

**Figure 1**  
Site Location Map  
H&S (Mineral) #1  
NWSW S6 T4N R65W  
Weld County, Colorado

Drawn By: CAW  
Date: 7/1/2013





Surface  
Drainage

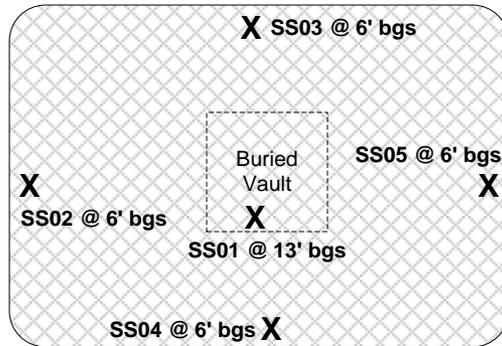


Fence Line



Steep Grade

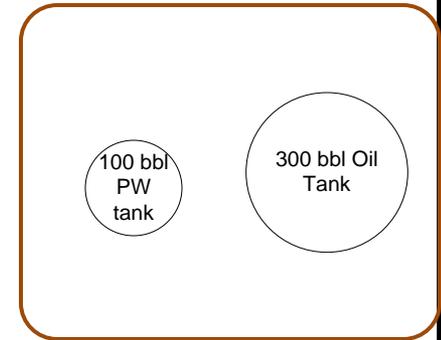
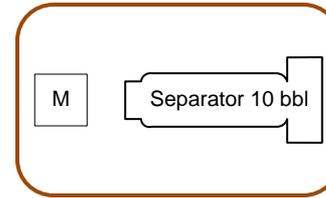
Immobile  
Magna  
Equipment



Above Ground  
Gas Line



DCP Buried Gas Line



Approximate Excavation  
Dimensions:  
20 feet by 20 feet

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

DRAWN BY: CAW

DATE: 6/21/2013

**Facility Diagram**  
PDC Energy – DJ Basin  
H&S (Mineral) #1  
NWSW S6 T4N R65W  
Weld County, CO



6899 Pecos Street  
Unit C  
Denver, CO 80221

**LEGEND**

- Earthen Berm
- Former Tank Location
- Approximate Area of Excavation
- Soil Sample Location



Meter House

FIGURE 2

Excavation Site Map

Not to Scale



Surface  
Drainage



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

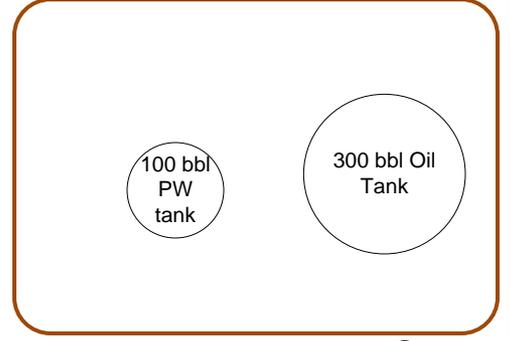
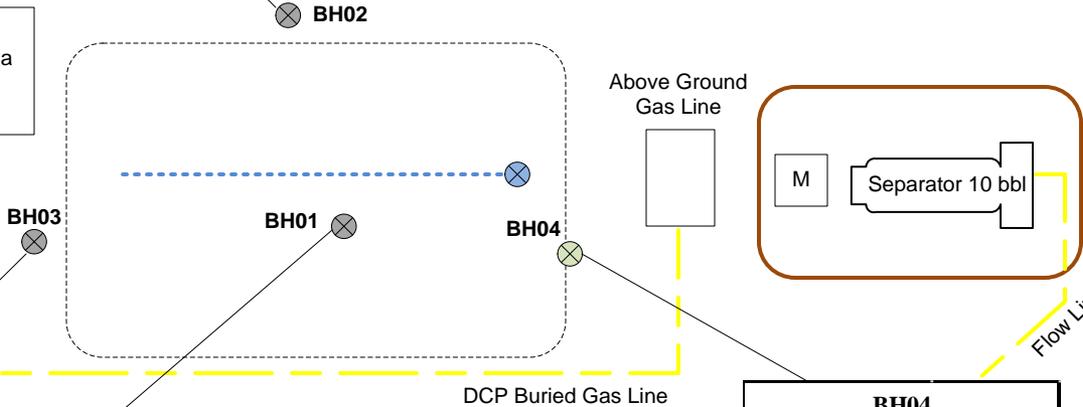
BH02	
Compound (ug/L)	7/25/2013
Benzene	3,300
Toluene	4,700
Ethylbenzene	2,100
Total Xylenes	36,000

