



PDC Energy, Inc.
Third Quarter 2015 Groundwater Monitoring Summary

October 20, 2015

Becker 5-1, 2, 14, 15 Tank Battery
SWSE Section 5 T3N R64W
Weld County, API # 05-123-12297
Spill Tracking # 2231641
Remediation # 7693

This groundwater summary has been prepared by Tasman Geosciences, Inc. for the Becker 5-1, 2, 14, 15 tank battery. On September 25, 2015 groundwater sampling 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 below and the laboratory report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. Third quarter 2015 analytical results indicate that BTEX concentrations are below applicable COGCC regulatory standards at all of the eight sample locations.

Tasman initiated enhanced fluid recovery (EFR) and air sparge (AS) events on site during the first quarter 2013. Tasman temporarily discontinued EFR/AS events after the fourth quarter 2013, until additional remediation wells could be installed. EFR/AS activities were resumed during the second quarter 2014, and remained the selected remediation strategy through the third quarter 2015. A summary of the EFR/AS operational data is provided in Table 2. EFR/AS events will remain the selected remediation strategy the fourth quarter 2015.

Fourth quarter 2015 groundwater sampling will be conducted in December 2015.

TABLE 1
BECKER 5-1, 2, 14, 15 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	
GW01	11/29/2012	3,100	610	320	3,700	NM
BH01	12/20/2012	97	<1.0	180	1,200	13.24
BH01	3/19/2013	1.7	<1.0	4.9	48	13.27
BH01	6/21/2013	<1.0	<1.0	8.0	49	13.01
BH01	9/23/2013	<1.0	<1.0	<1.0	<1.0	12.52
BH01	12/18/2013	1.5	<1.0	<1.0	<1.0	12.80
BH01	3/28/2014	<1.0	1.9	<1.0	2.2	12.81
BH01	6/25/2014	<1.0	<1.0	15	8.9	11.44
BH01	9/17/2014	<1.0	<1.0	11	2.1	10.93
BH01	12/16/2014	7.4	<1.0	11	<1.0	11.45
BH01	3/27/2015	1.4	4.2	2.2	24	11.59
BH01	6/29/2015	<1.0	<1.0	<1.0	<1.0	8.67
BH01	9/25/2015	<1.0	<1.0	<1.0	<1.0	9.88
BH02	12/20/2012	170	1.6	490	1,700	10.20
BH02	3/19/2013	<1.0	<1.0	<1.0	2.8	10.44
BH02	6/21/2013	82	<1.0	66	410	9.85
BH02	9/23/2013	35	<1.0	39	39	9.31
BH02	12/18/2013	550	<1.0	1.4	110	9.74
BH02	3/28/2014	660	150	1.0	280	9.78
BH02	6/25/2014	<1.0	<1.0	<1.0	<1.0	8.12
BH02	9/17/2014	110	<1.0	120	24	7.78
BH02	12/16/2014	<1.0	<1.0	<1.0	<1.0	8.41
BH02	3/27/2015	<1.0	1.8	<1.0	6.5	8.76
BH02	6/29/2015	<1.0	<1.0	<1.0	<1.0	5.51
BH02	9/25/2015	<1.0	<1.0	<1.0	<1.0	6.59
BH03	12/20/2012	<1.0	<1.0	<1.0	<1.0	12.78
BH03	3/19/2013	<1.0	<1.0	<1.0	<1.0	12.60
BH03	6/21/2013	<1.0	<1.0	<1.0	<1.0	12.39
BH03	9/23/2013	<1.0	<1.0	<1.0	<1.0	12.18
BH03	12/18/2013	1.2	<1.0	<1.0	<1.0	12.09
BH03	3/28/2014	<1.0	<1.0	<1.0	<1.0	12.06
BH03	6/25/2014	<1.0	<1.0	<1.0	<1.0	10.92
BH03	9/17/2014	<1.0	<1.0	<1.0	<1.0	10.44
BH03	12/16/2014	<1.0	<1.0	<1.0	<1.0	10.79
BH03	3/27/2015	<1.0	<1.0	<1.0	<1.0	11.05
BH03	6/29/2015	<1.0	<1.0	<1.0	<1.0	8.19
BH03	9/25/2015	<1.0	<1.0	<1.0	<1.0	9.54
BH04	6/25/2014	18	<1.0	53	130	8.72
BH04	9/17/2014	1.1	<1.0	<1.0	<1.0	8.13
BH04	12/16/2014	3.3	<1.0	6.0	21	8.73
BH04	3/27/2015	<1.0	<1.0	<1.0	20	8.88
BH04	6/29/2015	<1.0	<1.0	<1.0	2.2	5.73
BH04	9/25/2015	4.5	<1.0	1.2	4.6	7.15

