



PDC Energy, Inc.
Third Quarter 2015 Groundwater Monitoring Summary

October 26, 2015

H&S (Mineral) #1 Tank Battery
NWSW S6 T4N R65W
Weld County, API # 05-123-14802
Spill Tracking # 2145651
Remediation # 7945

This groundwater summary has been prepared by Tasman Geosciences, Inc. for the H&S (Mineral) #1 tank battery. On July 30, 2015 groundwater monitoring was conducted at 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 and the laboratory analytical report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. Third quarter 2015 analytical results indicate that benzene concentrations are in exceedance of COGCC Table 910-1 standards at monitoring well BH04. Constituent concentrations are below regulatory standards at the remaining seven monitoring 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 2015 to address remaining dissolved phase petroleum hydrocarbon impacts on site.

The fourth quarter 2015 groundwater sampling event will be conducted during October 2015.

**TABLE 1
H & S (MINERAL) #1 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (feet)
COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
BH01	7/25/2013	6,700	6,200	1,100	19,000	16.53
BH01	10/31/2013	1,700	1,800	170	4,400	15.65
BH01	1/24/2014	6.5	<1.0	<1.0	3,000	17.19
BH01	4/30/2014	290	990	76	2,700	17.35
BH01	7/25/2014	45	100	53	2,100	14.68
BH01	10/27/2014	21	19	21	2,100	13.75
BH01	1/20/2015	9.7	13	<1.0	1,600	15.85
BH01	5/13/2015	4.9	13	5.2	2,600	15.90
BH01	7/30/2015	<1.0	6.5	<1.0	290	14.23
BH02	7/25/2013	3,300	4,700	2,100	36,000	17.63
BH02	10/31/2013	770	24	39	3,300	16.75
BH02	1/24/2014	730	20	<1.0	2,600	18.25
BH02	4/30/2014	84	12	3.8	410	18.39
BH02	7/25/2014	53	2.3	<1.0	68	15.75
BH02	10/27/2014	4.3	<1.0	<1.0	24	14.91
BH02	1/20/2015	160	<1.0	<1.0	390	17.02
BH02	5/13/2015	93	1.2	<1.0	75	17.14
BH02	7/30/2015	3.4	1.1	<1.0	57	15.61
BH03	7/25/2013	760	4,400	1,300	23,000	15.98
BH03	10/31/2013	3.6	8.6	2.2	100	15.15
BH03	1/24/2014	2.6	2.0	<1.0	62	16.63
BH03	4/30/2014	1.1	1.6	<1.0	45	16.79
BH03	7/25/2014	33	20	<1.0	480	14.14
BH03	10/27/2014	17	3.3	<1.0	210	13.27
BH03	1/20/2015	<1.0	<1.0	<1.0	8.7	15.35
BH03	5/13/2015	<1.0	<1.0	<1.0	8.2	15.38
BH03	7/30/2015	<1.0	<1.0	<1.0	4.9	13.72
BH04	7/25/2013	1,700	170	1,200	19,000	15.91
BH04	10/31/2013	2,500	140	620	13,000	15.09
BH04	1/24/2014	2,100	320	740	14,000	16.60
BH04	4/30/2014	1,700	300	1,100	19,000	16.74
BH04	7/25/2014	410	9.3	36	6,400	14.11
BH04	10/27/2014	37	2.4	<1.0	630	13.22
BH04	1/20/2015	45	<1.0	<1.0	520	15.46
BH04	5/13/2015	2.6	<1.0	<1.0	110	15.40
BH04	7/30/2015	8.8	1.2	2.4	780	13.76
BH05	7/25/2013	17	3,300	930	15,000	13.07
BH05	10/31/2013	<1.0	<1.0	2.0	85	12.01
BH05	1/24/2014	<1.0	<1.0	<1.0	<1.0	13.52
BH05	4/30/2014	<1.0	<1.0	<1.0	4.5	13.65
BH05	7/25/2014	<1.0	<1.0	<1.0	5.8	11.03
BH05	10/27/2014	<1.0	<1.0	<1.0	2.9	10.37
BH05	1/20/2015	<1.0	<1.0	<1.0	<1.0	12.50