Fence Line

Steep Grade

Immobile Magna Equipment

BH03	
Compound (ug/L)	7/25/2013
Benzene	760
Toluene	4,400
Ethylbenzene	1,300
Total Xylenes	23,000



BH01	
Compound (ug/L)	7/25/2013
Benzene	6,700
Toluene	6,200
Ethylbenzene	1,100
Total Xylenes	19,000

BH04	
Compound (ug/L)	7/25/2013
Benzene	1,700
Toluene	170
Ethylbenzene	1,200
Total Xylenes	19,000

BH07	
Compound (ug/L)	7/25/2013
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<1.0

BH05	
Compound (ug/L)	7/25/2013
Benzene	17
Toluene	3,300
Ethylbenzene	930
Total Xylenes	15,000

BH08	
Compound (ug/L)	7/25/2013
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<1.0

BH06	
Compound (ug/L)	7/25/2013
Benzene	1.9
Toluene	12
Ethylbenzene	3,100
Total Xylenes	46,000

Wellhead

DRAWN BY: CAW

DATE: 6/21/2013

**Facility Diagram**  
PDC Energy – DJ Basin  
H&S (Mineral) #1  
NWSW S6 T4N R65W  
Weld County, CO



6899 Pecos Street  
Unit C  
Denver, CO 80221

LEGEND

- Earthen Berm
- Approximate Area of Excavation
- Temporary Monitoring Well
- Temporary Monitoring Well – SVE Screen
- Horizontal Remediation Pipe
- Meter House

FIGURE 3  
Monitoring Well  
Location Map  
Not to Scale

**TABLE 1**  
**H and S (MINERAL) #1**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth (Feet bgs)	PID Readings (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(2)</sup> (mg/kg)
SS01	6/20/2013	13	2,500	<b>0.51</b>	41	13	<b>200</b>	0.32	<b>5,900</b>
SS02	6/21/2013	6	1.7	<0.005	<0.005	<0.005	<0.010	<0.005	<50
SS03	6/21/2013	6	1.6	<0.005	<0.005	<0.005	<0.010	<0.005	0.74
SS04	6/21/2013	6	1,150	<0.005	0.011	<0.005	0.65	<0.005	310
SS05	6/21/2013	6	1.9	<0.005	<0.005	<0.005	<0.010	<0.005	<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 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**  
**H and S (MINERAL) #1**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
BH01	7/25/2013	<b>6,700</b>	<b>6,200</b>	<b>1,100</b>	<b>19,000</b>
BH02	7/25/2013	<b>3,300</b>	<b>4,700</b>	<b>2,100</b>	<b>36,000</b>
BH03	7/25/2013	<b>760</b>	<b>4,400</b>	<b>1,300</b>	<b>23,000</b>
BH04	7/25/2013	<b>1,700</b>	170	<b>1,200</b>	<b>19,000</b>
BH05	7/25/2013	<b>17</b>	<b>3,300</b>	<b>930</b>	<b>15,000</b>
BH06	7/25/2013	1.9	12	<b>3,100</b>	<b>46,000</b>
BH07	7/25/2013	<1.0	<1.0	<1.0	<1.0
BH08	7/25/2013	<1.0	<1.0	<1.0	<1.0
<b>COGCC standards for Groundwater (ug/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>

Notes:

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

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

ug/L= Micrograms per liter.