TABLE 1
BECKER 5-1, 2, 14, 15 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	6/25/2014	<1.0	<1.0	<1.0	<1.0	10.55
BH05	9/17/2014	<1.0	<1.0	<1.0	<1.0	10.70
BH05	12/16/2014	<1.0	<1.0	<1.0	<1.0	10.78
BH05	3/27/2015	<1.0	<1.0	<1.0	<1.0	10.92
BH05	6/29/2015	<1.0	<1.0	<1.0	<1.0	6.64
BH05	9/25/2015	<1.0	<1.0	<1.0	<1.0	8.89
BH06	6/25/2014	<1.0	<1.0	<1.0	<1.0	8.67
BH06	9/17/2014	<1.0	<1.0	<1.0	<1.0	8.12
BH06	12/16/2014	<1.0	<1.0	<1.0	<1.0	8.77
BH06	3/27/2015	<1.0	<1.0	<1.0	<1.0	9.14
BH06	6/29/2015	<1.0	<1.0	<1.0	<1.0	5.83
BH06	9/25/2015	<1.0	<1.0	<1.0	<1.0	7.10
BH07	6/25/2014	<1.0	<1.0	<1.0	<1.0	8.94
BH07	9/17/2014	<1.0	<1.0	<1.0	<1.0	8.40
BH07	12/16/2014	<1.0	<1.0	<1.0	<1.0	8.17
BH07	3/27/2015	<1.0	<1.0	<1.0	<1.0	9.42
BH07	6/29/2015	<1.0	<1.0	<1.0	<1.0	6.14
BH07	9/25/2015	<1.0	<1.0	<1.0	<1.0	6.62
BH08	6/25/2014	<1.0	<1.0	<1.0	<1.0	8.92
BH08	9/17/2014	<1.0	<1.0	<1.0	<1.0	8.40
BH08	12/16/2014	<1.0	<1.0	<1.0	<1.0	9.02
BH08	3/27/2015	<1.0	<1.0	<1.0	<1.0	9.39
BH08	6/29/2015	<1.0	<1.0	<1.0	<1.0	6.09
BH08	9/25/2015	<1.0	<1.0	<1.0	<1.0	7.41

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

* Well repairs completed during 3rd Quarter 2015 resulted in a few inches of casing being cut off of each well.

µg/L = Micrograms per liter

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

NM = Not Measured

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

TABLE 2
BECKER 5-1, 2, 14, 15 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					
7/8/2013	BH01, BH02	6	7	BH01, BH02	10
7/23/2013		6.25	0		10
8/9/2013		6.25	2		15
8/22/2013		6	0		NR
9/9/2013		6	13		10
9/17/2013		6	NR		12
9/24/2013		6	15		15
Quarterly Totals		42.5	37		
Fourth Quarter 2013					
10/7/2013	BH01, BH02	6	1	BH01, BH02	10
10/15/2013		6.25	5		10
10/29/2013		6	0		10
11/13/2013		6	NR		10
11/25/2013		6	0.5		10
12/19/2013		6	0		10
Quarterly Totals		36.25	6.5		
Second Quarter 2014					
4/16/2014	BH02	6	0	BH02, BH04, BH05, BH06, BH07	10
5/1/2014		6	0		20
5/7/2014		6	0		10
5/21/2014		4.5	0		10
6/6/2014		6	0		10
6/19/2014		6	0		20
Quarterly Totals		34.5	0		
Third Quarter 2014					
7/9/2014	BH02	6	0	BH02, BH04, BH05, BH06, BH07	20
7/14/2014		6	0		20
8/5/2014		6	42		20
8/22/2014		6	0		20
9/11/2014		6	20		20
Quarterly Totals		30	62		
Fourth Quarter 2014					
10/1/2014	BH04, BH05, BH06, BH07	6	0	BH02, BH04, BH05, BH06, BH07	20
10/20/2014		6	50		20
11/3/2014		6	18		20
11/20/2014		6	0		20
12/8/2014		6	0		30
12/19/2014		6	10		30
Quarterly Totals		36	78		