TABLE 1
H & S (MINERAL) #1 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (feet)
COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
BH05	5/13/2015	<1.0	<1.0	<1.0	<1.0	12.41
BH05	7/30/2015	<1.0	<1.0	<1.0	2.3	10.91
BH06	7/25/2013	1.9	12	3,100	46,000	13.47
BH06	10/31/2013	<1.0	<1.0	1.9	57	12.46
BH06	1/24/2014	<1.0	<1.0	<1.0	2.9	13.95
BH06	4/30/2014	<1.0	<1.0	2.0	49	14.06
BH06	7/25/2014	<1.0	<1.0	<1.0	4.9	11.44
BH06	10/27/2014	<1.0	<1.0	<1.0	2.6	10.81
BH06	1/20/2015	<1.0	<1.0	<1.0	2.3	12.93
BH06	5/13/2015	<1.0	<1.0	750	10,000	12.82
BH06	7/30/2015	<1.0	<1.0	<1.0	<1.0	11.32
BH07	7/25/2013	<1.0	<1.0	<1.0	<1.0	15.33
BH07	10/31/2013	<1.0	<1.0	<1.0	<1.0	14.31
BH07	1/24/2014	<1.0	<1.0	<1.0	<1.0	15.81
BH07	4/30/2014	<1.0	<1.0	<1.0	<1.0	15.96
BH07	7/25/2014	<1.0	<1.0	<1.0	<1.0	13.27
BH07	10/27/2014	<1.0	<1.0	<1.0	<1.0	10.60
BH07	1/20/2015	<1.0	<1.0	<1.0	<1.0	14.78
BH07	5/13/2015	<1.0	<1.0	<1.0	<1.0	14.53
BH07	7/30/2015	<1.0	<1.0	<1.0	<1.0	13.17
BH08	7/25/2013	<1.0	<1.0	<1.0	<1.0	13.47
BH08	10/31/2013	<1.0	<1.0	<1.0	<1.0	12.41
BH08	1/24/2014	<1.0	<1.0	<1.0	<1.0	13.91
BH08	4/30/2014	<1.0	<1.0	<1.0	<1.0	14.05
BH08	7/25/2014	<1.0	<1.0	<1.0	<1.0	11.42
BH08	10/27/2014	NS	NS	NS	NS	NM
BH08	1/22/2015	<1.0	<1.0	<1.0	<1.0	12.88
BH08	5/13/2015	<1.0	<1.0	<1.0	<1.0	12.90
BH08	7/30/2015	<1.0	<1.0	<1.0	<1.0	11.30

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

(<) = Analytical result is less than the indicated laboratory reporting limit.

NS = Not Sampled

NM = Not Measured

BOLD = Analytical result is in exceedance of COGCC groundwater standards.

TABLE 2
H & S (MINERAL) #1 TANK BATTERY
EFR / AS OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)
Third Quarter 2013					
8/6/2013	BH01, BH02, BH03, BH04, BH05, BH06	6	50	BH01, BH02, BH03, BH05, BH06	10
8/19/2013		6	80		10
9/8/2013		6	21		10
9/16/2013		6	80		10
9/30/2013		5	90		15
Quarterly Totals		29	321		-
Fourth Quarter 2013					
10/11/2013	BH01, BH02, BH03, BH04, BH05, BH06	6	80	BH01, BH02, BH03, BH05, BH06	10
10/24/2013		6	110		10
11/26/2013		6	40		10
12/17/2013		6	42		10
Quarterly Totals		24	272		-
First Quarter 2014					
1/7/2014	BH01, BH02, BH03, BH04, BH05, BH06	5.5	90	BH01, BH02, BH03, BH05, BH06	10
1/22/2014		6	230		10
2/24/2014		6	180		10
3/11/2014		6	90		10
3/20/2014		6	135		10
Quarterly Totals		29.5	725		-
Second Quarter 2014					
4/10/2014	BH01, BH02, BH03, BH04, BH05, BH06	8	230	BH01, BH02, BH03, BH04, BH05, BH06	10
4/23/2014		6	180		20
5/13/2014		6	220		10
5/28/2014		6	180		20
6/10/2014		8	270		25
6/23/2014		6	185		20
Quarterly Totals		40	1265		-
Third Quarter 2014					
7/11/2014	BH01, BH02, BH03, BH04, BH05, BH06	6	150	BH01, BH02, BH03, BH04, BH05, BH06	20
7/16/2014		6	240		15
8/8/2014		6	250		15
8/25/2014		6	230		20
9/10/2014		6	300		20
9/22/2014		6	350		20
Quarterly Totals		36	1520		-