**ATTACHMENT A**

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 21, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: H&S Mineral #1

Enclosed are the results of analyses for samples received by Summit Scientific on 06/20/13 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
President / Laboratory Manager





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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/21/13 06:32

**SS01@13'**  
**R306150-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/20/13 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>2100</b>	50	mg/kg	1	3062006	06/20/13	06/20/13	8015M	

Date Sampled: **06/20/13 14:30**

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: **06/20/13 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.32</b>	0.0050	mg/kg	1	3062005	06/20/13	06/20/13	EPA 8260B	
<b>Benzene</b>	<b>0.51</b>	0.0050	"	"	"	"	"	"	
<b>Toluene</b>	<b>41</b>	0.050	"	10	"	"	"	"	E
<b>Ethylbenzene</b>	<b>13</b>	0.050	"	"	"	"	"	"	E
<b>Xylenes (total)</b>	<b>200</b>	0.10	"	"	"	"	"	"	E
<b>Gasoline Range Hydrocarbons</b>	<b>3800</b>	5.0	"	"	"	"	"	"	E

Date Sampled: **06/20/13 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		98.4 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		255 %	20-170		"	"	"	"	S-02
<i>Surrogate: 4-Bromofluorobenzene</i>		79.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 06/21/13 06:32

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

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

**Batch 3062006 - EPA 3550A**

<b>Blank (3062006-BLK1)</b>				Prepared & Analyzed: 06/20/13							
C10-C28 (DRO)	ND	50	mg/kg								
<b>LCS (3062006-BS1)</b>				Prepared & Analyzed: 06/20/13							
C10-C28 (DRO)	569	50	mg/kg	501	114	73-134					
<b>LCS Dup (3062006-BSD1)</b>				Prepared & Analyzed: 06/20/13							
C10-C28 (DRO)	603	50	mg/kg	501	120	73-134	5.83	11			
<b>Matrix Spike (3062006-MS1)</b>				<b>Source: R306149-01</b>		Prepared: 06/20/13 Analyzed: 06/21/13					
C10-C28 (DRO)	588	50	mg/kg	501	45.9	108	50-148				
<b>Matrix Spike Dup (3062006-MSD1)</b>				<b>Source: R306149-01</b>		Prepared: 06/20/13 Analyzed: 06/21/13					
C10-C28 (DRO)	581	50	mg/kg	501	45.9	107	50-148	1.18	13		

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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/21/13 06:32

**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 3062005 - EPA 5030 Soil MS**

**Blank (3062005-BLK1)**

Prepared & Analyzed: 06/20/13

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
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>0.0349</i>		<i>"</i>	<i>0.0397</i>		<i>88.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0354</i>		<i>"</i>	<i>0.0400</i>		<i>88.6</i>	<i>21-167</i>			

**LCS (3062005-BS1)**

Prepared & Analyzed: 06/20/13

Naphthalene	ND	0.0050	mg/kg				66-138			
Benzene	0.0948	0.0050	"	0.100		94.8	58-130			
Toluene	0.0984	0.0050	"	0.100		98.4	61-134			
Ethylbenzene	0.101	0.0050	"	0.100		101	74-139			
m,p-Xylene	0.210	0.010	"	0.200		105	73-137			
o-Xylene	0.105	0.0050	"	0.100		105	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0403</i>		<i>"</i>	<i>0.0397</i>		<i>102</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0379</i>		<i>"</i>	<i>0.0400</i>		<i>94.7</i>	<i>21-167</i>			

**LCS Dup (3062005-BSD1)**

Prepared & Analyzed: 06/20/13

Naphthalene	ND	0.0050	mg/kg				66-138		12	
Benzene	0.103	0.0050	"	0.100		103	58-130	8.17	13	
Toluene	0.0989	0.0050	"	0.100		98.9	61-134	0.517	16	
Ethylbenzene	0.109	0.0050	"	0.100		109	74-139	6.83	12	
m,p-Xylene	0.223	0.010	"	0.200		111	73-137	5.92	14	
o-Xylene	0.111	0.0050	"	0.100		111	73-141	5.40	12	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0437</i>		<i>"</i>	<i>0.0397</i>		<i>110</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0366</i>		<i>"</i>	<i>0.0400</i>		<i>91.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0382</i>		<i>"</i>	<i>0.0400</i>		<i>95.6</i>	<i>21-167</i>			

