



PDC Energy, Inc.
Third Quarter 2013 Groundwater Monitoring Summary

November 21, 2013

H&S (Mineral) #1 Tank Battery
NWSW S6 T4N R65W
Weld County, API # 05-123-14802

This groundwater summary has been prepared by Tasman Geosciences, LLC for the H&S (Mineral) #1 tank battery. On July 11, 2013, eight temporary wells were installed for groundwater monitoring and remediation purposes. Third quarter groundwater sampling was conducted on July 25, 2013 at the eight monitoring well locations. Groundwater samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8260B. Analytical results are summarized in Table 1 below and laboratory reports are included as Attachment A. Sample locations and corresponding third quarter 2013 analytical results are illustrated on Figure 2. Third quarter analytical results indicate that BTEX concentrations are in exceedance of COGCC groundwater limits at six monitoring well locations. Constituent concentrations are below regulatory standards at the remaining two point of compliance (POC) well locations.

Tasman initiated enhanced fluid recovery (EFR) and air sparge (AS) events at the site during the third quarter 2013. A summary of the EFR/AS operational data is provided in Table 2. EFR/AS will remain the selected remediation strategy through the fourth quarter 2013 to address residual dissolved phase petroleum hydrocarbon impacts on site.

The fourth quarter 2013 groundwater sampling event will be conducted during October 2013.

**TABLE 1
H&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)	Depth to Water (feet)
BH01	7/25/2013	6,700	6,200	1,100	19,000	16.53
BH02	7/25/2013	3,300	4,700	2,100	36,000	17.63
BH03	7/25/2013	760	4,400	1,300	23,000	15.98
BH04	7/25/2013	1,700	170	1,200	19,000	15.91
BH05	7/25/2013	17	3,300	930	15,000	13.07
BH06	7/25/2013	1.9	12	3,100	46,000	13.47
BH07	7/25/2013	<1.0	<1.0	<1.0	<1.0	15.33
BH08	7/25/2013	<1.0	<1.0	<1.0	<1.0	13.47
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.

NM = Not Measured

TABLE 2
H&S (MINERAL) #1
AIR SPARGE / EFR OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Injection Pressure (psi)
THIRD QUARTER 2013					
8/6/2013	BH02, BH03, BH04, BH05, BH06	6	50	BH01, BH02, BH03, BH05, BH06	10

Notes:

psi = pounds per square inch



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

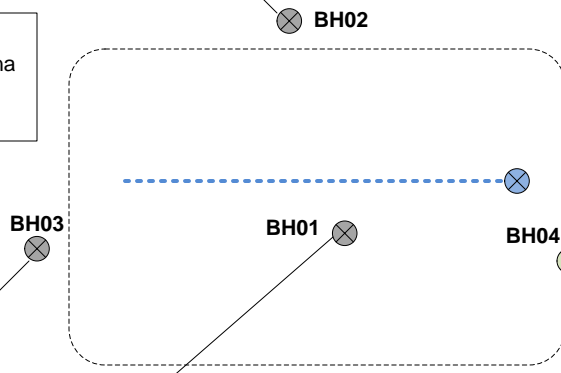
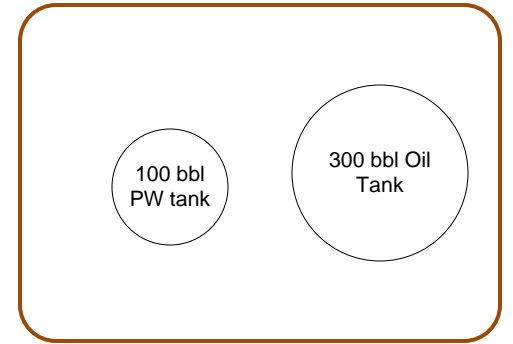
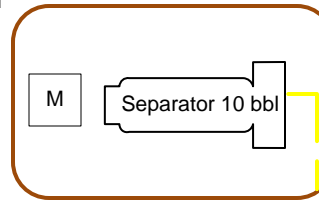
Fence Line

Steep Grade

Immobile Magna Equipment

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

Above Ground Gas Line



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

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



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 2
GROUNDWATER
ANALYTICAL RESULTS
Not to Scale

DRAWN BY: CAW

DATE: 6/21/2013

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

ATTACHMENT A

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

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

R307251

Summit Scientific

741 Corporate Circle Suite 1 • Golden, Colorado 80401
303-277-9910 • 303-514-9533 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	Other (Specify)	Groundwater			Other (Specify)
B101	7/25/13	1355	5	X										
B102		1402												
B103		1405												
B104		1410												
B105		1415												
B106		1420												
B107		1425												
B108		1430												
Retiquished by: <u>Eric A. Sigel</u>				Date/Time: <u>7/25/13</u>	Received by: <u>[Signature]</u>	Date/Time: <u>7/25/13</u>	Turn Around Time (Check): <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours	Notes:						
Retiquished by:				Date/Time:	Received by:	Date/Time:	Sample Integrity: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							
Retiquished by:				Date/Time:	Received in Lab by:	Date/Time:	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 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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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		"	"	"	"	

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

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>		122 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		85.4 %	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 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

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

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 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
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 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
Surrogate: 1,2-Dichloroethane-d4		116 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		92.5 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.5 %	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

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		"	"	"	"	

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

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>			

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

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

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
<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>				

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
<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>				

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

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