TABLE 2
BECKER 5-1, 2, 14, 15 TANK BATTERY
EFR / AS OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)
First Quarter 2015					
1/8/2015	BH01, BH02, BH04, BH06	6	0	BH01, BH02, BH04, BH06	20
1/21/2015		6	0		20
2/6/2015		6	0		20
2/19/2015		6	5		20
3/10/2015		6	0		20
3/23/2015		6	25		20
3/31/2015		6	25		20
Quarterly Totals		42	55		
Second Quarter 2015					
4/10/2015	BH01, BH02, BH04, BH06	6	27	BH01, BH02, BH04, BH06	20
4/17/2015		6	18		22.5
4/28/2015		6	20		30
5/11/2015		6	50		20
5/26/2015		6	35		20
6/9/2015		6	20		25
6/25/2015	BH04, BH06	3	10	BH01, BH02	20
Quarterly Totals		39	180		
Third Quarter 2015					
7/7/2015	BH01, BH02, BH04, BH06	6	0	BH01, BH02, BH04, BH06	20
7/21/2015		6	0		20
8/4/2015		6	10		20
9/1/2015		6	80		20
9/14/2015		6	0		20
9/29/2015		6	60		20
Quarterly Totals		36	150		

Notes:

EFR = Enhanced fluid recovery

AS = Air sparge

psi = Pounds per square inch

NR = Not recorded



Surface
Drainage

BH03		
Compound (ug/L)	6/29/2015	9/25/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH01		
Compound (ug/L)	6/29/2015	9/25/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH05		
Compound (ug/L)	6/29/2015	9/25/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

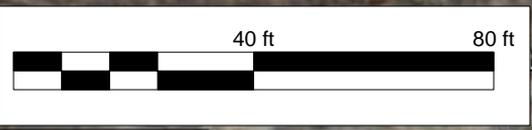
BH02		
Compound (ug/L)	6/29/2015	9/25/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH06		
Compound (ug/L)	6/29/2015	9/25/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH04		
Compound (ug/L)	6/29/2015	9/25/2015
Benzene	<1.0	4.5
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	1.2
Total Xylenes	2.2	4.6

BH07		
Compound (ug/L)	6/29/2015	9/25/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH08		
Compound (ug/L)	6/29/2015	9/25/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0



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

DRAWN BY: ESS
DATE: 10/20/2015

Facility Diagram
PDC Energy – DJ Basin
Becker 5-1, 2, 14, 15 Tank Battery
SWSE S5 T3N R64W
Weld County, CO

 6899 Pecos Street
Unit C
Denver, CO 80221

LEGEND
 Approximate Extent of Excavation
 Temporary Monitoring Well
 Excavation Groundwater Sample Location

FIGURE 1
GROUNDWATER ANALYTICAL RESULTS

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 02, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Becker 5-1,2,14,15

Enclosed are the results of analyses for samples received by Summit Scientific on 09/25/15 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "M. Clements", with a stylized flourish at the end.

Michelle Clements For Paul Shrewsbury
President



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

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/02/15 14:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1509247-01	Water	09/25/15 13:35	09/25/15 17:00
BH02	1509247-02	Water	09/25/15 13:29	09/25/15 17:00
BH03	1509247-03	Water	09/25/15 13:26	09/25/15 17:00
BH04	1509247-04	Water	09/25/15 13:17	09/25/15 17:00
BH05	1509247-05	Water	09/25/15 13:20	09/25/15 17:00
BH06	1509247-06	Water	09/25/15 13:32	09/25/15 17:00
BH07	1509247-07	Water	09/25/15 13:18	09/25/15 17:00
BH08	1509247-08	Water	09/25/15 13:33	09/25/15 17:00

Summit Scientific

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



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

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/02/15 14:49

Summit Scientific

1509247

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: M.H.P., K.H.F., J.G.S., D.C.