Summit Scientific

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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/21/13 06:32

**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 3062005 - EPA 5030 Soil MS**

**Matrix Spike (3062005-MS1)**

**Source: R306149-01**

Prepared & Analyzed: 06/20/13

Naphthalene	ND	0.0050	mg/kg	ND	ND		10-158			
Benzene	0.0839	0.0050	"	0.100	0.00	83.9	30-131			
Toluene	0.0894	0.0050	"	0.100	0.00	89.4	30-134			
Ethylbenzene	0.0902	0.0050	"	0.100	0.00	90.2	22-153			
m,p-Xylene	0.184	0.010	"	0.200	0.00	91.8	10-159			
o-Xylene	0.0899	0.0050	"	0.100	0.00	89.9	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0413</i>		<i>"</i>	<i>0.0397</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0379</i>		<i>"</i>	<i>0.0400</i>		<i>94.6</i>	<i>21-167</i>			

**Matrix Spike Dup (3062005-MSD1)**

**Source: R306149-01**

Prepared: 06/20/13 Analyzed: 06/21/13

Naphthalene	ND	0.0050	mg/kg	ND	ND		10-158			42
Benzene	0.0889	0.0050	"	0.100	0.00	88.9	30-131	5.76		34
Toluene	0.0917	0.0050	"	0.100	0.00	91.7	30-134	2.55		30
Ethylbenzene	0.0923	0.0050	"	0.100	0.00	92.3	22-153	2.40		24
m,p-Xylene	0.187	0.010	"	0.200	0.00	93.7	10-159	2.04		68
o-Xylene	0.0922	0.0050	"	0.100	0.00	92.2	31-151	2.54		38
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0441</i>		<i>"</i>	<i>0.0397</i>		<i>111</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>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>96.9</i>	<i>21-167</i>			

Summit Scientific

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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/21/13 06:32

### 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 23, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: H&S Mineral #1

Enclosed are the results of analyses for samples received by Summit Scientific on 06/21/13 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
President / Laboratory Manager



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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/23/13 16:37

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS02@6'	R306168-01	Soil	06/21/13 10:45	06/21/13 16:10
SS03@6'	R306168-02	Soil	06/21/13 10:50	06/21/13 16:10
SS04@6'	R306168-03	Soil	06/21/13 10:55	06/21/13 16:10
SS05@6'	R306168-04	Soil	06/21/13 11:30	06/21/13 16:10

Summit Scientific

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

Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Bruns

Reported:  
 06/23/13 16:37

Summit Scientific R306168

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
 303-277-9310 • 303-374-9333 Fax

Client: PDC Energy  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Project Manager: Brandon Bruns  
 E-Mail: H&S MINERAL #1  
 Project Name: \_\_\_\_\_  
 Project Number: \_\_\_\_\_  
 Sample Name: CANSARD

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)			
53020	6/21/13	10:55	1											
53500	10:50													
53500	10:55													
53500	11:59													

Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: 6/21/13 16:10
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____
Relinquished by: _____	Date/Time: _____	Received in Lab by: _____	Date/Time: _____

Turn Around Time (Check)	<input checked="" type="checkbox"/> Same Day	<input type="checkbox"/> 24 Hours	<input type="checkbox"/> 48 Hours	<input type="checkbox"/> 72 Hours	<input type="checkbox"/> Standard
Sample Integrity:	Temperature Upon Receipt: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

Notes: *Handwritten notes and signatures*



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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/23/13 16:37

**SS02@6'**  
**R306168-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/13 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3062107	06/21/13	06/21/13	8015M	

Date Sampled: **06/21/13 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		93.2 %	30-150		"	"	"	"	

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

Date Sampled: **06/21/13 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3062106	06/21/13	06/21/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/21/13 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.8 %	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: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 06/23/13 16:37

