

0 375 750 1,500
Feet



Figure 1

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

Drawn By: CAW
Date: 7/1/2013



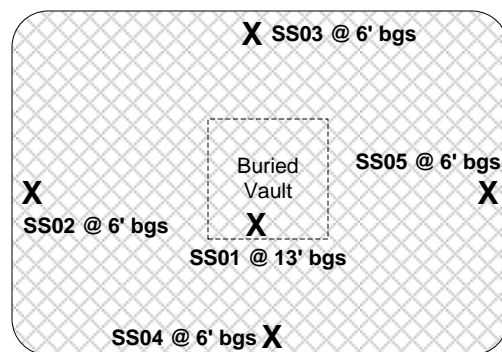
Surface
Drainage



Fence Line

Steep Grade

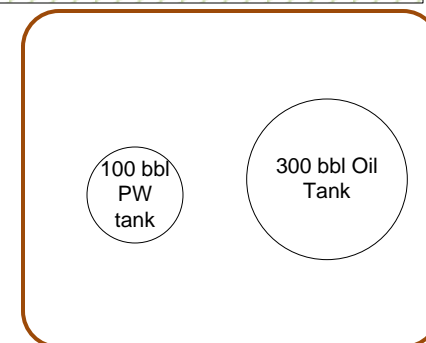
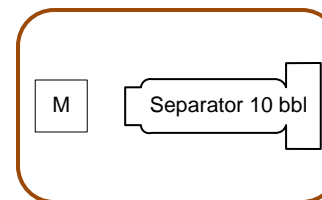
Immobile
Magna
Equipment



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
- X 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

BH03

BH01

BH04

Above Ground Gas Line

M

Separator 10 bbl

100 bbl
PW
tank

300 bbl Oil
Tank

DCP Buried Gas Line

Flow Line

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

BH05

BH06

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

Wellhead

BH08

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

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
- M 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 ⁽²⁾ (mg/kg)
SS01	6/20/2013	13	2,500	0.51	41	13	200	0.32	5,900
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
COGCC standards for Soil (mg/kg) ⁽¹⁾				0.17	85	100	175	23	500

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	6,700	6,200	1,100	19,000
BH02	7/25/2013	3,300	4,700	2,100	36,000
BH03	7/25/2013	760	4,400	1,300	23,000
BH04	7/25/2013	1,700	170	1,200	19,000
BH05	7/25/2013	17	3,300	930	15,000
BH06	7/25/2013	1.9	12	3,100	46,000
BH07	7/25/2013	<1.0	<1.0	<1.0	<1.0
BH08	7/25/2013	<1.0	<1.0	<1.0	<1.0
COGCC standards for Groundwater (ug/L) ⁽¹⁾		5	560	700	1,400

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

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,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', is written over a light gray circular background.

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:
06/21/13 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
C10-C28 (DRO)	2100	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
Surrogate: o-Terphenyl		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
Naphthalene	0.32	0.0050	mg/kg	1	3062005	06/20/13	06/20/13	EPA 8260B	
Benzene	0.51	0.0050	"	"	"	"	"	"	
Toluene	41	0.050	"	10	"	"	"	"	E
Ethylbenzene	13	0.050	"	"	"	"	"	"	E
Xylenes (total)	200	0.10	"	"	"	"	"	"	E
Gasoline Range Hydrocarbons	3800	5.0	"	"	"	"	"	"	E

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		255 %	20-170		"	"	"	"	S-02
Surrogate: 4-Bromofluorobenzene		79.0 %	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:
06/21/13 06:32

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 3062006 - EPA 3550A

Blank (3062006-BLK1)

Prepared & Analyzed: 06/20/13

C10-C28 (DRO) ND 50 mg/kg

LCS (3062006-BS1)

Prepared & Analyzed: 06/20/13

C10-C28 (DRO) 569 50 mg/kg 501 114 73-134

LCS Dup (3062006-BSD1)

Prepared & Analyzed: 06/20/13

C10-C28 (DRO) 603 50 mg/kg 501 120 73-134 5.83 11

Matrix Spike (3062006-MS1)

Source: R306149-01

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

C10-C28 (DRO) 588 50 mg/kg 501 45.9 108 50-148

Matrix Spike Dup (3062006-MSD1)

Source: R306149-01

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

C10-C28 (DRO) 581 50 mg/kg 501 45.9 107 50-148 1.18 13

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

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 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	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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			
Surrogate: 1,2-Dichloroethane-d4	0.0413		"	0.0397		104	23-173			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.6	21-167			

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	
Surrogate: 1,2-Dichloroethane-d4	0.0441		"	0.0397		111	23-173			
Surrogate: Toluene-d8	0.0412		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	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:
06/21/13 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,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', is written over a light gray circular background.

