



PDC Energy, Inc.
Third Quarter 2014 Groundwater Monitoring Summary

October 22, 2014

Becker 5-1, 2, 14, 15 Tank Battery
SE 1/4 Section 5 T3N R64W
Weld County, API # 05-123-12297

This groundwater summary has been prepared by Tasman Geosciences, LLC for the Becker 5-1, 2, 14, 15 tank battery. On September 17, 2014 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 complete lab report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. Third quarter 2014 analytical results indicate that benzene concentrations are in exceedance of COGCC regulatory standards at monitoring well BH02. BTEX concentrations are below regulatory standards at the remaining seven sample locations.

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

Fourth quarter 2014 groundwater sampling will be conducted in December 2014.

TABLE 1
BECKER 5-1, 2, 14, 15
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
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
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

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

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Injection Pressure (psi)	Average Air Flow (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
AIR SPARGE / EFR OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Injection Pressure (psi)	Average Air Flow (cfm)
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		-	



Surface
Drainage



DCP Tank Battery

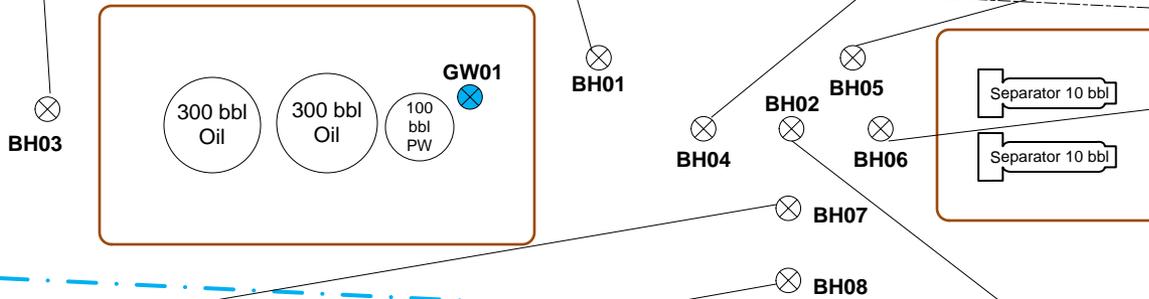
BH03		
Compound (ug/L)	6/25/2014	9/17/2014
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH01		
Compound (ug/L)	6/25/2014	9/17/2014
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	15	11
Total Xylenes	8.9	2.1

BH04		
Compound (ug/L)	6/25/2014	9/17/2014
Benzene	18	1.1
Toluene	<1.0	<1.0
Ethylbenzene	53	<1.0
Total Xylenes	130	<1.0

BH05		
Compound (ug/L)	6/25/2014	9/17/2014
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

Property Fence



BH06		
Compound (ug/L)	6/25/2014	9/17/2014
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)	6/25/2014	9/17/2014
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)	6/25/2014	9/17/2014
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)	6/25/2014	9/17/2014
Benzene	<1.0	110
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	120
Total Xylenes	<1.0	24

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.

DRAWN BY: ESS

Facility Diagram
PDC Energy – DJ Basin
Becker 5-1, 2, 14, 15
SE 1/4 S5 T3N R64W
Weld County, CO

DATE: 9/30/2014



6899 Pecos Street
Unit C
Denver, CO 80221

LEGEND

- Earthen Berm
- Temporary Monitoring Well
- Groundwater Sample Location Collected During Excavation Activities

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

September 22, 2014

Brandon Bruns
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 09/17/14 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
President / Laboratory Manager



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

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
09/22/14 07:27

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1409101-01	Water	09/17/14 12:10	09/17/14 16:30
BH02	1409101-02	Water	09/17/14 12:20	09/17/14 16:30
BH03	1409101-03	Water	09/17/14 12:30	09/17/14 16:30
BH04	1409101-04	Water	09/17/14 12:40	09/17/14 16:30
BH05	1409101-05	Water	09/17/14 12:50	09/17/14 16:30
BH06	1409101-06	Water	09/17/14 13:00	09/17/14 16:30
BH07	1409101-07	Water	09/17/14 13:10	09/17/14 16:30
BH08	1409101-08	Water	09/17/14 13:20	09/17/14 16:30

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: Brandon Brunns

Reported:
09/22/14 07:27

Summit Scientific 1409101

S₂

741 Corporate Circle Suite 1 ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Page 1 of 1

Client: PDC Energy
Address: 1699 Pecos St Unit C
City/State/Zip: Denver CO 80521
Phone: 303 487 1228 Fax:
Sampler Name: Andrew T. Fisher
Project Manager: Brandon Brunns
E-Mail: bbruns@petd.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	9/17	1210	3	X				X								
BH02		1220														
BH03		1230														
BH04		1240														
BH05		1250														
BH06		1300														
BH07		1310														
BH08		1320														