**SS03@6'**  
**R306168-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/13 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3062107	06/21/13	06/21/13	8015M	

Date Sampled: **06/21/13 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		91.0 %	30-150		"	"	"	"	

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

Date Sampled: **06/21/13 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3062106	06/21/13	06/21/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.74</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/21/13 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	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: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/23/13 16:37

**SS04@6'**  
**R306168-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/13 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>170</b>	50	mg/kg	1	3062107	06/21/13	06/21/13	8015M	

Date Sampled: **06/21/13 10:55**

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: **06/21/13 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3062106	06/21/13	06/21/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.011</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.65</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>140</b>	0.50	"	"	"	"	"	"	E

Date Sampled: **06/21/13 10:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		116 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.4 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		77.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/23/13 16:37

**SS05@6'**  
**R306168-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/13 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3062107	06/21/13	06/21/13	8015M	

Date Sampled: **06/21/13 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		92.8 %	30-150		"	"	"	"	

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

Date Sampled: **06/21/13 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3062106	06/21/13	06/21/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/21/13 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.7 %	21-167		"	"	"	"	

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

Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 06/23/13 16:37

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

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

**Batch 3062107 - EPA 3550A**

<b>Blank (3062107-BLK1)</b>			Prepared: 06/21/13 Analyzed: 06/22/13								
C10-C28 (DRO)	ND	50	mg/kg								
<b>LCS (3062107-BS1)</b>			Prepared: 06/21/13 Analyzed: 06/22/13								
C10-C28 (DRO)	554	50	mg/kg	501		111	73-134				
<b>LCS Dup (3062107-BSD1)</b>			Prepared: 06/21/13 Analyzed: 06/22/13								
C10-C28 (DRO)	516	50	mg/kg	501		103	73-134	7.01		11	
<b>Matrix Spike (3062107-MS1)</b>			<b>Source: R306168-01</b>			Prepared: 06/21/13 Analyzed: 06/22/13					
C10-C28 (DRO)	598	50	mg/kg	501	ND	119	50-148				
<b>Matrix Spike Dup (3062107-MSD1)</b>			<b>Source: R306168-01</b>			Prepared: 06/21/13 Analyzed: 06/22/13					
C10-C28 (DRO)	600	50	mg/kg	501	ND	120	50-148	0.360		13	

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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/23/13 16:37

**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 3062106 - EPA 5030 Soil MS**

**Blank (3062106-BLK1)**

Prepared: 06/21/13 Analyzed: 06/22/13

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
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>0.0376</i>		<i>"</i>	<i>0.0397</i>		<i>94.8</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>21-167</i>			

**LCS (3062106-BS1)**

Prepared: 06/21/13 Analyzed: 06/22/13

Naphthalene	ND	0.0050	mg/kg				66-138			
Benzene	0.101	0.0050	"	0.100		101	58-130			
Toluene	0.110	0.0050	"	0.100		110	61-134			
Ethylbenzene	0.108	0.0050	"	0.100		108	74-139			
m,p-Xylene	0.230	0.010	"	0.200		115	73-137			
o-Xylene	0.108	0.0050	"	0.100		108	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0351</i>		<i>"</i>	<i>0.0397</i>		<i>88.5</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0396</i>		<i>"</i>	<i>0.0400</i>		<i>99.1</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0368</i>		<i>"</i>	<i>0.0400</i>		<i>91.9</i>	<i>21-167</i>			

**LCS Dup (3062106-BSD1)**

Prepared: 06/21/13 Analyzed: 06/22/13

Naphthalene	ND	0.0050	mg/kg				66-138		12	
Benzene	0.101	0.0050	"	0.100		101	58-130	0.0592	13	
Toluene	0.111	0.0050	"	0.100		111	61-134	1.00	16	
Ethylbenzene	0.112	0.0050	"	0.100		112	74-139	3.59	12	
m,p-Xylene	0.235	0.010	"	0.200		117	73-137	1.92	14	
o-Xylene	0.113	0.0050	"	0.100		113	73-141	4.24	12	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0374</i>		<i>"</i>	<i>0.0397</i>		<i>94.1</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0370</i>		<i>"</i>	<i>0.0400</i>		<i>92.6</i>	<i>21-167</i>			