TABLE 2
H & S (MINERAL) #1 TANK BATTERY
EFR / AS OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)
Fourth Quarter 2014					
10/10/2014	Pipe, BH01, BH02, BH03, BH05, BH06	6	100	BH01, BH02, BH03, BH04, BH05, BH06	20
10/24/2014		6	50		15
11/7/2014		6	270		20
11/25/2014		6	207		20
12/10/2014		6	18		30
Quarterly Totals		30	645		-
First Quarter 2015					
1/2/2015	Pipe, BH01, BH02, BH03, BH05, BH06	6	150	BH01, BH02, BH03, BH04, BH05, BH06	15
1/14/2015	Pipe, BH01, BH02, BH03, BH04	5	245	BH01, BH02, BH03, BH04	20
2/3/2015	Pipe, BH01, BH02, BH03, BH05, BH06	6	120	BH01, BH02, BH03, BH04, BH05, BH06	20
2/18/2015	Pipe, BH01, BH02, BH03, BH04, BH05, BH06	6	250		20
3/13/2015		6	100		20
3/25/2015		6	160		20
Quarterly Totals		35	1025		-
Second Quarter 2015					
4/1/2015	Pipe, BH01, BH02, BH03, BH04, BH05, BH06	6	165	BH01, BH02, BH03, BH04, BH05, BH06	20
4/21/2015	BH01, BH02, BH03, BH04, BH05, BH06	6	180	BH01, BH02, BH03, BH04, BH05	20
5/5/2015	Pipe, BH01, BH02, BH03, BH04, BH05, BH06	6	80	BH01, BH02, BH03, BH04, BH05, BH06	20
5/19/2015		6	250		20
6/2/2015		6	230		20
6/16/2015		6	350		20
6/30/2015		6	340		20
Quarterly Totals		42	1595		-
Third Quarter 2015					
7/14/2015	Pipe, BH01, BH02, BH03, BH04, BH05, BH06	6	375	BH01, BH02, BH03, BH04, BH05, BH06	20
7/28/2015		6	405		20
8/11/2015			6	320	BH01, BH02, BH04, BH05, BH06
Quarterly Totals		18	1100		-

Notes:

EFR = Enhanced fluid recovery

AS = Air sparge

psi = Pounds per square inch



BH03		
Compound (ug/L)	5/13/2015	7/30/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	8.2	4.9

BH02		
Compound (ug/L)	5/13/2015	7/30/2015
Benzene	93	3.4
Toluene	1.2	1.1
Ethylbenzene	<1.0	<1.0
Total Xylenes	75	57

Surface
Drainage

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

Fence Line

Steep Grade

Immobile Magna Equipment

BH02

Above Ground Gas Line Valve

PIPE

M

Separator 10 bbl

100 bbl PW tank

300 bbl Oil Tank

BH03

BH01

BH04

BH01		
Compound (ug/L)	5/13/2015	7/30/2015
Benzene	4.9	<1.0
Toluene	13	6.5
Ethylbenzene	5.2	<1.0
Total Xylenes	2,600	290

BH05

BH06

BH04		
Compound (ug/L)	5/13/2015	7/30/2015
Benzene	2.6	8.8
Toluene	<1.0	1.2
Ethylbenzene	<1.0	2.4
Total Xylenes	110	780

BH07

BH05		
Compound (ug/L)	5/13/2015	7/30/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	2.3

BH08		
Compound (ug/L)	5/13/2015	7/30/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

Wellhead

BH08

BH06		
Compound (ug/L)	5/13/2015	7/30/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	750	<1.0
Total Xylenes	10,000	<1.0

BH07		
Compound (ug/L)	5/13/2015	7/30/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

DRAWN BY: ESS

DATE: 9/10/2015

Facility Diagram
PDC Energy – DJ Basin
H&S (Mineral) #1 Tank Battery
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 1

GROUNDWATER
ANALYTICAL RESULTS

Not to Scale

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 04, 2015

Mark Longhurst
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 07/30/15 17:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



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

Project: H&S Mineral #1

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/04/15 08:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1507297-01	Water	07/30/15 14:45	07/30/15 17:15
BH02	1507297-02	Water	07/30/15 14:50	07/30/15 17:15
BH03	1507297-03	Water	07/30/15 15:00	07/30/15 17:15
BH04	1507297-04	Water	07/30/15 15:05	07/30/15 17:15
BH05	1507297-05	Water	07/30/15 15:06	07/30/15 17:15
BH06	1507297-06	Water	07/30/15 14:59	07/30/15 17:15
BH07	1507297-07	Water	07/30/15 14:52	07/30/15 17:15
BH08	1507297-08	Water	07/30/15 14:45	07/30/15 17:15

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: Mark Longhurst

Reported:
08/04/15 08:40

Summit Scientific

1507297

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

Page 1 of 1

Client: PDC Energy
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____
Sampler Name: Kate Forsmark

Project Manager: Mark Longhurst
E-Mail: Mark.Longhurst@PDCE.com
Project Name: H&S mineral 1
Project Number: _____

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:				Special Instructions	
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)					
BH01	7/30/15	1445	3	X				X								
BH02		1450														
BH03		1500														
BH04		1505														
BH05		1506														
BH06		1459														
BH07		1452														
BH08		1445														

Relinquished by: [Signature] Date/Time: 7/30/15 Received by: [Signature] Date/Time: 7/30/15 1715

Relinquished by: [Signature] Date/Time: 7/30/15 1800 Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____ Received in Lab by: _____ Date/Time: _____