Project Manager: Mark Longhurst
E-Mail: Mark.Longhurst@PDCE.com
Project Name: Becker 5-1,2,14,15
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	9/25/15	1335	3	X				X								
BH02		1329														
BH03		1326														
BH04		1317														
BH05		1320														
BH06		1332														
BH07		1318														
BH08		1333														

Relinquished by: <i>[Signature]</i>	Date/Time: 9/25/15 16:00	Received by: <i>[Signature]</i>	Date/Time: 9/25/15 17:00	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: 2.5°C Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes: on ice
Relinquished by: <i>[Signature]</i>	Date/Time: 9/25/15 17:40	Received by: <i>[Signature]</i>	Date/Time: 9/25 17:40		
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:		

www.s2scientific.com

Summit Scientific

[Signature]

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

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

BH01
1509247-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/15 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1509267	09/29/15	09/29/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/25/15 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.9 %	45-146		"	"	"	"	

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

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

BH02
1509247-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/15 13:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1509267	09/29/15	09/29/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/25/15 13:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	45-146		"	"	"	"	

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

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

BH03
1509247-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/15 13:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1509267	09/29/15	09/29/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/25/15 13:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		109 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.0 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.3 %	45-146		"	"	"	"	

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

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

BH04
1509247-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/15 13:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	4.5	1.0	ug/l	1	1509267	09/29/15	09/29/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	1.2	1.0	"	"	"	"	"	"	
Xylenes (total)	4.6	1.0	"	"	"	"	"	"	

Date Sampled: **09/25/15 13:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.3 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		89.6 %	45-146		"	"	"	"	

Summit Scientific

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



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

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

BH05
1509247-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/15 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1509267	09/29/15	09/29/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/25/15 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		121 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		101 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.2 %	45-146		"	"	"	"	

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

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

BH06
1509247-06 (Water)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/15 13:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1509267	09/29/15	09/29/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/25/15 13:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.4 %	45-146		"	"	"	"	

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 Denver CO, 80203

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

BH07
1509247-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/15 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1509267	09/29/15	09/29/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/25/15 13:18**

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>		98.1 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.2 %	45-146		"	"	"	"	

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

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

BH08
1509247-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/15 13:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1509267	09/29/15	09/29/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/25/15 13:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		91.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.2 %	45-146		"	"	"	"	

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Denver CO, 80203

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/02/15 14:49

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 1509267 - EPA 5030 Water MS

Blank (1509267-BLK1)

Prepared & Analyzed: 09/29/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.2		113	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.0	45-149			
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3		93.6	45-146			

LCS (1509267-BS1)

Prepared & Analyzed: 09/29/15

Benzene	29.8	1.0	ug/l	33.3		89.5	51-132			
Toluene	30.6	1.0	"	33.3		91.8	51-138			
Ethylbenzene	38.7	1.0	"	33.1		117	58-146			
m,p-Xylene	77.8	2.0	"	66.5		117	57-144			
o-Xylene	34.8	1.0	"	32.8		106	53-146			
Surrogate: 1,2-Dichloroethane-d4	15.6		"	13.2		118	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.8	45-146			

Matrix Spike (1509267-MS1)

Source: 1509247-01

Prepared & Analyzed: 09/29/15

Benzene	29.1	1.0	ug/l	33.3	ND	87.2	34-141			
Toluene	28.2	1.0	"	33.3	ND	84.6	27-151			
Ethylbenzene	36.2	1.0	"	33.1	ND	109	29-160			
m,p-Xylene	69.9	2.0	"	66.5	ND	105	20-166			
o-Xylene	32.6	1.0	"	32.8	ND	99.5	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.2		109	37-154			
Surrogate: Toluene-d8	12.4		"	13.3		93.2	45-149			
Surrogate: 4-Bromofluorobenzene	12.3		"	13.3		92.5	45-146			

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 Denver CO, 80203

Project: Becker 5-1,2,14,15

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/02/15 14:49

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 1509267 - EPA 5030 Water MS

Matrix Spike Dup (1509267-MSD1)	Source: 1509247-01			Prepared & Analyzed: 09/29/15						
Benzene	30.2	1.0	ug/l	33.3	ND	90.6	34-141	3.81	32	
Toluene	30.3	1.0	"	33.3	ND	90.8	27-151	7.11	25	
Ethylbenzene	38.2	1.0	"	33.1	ND	115	29-160	5.33	50	
m,p-Xylene	78.0	2.0	"	66.5	ND	117	20-166	11.0	36	
o-Xylene	34.4	1.0	"	32.8	ND	105	33-159	5.31	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>16.5</i>		<i>"</i>	<i>13.2</i>		<i>125</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.3</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.5</i>	<i>45-146</i>			

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/02/15 14:49

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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