Summit Scientific

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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/23/13 16:37

**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 3062106 - EPA 5030 Soil MS**

**Matrix Spike (3062106-MS1)**

Source: R306168-01 Prepared: 06/21/13 Analyzed: 06/22/13

Naphthalene	ND	0.0050	mg/kg	ND	ND		10-158			
Benzene	0.0832	0.0050	"	0.100	0.00	83.2	30-131			
Toluene	0.0756	0.0050	"	0.100	0.00	75.6	30-134			
Ethylbenzene	0.0686	0.0050	"	0.100	0.00	68.6	22-153			
m,p-Xylene	0.175	0.010	"	0.200	0.00	87.3	10-159			
o-Xylene	0.0964	0.0050	"	0.100	0.00	96.4	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0387		"	0.0397		97.4	23-173			
Surrogate: Toluene-d8	0.0393		"	0.0400		98.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	21-167			

**Matrix Spike Dup (3062106-MSD1)**

Source: R306168-01 Prepared: 06/21/13 Analyzed: 06/22/13

Naphthalene	ND	0.0050	mg/kg	ND	ND		10-158			42
Benzene	0.0901	0.0050	"	0.100	0.00	90.1	30-131	7.93		34
Toluene	0.0771	0.0050	"	0.100	0.00	77.1	30-134	1.93		30
Ethylbenzene	0.0693	0.0050	"	0.100	0.00	69.3	22-153	1.09		24
m,p-Xylene	0.173	0.010	"	0.200	0.00	86.7	10-159	0.603		68
o-Xylene	0.0962	0.0050	"	0.100	0.00	96.2	31-151	0.218		38
Surrogate: 1,2-Dichloroethane-d4	0.0397		"	0.0397		100	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

Summit Scientific

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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/23/13 16:37

### Notes and Definitions

- 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

July 31, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: H&S Mineral #1

Enclosed are the results of analyses for samples received by Summit Scientific on 07/25/13 17:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV For Ben Shrewsbury  
President / Laboratory Manager

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Summit Scientific is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.



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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
07/31/13 16:12

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	R307251-01	Water	07/25/13 13:55	07/25/13 17:25
BH02	R307251-02	Water	07/25/13 14:00	07/25/13 17:25
BH03	R307251-03	Water	07/25/13 14:05	07/25/13 17:25
BH04	R307251-04	Water	07/25/13 14:10	07/25/13 17:25
BH05	R307251-05	Water	07/25/13 14:15	07/25/13 17:25
BH06	R307251-06	Water	07/25/13 14:20	07/25/13 17:25
BH07	R307251-07	Water	07/25/13 14:25	07/25/13 17:25
BH08	R307251-08	Water	07/25/13 14:30	07/25/13 17:25

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

Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
07/31/13 16:12

R307251

# Summit Scientific

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
303-277-9910 • 303-574-9933 Fax

Page 1 of 1

Client: DD Tzysman  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sample Name: Eric Sigel  
Project Manager: Brandon Bruns  
E-Mail: \_\_\_\_\_  
Project Name: H&S Mineral 1  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:	Special Instructions	
				None	Formal	Form	Form	Air - Canister Serial #	Soil	Groundwater	Other (Specify)			
B101	7/25/13	1355	5	X				X						
B102		1402						X						
B103		1405						X						
B104		1410						X						
B105		1415						X						
B106		1420						X						
B107		1425						X						
B108		1430						X						
Date/Time: Received by: <u>Eric Sigel</u> Date/Time: <u>7/25/13</u> Date/Time: <u>7/25/13</u> Date/Time: <u>1355</u> Date/Time: Received by: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____ Date/Time: Received in Lab by: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____													Notes:	
Turn Around Time (Check) <input type="checkbox"/> 72 Hours <input checked="" type="checkbox"/> Standard Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours													Sample Integrity: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temperature Upon Receipt: <u>6°C</u>	