Relinquished by: <i>Andrew T. Fisher</i>	Date/Time: 9/17/14 1630	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input type="checkbox"/>	72 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>
Relinquished by:	Date/Time:	Received in Lab by: <i>[Signature]</i>	Date/Time: 9-17-14	Sample Integrity:	
				Temperature Upon Receipt: 44 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

www.s2scientific.com



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

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

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 09/22/14 07:27

BH01
1409101-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/17/14 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1409152	09/19/14	09/19/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	11	1.0	"	"	"	"	"	"	
Xylenes (total)	2.1	1.0	"	"	"	"	"	"	

Date Sampled: **09/17/14 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		86.6 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.1 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		100 %	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: Brandon Brunns

Reported:
 09/22/14 07:27

BH02
1409101-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/17/14 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	110	1.0	ug/l	1	1409152	09/19/14	09/19/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	120	1.0	"	"	"	"	"	"	
Xylenes (total)	24	1.0	"	"	"	"	"	"	

Date Sampled: **09/17/14 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		92.0 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		100 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		100 %	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: Brandon Brunns

Reported:
 09/22/14 07:27

BH03
1409101-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/17/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1409152	09/19/14	09/19/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/17/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		86.9 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.4 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		105 %	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: Brandon Brunns

Reported:
 09/22/14 07:27

BH04
1409101-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/17/14 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	1.1	1.0	ug/l	1	1409152	09/19/14	09/19/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/17/14 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.3 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.7 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %	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: Brandon Bruns

Reported:
 09/22/14 07:27

BH05
1409101-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/17/14 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1409152	09/19/14	09/19/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/17/14 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		82.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.9 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %	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: Brandon Bruns

Reported:
 09/22/14 07:27

BH06
1409101-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/17/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1409152	09/19/14	09/19/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/17/14 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		82.3 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		106 %	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: Brandon Bruns

Reported:
 09/22/14 07:27

BH07
1409101-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/17/14 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1409152	09/19/14	09/19/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/17/14 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.6 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.7 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %	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: Brandon Bruns

Reported:
 09/22/14 07:27

BH08
1409101-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/17/14 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1409152	09/19/14	09/19/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/17/14 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		87.3 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %	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: Brandon Brunns

Reported:
09/22/14 07:27

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 1409152 - EPA 5030 Water MS

Blank (1409152-BLK1)

Prepared & Analyzed: 09/18/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	11.5		"	13.2		87.2	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.6	45-149			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	45-146			

LCS (1409152-BS1)

Prepared & Analyzed: 09/18/14

Benzene	42.8	1.0	ug/l	33.3		128	51-132			
Toluene	41.8	1.0	"	33.3		125	51-138			
Ethylbenzene	43.4	1.0	"	33.1		131	58-146			
m,p-Xylene	83.9	2.0	"	66.5		126	57-144			
o-Xylene	41.8	1.0	"	32.8		128	53-146			
Surrogate: 1,2-Dichloroethane-d4	11.7		"	13.2		88.3	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		101	45-146			

Matrix Spike (1409152-MS1)

Source: 1409100-01

Prepared & Analyzed: 09/18/14

Benzene	42.6	1.0	ug/l	33.3	ND	128	34-141			
Toluene	41.7	1.0	"	33.3	ND	125	27-151			
Ethylbenzene	42.8	1.0	"	33.1	ND	129	29-160			
m,p-Xylene	84.0	2.0	"	66.5	ND	126	20-166			
o-Xylene	41.7	1.0	"	32.8	ND	127	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.8		"	13.2		89.4	37-154			
Surrogate: Toluene-d8	13.5		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		101	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: Brandon Brunns

Reported:
 09/22/14 07:27

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 1409152 - EPA 5030 Water MS

Matrix Spike Dup (1409152-MSD1)	Source: 1409100-01			Prepared & Analyzed: 09/18/14						
Benzene	42.8	1.0	ug/l	33.3	ND	129	34-141	0.656	32	
Toluene	41.7	1.0	"	33.3	ND	125	27-151	0.0240	25	
Ethylbenzene	43.0	1.0	"	33.1	ND	130	29-160	0.560	50	
m,p-Xylene	83.4	2.0	"	66.5	ND	125	20-166	0.669	36	
o-Xylene	41.5	1.0	"	32.8	ND	126	33-159	0.625	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>11.7</i>		<i>"</i>	<i>13.2</i>		<i>88.2</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.6</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>99.5</i>	<i>45-146</i>			

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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: Brandon Bruns

Reported:
09/22/14 07:27

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

Summit Scientific

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