



PDC Energy, Inc.
Second Quarter 2015 Groundwater Monitoring Summary

July 22, 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 June 29, 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 and the complete lab report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. Second 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 second quarter 2015. A summary of the EFR/AS operational data is provided in Table 2. EFR/AS events will be discontinued during the third quarter 2015, and monitored natural attenuation (MNA) will be implemented as the selected remediation strategy.

Third quarter 2015 groundwater sampling will be conducted in September 2015.

TABLE 1
BECKER 5-1, 2, 14, 15 TANK BATTERY
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)
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
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
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

TABLE 1
BECKER 5-1, 2, 14, 15 TANK BATTERY
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)
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
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
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
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
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
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
BECKER 5-1, 2, 14, 15 TANK BATTERY
AIR SPARGE / EFR OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)	Average Air Flow Rate (cfm)
First Quarter 2013						
1/28/2013	BH01, BH02	6	4.5	BH01, BH02	10	
2/16/2013		5.5	16		10	
3/3/2013		6	0		10	
3/18/2013		6	7		10	
Quarterly Totals		23.5	27.5		-	
Second Quarter 2013						
4/15/2013	BH01, BH02	6	9	BH01, BH02	10	
5/3/2013		4	0		10	
5/20/2013		6	2		10	
Quarterly Totals		16	11		-	
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		not recorded	
9/9/2013		6	13		10	
9/17/2013		6	not recorded		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	not recorded		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	10
5/1/2014		6	0		20	3
5/7/2014		6	0		10	16
5/21/2014		4.5	0		10	17.5
6/6/2014		6	0		10	14
6/19/2014		6	0		20	24
Quarterly Totals		34.5	0		-	

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

Third Quarter 2014						
7/9/2014	BH02	6	0	BH02, BH04, BH05, BH06, BH07	20	16
7/14/2014		6	0		20	15
8/5/2014		6	42		20	17
8/22/2014		6	0		20	12
9/11/2014		6	20		20	20
Quarterly Totals		30	62		-	
Fourth Quarter 2014						
10/1/2014	BH04, BH05, BH06, BH07	6	0	BH02, BH04, BH05, BH06, BH07	20	20
10/20/2014		6	50		20	19
11/3/2014		6	18		20	30
11/20/2014		6	0		20	30
12/8/2014		6	0		30	22.5
12/19/2014		6	10		30	29
Quarterly Totals		36	78		-	
First Quarter 2015						
1/8/2015	BH01, BH02, BH04, BH06	6	0	BH01, BH02, BH04, BH06	20	25
1/21/2015		6	0		20	22
2/6/2015		6	0		20	18
2/19/2015		6	5		20	16.5
3/10/2015		6	0		20	21.5
3/23/2015		6	25		20	15.5
3/31/2015		6	25		20	15
Quarterly Totals		42	55		-	
Secnd Quarter 2015						
4/10/2015	BH01, BH02, BH04, BH06	6	27	BH01, BH02, BH04, BH06	20	27.5
4/17/2015		6	18		22.5	16.25
4/28/2015		6	20		30	30
5/11/2015		6	50		20	21.3
5/26/2015		6	35		20	32.5
6/9/2015		6	20		25	10
6/25/2015	BH04, BH06	3	10	BH01, BH02	20	34
Quarterly Totals		39	180		-	



Surface
Drainage

DCP Tank Battery

BH03		
Compound (ug/L)	3/27/2015	6/29/2015
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)	3/27/2015	6/29/2015
Benzene	1.4	<1.0
Toluene	4.2	<1.0
Ethylbenzene	2.2	<1.0
Total Xylenes	24	<1.0

BH04		
Compound (ug/L)	3/27/2015	6/29/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	20	2.2

BH05		
Compound (ug/L)	3/27/2015	6/29/2015
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)	3/27/2015	6/29/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH07		
Compound (ug/L)	3/27/2015	6/29/2015
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)	3/27/2015	6/29/2015
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)	3/27/2015	6/29/2015
Benzene	<1.0	<1.0
Toluene	1.8	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	6.5	<1.0

Property Fence

BH03

BH01

BH04

BH02

BH05

BH06

BH07

BH08

GW01

300 bbl
Oil

300 bbl
Oil

100 bbl
PW

Separator 10 bbl

Separator 10 bbl

Buried Irrigation Line

County Road 36

Approximate Scale:
1 inch equals 25 feet

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

LEGEND

- Earthen Berm
- Approximate Extent of Excavation
- Temporary Monitoring Well
- Excavation Groundwater Sample Location

FIGURE 1
GROUNDWATER
ANALYTICAL RESULTS

DRAWN BY: ESS

DATE: 7/7/2015

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

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 06, 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 06/29/15 17:00. 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', with a stylized, cursive script.