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

Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 07/31/13 16:12

**BH01**  
**R307251-01 (Water)**

**Summit Scientific**

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

Date Sampled: **07/25/13 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>6700</b>	100	ug/l	100	3072907	07/29/13	07/29/13	EPA 8260B	
<b>Toluene</b>	<b>6200</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>1100</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>19000</b>	100	"	"	"	"	"	"	

Date Sampled: **07/25/13 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		111 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.3 %	45-146		"	"	"	"	

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

Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 07/31/13 16:12

**BH02**  
**R307251-02 (Water)**

**Summit Scientific**

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

Date Sampled: **07/25/13 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>3300</b>	100	ug/l	100	3072907	07/29/13	07/31/13	EPA 8260B	
<b>Toluene</b>	<b>4700</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>2100</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>36000</b>	100	"	"	"	"	"	"	

Date Sampled: **07/25/13 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		122 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		85.4 %	45-146		"	"	"	"	

Summit Scientific

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

Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 07/31/13 16:12

**BH03**  
**R307251-03 (Water)**

**Summit Scientific**

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

Date Sampled: **07/25/13 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>760</b>	100	ug/l	100	3072907	07/29/13	07/31/13	EPA 8260B	
<b>Toluene</b>	<b>4400</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>1300</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>23000</b>	100	"	"	"	"	"	"	

Date Sampled: **07/25/13 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		120 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.4 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		84.5 %	45-146		"	"	"	"	

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

Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 07/31/13 16:12

**BH04**  
**R307251-04 (Water)**

**Summit Scientific**

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

Date Sampled: **07/25/13 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>1700</b>	100	ug/l	100	3072907	07/29/13	07/31/13	EPA 8260B	
<b>Toluene</b>	<b>170</b>	1.0	"	1	"	"	"	"	
<b>Ethylbenzene</b>	<b>1200</b>	100	"	100	"	"	"	"	
<b>Xylenes (total)</b>	<b>19000</b>	100	"	"	"	"	"	"	

Date Sampled: **07/25/13 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		123 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.6 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		82.4 %	45-146		"	"	"	"	

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 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 07/31/13 16:12

**BH05**  
**R307251-05 (Water)**

**Summit Scientific**

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

Date Sampled: **07/25/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>17</b>	1.0	ug/l	1	3072907	07/29/13	07/31/13	EPA 8260B	
<b>Toluene</b>	<b>3300</b>	100	"	100	"	"	"	"	
<b>Ethylbenzene</b>	<b>930</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>15000</b>	100	"	"	"	"	"	"	

Date Sampled: **07/25/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		117 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		93.5 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		86.0 %	45-146		"	"	"	"	

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Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 07/31/13 16:12

**BH06**  
**R307251-06 (Water)**

**Summit Scientific**

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

Date Sampled: **07/25/13 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>1.9</b>	1.0	ug/l	1	3072907	07/29/13	07/31/13	EPA 8260B	
<b>Toluene</b>	<b>12</b>	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>3100</b>	100	"	100	"	"	"	"	
<b>Xylenes (total)</b>	<b>46000</b>	100	"	"	"	"	"	"	

Date Sampled: **07/25/13 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		116 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		112 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.0 %	45-146		"	"	"	"	

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 Project Manager: Brandon Brunns

**Reported:**  
 07/31/13 16:12

**BH07**  
**R307251-07 (Water)**

**Summit Scientific**

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

Date Sampled: **07/25/13 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	3072907	07/29/13	07/31/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/25/13 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>116 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>92.5 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>84.5 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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Project: H&S Mineral #1

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 07/31/13 16:12

**BH08**  
**R307251-08 (Water)**

**Summit Scientific**

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

Date Sampled: **07/25/13 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	3072907	07/29/13	07/31/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/25/13 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		91.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.5 %	45-146		"	"	"	"	

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Project: H&S Mineral #1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
07/31/13 16:12