Turn Around Time (Check):
 Same Day 72 Hours
 24 Hours Standard
 48 Hours

Sample Integrity: Temperature Upon Receipt: 23°C
 Intact Yes No

Notes: on ice

www.s2scientific.com



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

Project: H&S Mineral #1

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/04/15 08:40

BH01
1507297-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/30/15 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1507324	08/01/15	08/01/15	EPA 8260B	
Toluene	6.5	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	290	1.0	"	"	"	"	"	"	

Date Sampled: **07/30/15 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		102 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.5 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.4 %	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: Mark Longhurst

Reported:
 08/04/15 08:40

BH02
1507297-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/30/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	3.4	1.0	ug/l	1	1507324	08/01/15	08/01/15	EPA 8260B	
Toluene	1.1	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	57	1.0	"	"	"	"	"	"	

Date Sampled: **07/30/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.7 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.4 %	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: Mark Longhurst

Reported:
 08/04/15 08:40

BH03
1507297-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/30/15 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1507324	08/01/15	08/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	4.9	1.0	"	"	"	"	"	"	

Date Sampled: **07/30/15 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.3 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.1 %	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: Mark Longhurst

Reported:
 08/04/15 08:40

BH04
1507297-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/30/15 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	8.8	1.0	ug/l	1	1507324	08/01/15	08/01/15	EPA 8260B	
Toluene	1.2	1.0	"	"	"	"	"	"	
Ethylbenzene	2.4	1.0	"	"	"	"	"	"	
Xylenes (total)	780	1.0	"	"	"	"	"	"	

Date Sampled: **07/30/15 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		101 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %	45-146		"	"	"	"	

Summit Scientific

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



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

Project: H&S Mineral #1

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/04/15 08:40

BH05
1507297-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/30/15 15:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1507324	08/01/15	08/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	2.3	1.0	"	"	"	"	"	"	

Date Sampled: **07/30/15 15:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		104 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.5 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.7 %	45-146		"	"	"	"	

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 Project Manager: Mark Longhurst

Reported:
 08/04/15 08:40

BH06
1507297-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/30/15 14:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1507324	08/01/15	08/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/30/15 14:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.9 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.6 %	45-146		"	"	"	"	

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 Denver CO, 80203

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Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/04/15 08:40

BH07
1507297-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/30/15 14:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1507324	08/01/15	08/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/30/15 14:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.7 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.5 %	45-146		"	"	"	"	

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 Denver CO, 80203

Project: H&S Mineral #1

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/04/15 08:40

BH08
1507297-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/30/15 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1507324	08/01/15	08/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **07/30/15 14:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		108 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.1 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.3 %	45-146		"	"	"	"	

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Project: H&S Mineral #1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/04/15 08:40

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 1507324 - EPA 5030 Water MS

Blank (1507324-BLK1)

Prepared & Analyzed: 07/31/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.2		"	13.2		108	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.3	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.4	45-146			

LCS (1507324-BS1)

Prepared & Analyzed: 07/31/15

Benzene	32.2	1.0	ug/l	33.3		96.7	51-132			
Toluene	32.7	1.0	"	33.3		98.1	51-138			
Ethylbenzene	34.0	1.0	"	33.1		103	58-146			
m,p-Xylene	68.1	2.0	"	66.5		102	57-144			
o-Xylene	34.7	1.0	"	32.8		106	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.2		108	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.5	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.4	45-146			

Matrix Spike (1507324-MS1)

Source: 1507289-01

Prepared & Analyzed: 07/31/15

Benzene	32.4	1.0	ug/l	33.3	ND	97.3	34-141			
Toluene	32.8	1.0	"	33.3	ND	98.6	27-151			
Ethylbenzene	33.7	1.0	"	33.1	ND	102	29-160			
m,p-Xylene	67.2	2.0	"	66.5	ND	101	20-166			
o-Xylene	34.8	1.0	"	32.8	ND	106	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.2		107	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.4	45-149			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.1	45-146			

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Project: H&S Mineral #1

Project Number: [none]
 Project Manager: Mark Longhurst

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 08/04/15 08:40

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 1507324 - EPA 5030 Water MS

Matrix Spike Dup (1507324-MSD1)	Source: 1507289-01			Prepared & Analyzed: 07/31/15						
Benzene	33.2	1.0	ug/l	33.3	ND	99.6	34-141	2.32	32	
Toluene	33.4	1.0	"	33.3	ND	100	27-151	1.57	25	
Ethylbenzene	34.5	1.0	"	33.1	ND	104	29-160	2.52	50	
m,p-Xylene	69.0	2.0	"	66.5	ND	104	20-166	2.60	36	
o-Xylene	35.5	1.0	"	32.8	ND	108	33-159	1.96	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.6</i>		<i>"</i>	<i>13.2</i>		<i>118</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.3</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.9</i>	<i>45-146</i>			

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08/04/15 08:40

Notes and Definitions

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

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