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

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: o-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: o-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	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.74	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

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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

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
C10-C28 (DRO)	170	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	"	"	"	"	"	"	
Toluene	0.011	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.65	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	140	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

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 Bruns

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: o-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		"	"	"	"	

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 Bruns

Reported:
06/23/13 16:37

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 3062107 - EPA 3550A

Blank (3062107-BLK1)

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

C10-C28 (DRO) ND 50 mg/kg

LCS (3062107-BS1)

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

C10-C28 (DRO) 554 50 mg/kg 501 111 73-134

LCS Dup (3062107-BSD1)

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

C10-C28 (DRO) 516 50 mg/kg 501 103 73-134 7.01 11

Matrix Spike (3062107-MS1)

Source: R306168-01

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

C10-C28 (DRO) 598 50 mg/kg 501 ND 119 50-148

Matrix Spike Dup (3062107-MSD1)

Source: R306168-01

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

C10-C28 (DRO) 600 50 mg/kg 501 ND 120 50-148 0.360 13

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	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

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 Bruns

Reported:
06/23/13 16:37

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 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		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		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

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 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

This report shall not be reproduced, except in its entirety, without the written approval of Summit Scientific. Test results relate only to samples analyzed.

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

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:
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: PL Tzimen
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	Other (Specify)	Groundwater	Soil			
B101	7/25/13	1355	5	X						
B102	7/25/13	1402								
B103	7/25/13	1405								
B104	7/25/13	1410								
B105	7/25/13	1415								
B106	7/25/13	1420								
B107	7/25/13	1425								
B108	7/25/13	1430								
Retiquished by: <u>Eric A. Sigel</u> Date/Time: <u>7/25/13 1355</u> Date/Time: <u>7/25/13 1405</u> Date/Time: <u>7/25/13 1410</u> Date/Time: <u>7/25/13 1415</u> Date/Time: <u>7/25/13 1420</u> Date/Time: <u>7/25/13 1425</u> Date/Time: <u>7/25/13 1430</u>										
Retiquished by: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____										
Retiquished by: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____ Date/Time: _____										

Notes: 7/26/13 BTEX

Turn Around Time (Check): ☒ Same Day ☐ 72 Hours ☐ Standard

Sample Integrity: ☒ Temperature Upon Receipt: 6°C ☐ Inact: ☐ No ☐ Yes

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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

BH01
R307251-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

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

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

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>		111 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.3 %		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

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
Benzene	3300	100	ug/l	100	3072907	07/29/13	07/31/13	EPA 8260B	
Toluene	4700	100	"	"	"	"	"	"	
Ethylbenzene	2100	100	"	"	"	"	"	"	
Xylenes (total)	36000	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>		<i>122 %</i>	<i>37-154</i>		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>105 %</i>	<i>45-149</i>		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>85.4 %</i>	<i>45-146</i>		"	"	"	"	

Summit Scientific

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



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

Project: 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
Benzene	760	100	ug/l	100	3072907	07/29/13	07/31/13	EPA 8260B	
Toluene	4400	100	"	"	"	"	"	"	
Ethylbenzene	1300	100	"	"	"	"	"	"	
Xylenes (total)	23000	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		"	"	"	"	

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

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
Benzene	1700	100	ug/l	100	3072907	07/29/13	07/31/13	EPA 8260B	
Toluene	170	1.0	"	1	"	"	"	"	
Ethylbenzene	1200	100	"	100	"	"	"	"	
Xylenes (total)	19000	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		"	"	"	"	

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 Bruns

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
Benzene	17	1.0	ug/l	1	3072907	07/29/13	07/31/13	EPA 8260B	
Toluene	3300	100	"	100	"	"	"	"	
Ethylbenzene	930	100	"	"	"	"	"	"	
Xylenes (total)	15000	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		"	"	"	"	

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:
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
Benzene	1.9	1.0	ug/l	1	3072907	07/29/13	07/31/13	EPA 8260B	
Toluene	12	1.0	"	"	"	"	"	"	
Ethylbenzene	3100	100	"	100	"	"	"	"	
Xylenes (total)	46000	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		"	"	"	"	

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:
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		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
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		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		116 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		92.5 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.5 %		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

BH08
R307251-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
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		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
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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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

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 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	"							
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.2		106	37-154			
Surrogate: Toluene-d8	12.4		"	13.3		93.3	45-149			
Surrogate: 4-Bromofluorobenzene	14.3		"	13.3		107	45-146			

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			
Surrogate: 1,2-Dichloroethane-d4	14.8		"	13.2		112	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.6	45-149			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	45-146			

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	
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.2		106	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.4	45-149			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	45-146			

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PDC Energy
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Denver CO, 80203

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	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 3072907 - EPA 5030 Water MS

Matrix Spike (3072907-MS1)		Source: R307251-01			Prepared & Analyzed: 07/29/13					
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
Surrogate: 1,2-Dichloroethane-d4	16.4		"	13.2		124	37-154			
Surrogate: Toluene-d8	20.5		"	13.3		154	45-149			S-02
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	45-146			

Matrix Spike Dup (3072907-MSD1)		Source: R307251-01			Prepared & Analyzed: 07/29/13					
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
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.2		106	37-154			
Surrogate: Toluene-d8	17.2		"	13.3		129	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		104	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 Bruns

Reported:
07/31/13 16:12

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