			
m,p-Xylene	64.3	2.0	"	66.7		96.4	57-144			
o-Xylene	32.2	1.0	"	33.3		96.6	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.2		112	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	13.6		"	13.3		102	45-146			

##### Matrix Spike (1401046-MS1)

Source: 1401040-01

Prepared & Analyzed: 01/14/14

Benzene	31.9	1.0	ug/l	33.3	ND	95.6	34-141			
Toluene	31.1	1.0	"	33.3	ND	93.4	27-151			
Ethylbenzene	33.2	1.0	"	33.3	ND	99.5	29-160			
m,p-Xylene	63.8	2.0	"	66.7	1.36	93.6	20-166			
o-Xylene	31.1	1.0	"	33.3	ND	93.3	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.7		"	13.2		111	37-154			
Surrogate: Toluene-d8	13.5		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.9	45-146			

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01/16/14 16:39

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

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

**Batch 1401046 - EPA 5030 Water MS**

Matrix Spike Dup (1401046-MSD1)	Source: 1401040-01			Prepared & Analyzed: 01/14/14						
Benzene	32.3	1.0	ug/l	33.3	ND	96.8	34-141	1.18	32	
Toluene	31.4	1.0	"	33.3	ND	94.1	27-151	0.832	25	
Ethylbenzene	33.9	1.0	"	33.3	ND	102	29-160	2.29	50	
m,p-Xylene	65.6	2.0	"	66.7	1.36	96.3	20-166	2.80	36	
o-Xylene	32.8	1.0	"	33.3	ND	98.3	33-159	5.20	26	
Surrogate: 1,2-Dichloroethane-d4	15.6		"	13.2		118	37-154			
Surrogate: Toluene-d8	13.5		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.3	45-146			

Summit Scientific

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### Notes and Definitions

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

A handwritten signature in black ink, appearing to be 'JMB' with a long, sweeping underline.