**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 3072907 - EPA 5030 Water MS**

**Blank (3072907-BLK1)**

Prepared & Analyzed: 07/29/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.0</i>		<i>"</i>	<i>13.2</i>		<i>106</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.4</i>		<i>"</i>	<i>13.3</i>		<i>93.3</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.3</i>		<i>"</i>	<i>13.3</i>		<i>107</i>	<i>45-146</i>			

**LCS (3072907-BS1)**

Prepared & Analyzed: 07/29/13

Benzene	26.9	1.0	ug/l	33.3		80.6	51-132			
Toluene	27.1	1.0	"	33.3		81.4	51-138			
Ethylbenzene	28.5	1.0	"	33.3		85.5	58-146			
m,p-Xylene	57.3	2.0	"	66.7		85.9	57-144			
o-Xylene	28.9	1.0	"	33.3		86.7	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.8</i>		<i>"</i>	<i>13.2</i>		<i>112</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.6</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.0</i>		<i>"</i>	<i>13.3</i>		<i>105</i>	<i>45-146</i>			

**LCS Dup (3072907-BSD1)**

Prepared & Analyzed: 07/29/13

Benzene	28.7	1.0	ug/l	33.3		86.2	51-132	6.65	17	
Toluene	28.8	1.0	"	33.3		86.3	51-138	5.87	17	
Ethylbenzene	30.4	1.0	"	33.3		91.3	58-146	6.58	16	
m,p-Xylene	62.3	2.0	"	66.7		93.5	57-144	8.39	16	
o-Xylene	31.0	1.0	"	33.3		92.9	53-146	6.89	15	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.0</i>		<i>"</i>	<i>13.2</i>		<i>106</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.2</i>		<i>"</i>	<i>13.3</i>		<i>99.4</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.0</i>		<i>"</i>	<i>13.3</i>		<i>105</i>	<i>45-146</i>			

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07/31/13 16:12

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
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Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 3072907 - EPA 5030 Water MS**

<b>Matrix Spike (3072907-MS1)</b>	<b>Source: R307251-01</b>			<b>Prepared &amp; Analyzed: 07/29/13</b>							
Benzene	2040	1.0	ug/l	33.3	6720	NR	34-141				E, QM-4X
Toluene	2660	1.0	"	33.3	6220	NR	27-151				E, QM-4X
Ethylbenzene	800	1.0	"	33.3	1110	NR	29-160				E
m,p-Xylene	5730	2.0	"	66.7	17800	NR	20-166				E, QM-4X
o-Xylene	540	1.0	"	33.3	720	NR	33-159				E, QM-4X
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>16.4</i>		<i>"</i>	<i>13.2</i>		<i>124</i>	<i>37-154</i>				
<i>Surrogate: Toluene-d8</i>	<i>20.5</i>		<i>"</i>	<i>13.3</i>		<i>154</i>	<i>45-149</i>				<i>S-02</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.1</i>		<i>"</i>	<i>13.3</i>		<i>106</i>	<i>45-146</i>				

<b>Matrix Spike Dup (3072907-MSD1)</b>	<b>Source: R307251-01</b>			<b>Prepared &amp; Analyzed: 07/29/13</b>							
Benzene	2030	1.0	ug/l	33.3	6720	NR	34-141	0.736	32		E, QM-4X
Toluene	2680	1.0	"	33.3	6220	NR	27-151	0.450	25		E, QM-4X
Ethylbenzene	769	1.0	"	33.3	1110	NR	29-160	3.95	50		E
m,p-Xylene	5380	2.0	"	66.7	17800	NR	20-166	6.36	36		E, QM-4X
o-Xylene	508	1.0	"	33.3	720	NR	33-159	6.11	26		E, QM-4X
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.0</i>		<i>"</i>	<i>13.2</i>		<i>106</i>	<i>37-154</i>				
<i>Surrogate: Toluene-d8</i>	<i>17.2</i>		<i>"</i>	<i>13.3</i>		<i>129</i>	<i>45-149</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>		<i>104</i>	<i>45-146</i>				

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Project: H&S Mineral #1

Project Number: [none]  
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### 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.
- QM-4X The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
- 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