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:
07/06/15 09:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1506283-01	Water	06/29/15 14:50	06/29/15 17:00
BH02	1506283-02	Water	06/29/15 15:04	06/29/15 17:00
BH03	1506283-03	Water	06/29/15 14:57	06/29/15 17:00
BH04	1506283-04	Water	06/29/15 14:53	06/29/15 17:00
BH05	1506283-05	Water	06/29/15 15:02	06/29/15 17:00
BH06	1506283-06	Water	06/29/15 15:15	06/29/15 17:00
BH07	1506283-07	Water	06/29/15 15:20	06/29/15 17:00
BH08	1506283-08	Water	06/29/15 15:10	06/29/15 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:
07/06/15 09:45

Summit Scientific

1506283

S₂

741 Corporate Circle, Suite J&K ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: PDC Energy

Project Manager: Mark Longhurst

Address:

E-Mail: Mark.Longhurst@PDC.E.com

City/State/Zip:

Phone:

Fax:

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

Sampler Name: KF & EB

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)					
1	BH01	6/29	1450	3	X					X							
2	BH02	6/29	1504	3	X												
3	BH03	6/29	1457	3	X												
4	BH04	6/29	1453	3	X												
5	BH05	6/29	1502	3	X												
6	BH06	6/29	1515	3	X												
7	BH07	6/29	1520	3													
8	BH08	6/29	1510	3	X												
9																	
10																	

Relinquished by: <i>Que Z. Bary</i>	Date/Time: 6/29 16:30	Received by: <i>M/L</i>	Date/Time: 6/29/15 1700	Turn Around Time (Check)	Notes:
Relinquished by: <i>M/L</i>	Date/Time: 6/29/15 1745	Received by: <i>M/L</i>	Date/Time: 6/29 1745	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"/>	on ice
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 6.1°C	
				Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

www.s2scientific.com

Summit Scientific

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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:
07/06/15 09:45

BH01
1506283-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1506370	07/01/15	07/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **06/29/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		101 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.3 %	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:
07/06/15 09:45

BH02
1506283-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/15 15:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1506370	07/01/15	07/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **06/29/15 15:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		115 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		99.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	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:
07/06/15 09:45

BH03
1506283-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/15 14:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1506370	07/01/15	07/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **06/29/15 14:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		100 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	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:
07/06/15 09:45

BH04
1506283-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/15 14:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1506370	07/01/15	07/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	2.2	1.0	"	"	"	"	"	"	

Date Sampled: **06/29/15 14:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	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: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/06/15 09:45

BH05
1506283-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/15 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1506370	07/01/15	07/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **06/29/15 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		101 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.8 %	45-146		"	"	"	"	

Summit Scientific

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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:
07/06/15 09:45

BH06
1506283-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/15 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1506370	07/01/15	07/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **06/29/15 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.5 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	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:
07/06/15 09:45

BH07
1506283-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/15 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1506370	07/01/15	07/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **06/29/15 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.7 %	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:
07/06/15 09:45

BH08
1506283-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/29/15 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1506370	07/01/15	07/01/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **06/29/15 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	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:
07/06/15 09:45

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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

Batch 1506370 - EPA 5030 Water MS

Blank (1506370-BLK1)

Prepared & Analyzed: 07/01/15

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		107	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.8	45-149			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.1	45-146			

LCS (1506370-BS1)

Prepared & Analyzed: 07/01/15

Benzene	32.6	1.0	ug/l	33.3		97.7	51-132			
Toluene	32.6	1.0	"	33.3		98.0	51-138			
Ethylbenzene	34.8	1.0	"	33.1		105	58-146			
m,p-Xylene	70.2	2.0	"	66.5		105	57-144			
o-Xylene	35.3	1.0	"	32.8		108	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.2		113	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.3	45-149			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.6	45-146			

Matrix Spike (1506370-MS1)

Source: 1506281-01

Prepared & Analyzed: 07/01/15

Benzene	35.0	1.0	ug/l	33.3	4.04	92.8	34-141			
Toluene	33.1	1.0	"	33.3	ND	99.4	27-151			
Ethylbenzene	38.5	1.0	"	33.1	5.08	101	29-160			
m,p-Xylene	96.6	2.0	"	66.5	40.8	83.9	20-166			
o-Xylene	46.7	1.0	"	32.8	17.8	88.0	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.2		104	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.5	45-149			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.8	45-146			

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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:
07/06/15 09:45

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 1506370 - EPA 5030 Water MS

Matrix Spike Dup (1506370-MSD1)	Source: 1506281-01			Prepared & Analyzed: 07/01/15						
Benzene	35.3	1.0	ug/l	33.3	4.04	93.8	34-141	0.967	32	
Toluene	33.8	1.0	"	33.3	ND	101	27-151	1.85	25	
Ethylbenzene	37.4	1.0	"	33.1	5.08	97.8	29-160	2.82	50	
m,p-Xylene	89.1	2.0	"	66.5	40.8	72.6	20-166	8.08	36	
o-Xylene	43.9	1.0	"	32.8	17.8	79.4	33-159	6.25	26	
Surrogate: 1,2-Dichloroethane-d4	16.4		"	13.2		124	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.1	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	45-146			

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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:
07/06/15 09:45

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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A handwritten signature in black ink, appearing to be 'MSM'.