



PDC Energy, Inc.
Fourth Quarter 2013 Groundwater Monitoring Summary

January 14, 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 December 18, 2013 groundwater sampling was conducted at three 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 a complete laboratory analytical report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. Fourth quarter 2013 analytical results indicate that benzene concentrations in BH02 were in exceedance of COGCC regulatory standards. BTEX concentrations were below regulatory standards at BH01 and BH03.

Tasman continued enhanced fluid recovery (EFR) and air sparge (AS) events at the site during the fourth quarter 2013. A summary of the EFR/AS operational data is provided in Table 2. EFR/AS activities will continue through the first quarter 2014.

First quarter 2014 groundwater sampling will be conducted in March 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	16
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
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
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
COGCC standards for groundwater (ug/L) ⁽¹⁾		5	560	700	1,400	

Notes:

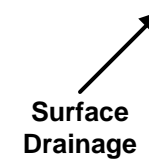
1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

Bold red values indicate an exceedance of the COGCC groundwater standards for the Site.

ug/L= Micrograms per liter.

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)
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		-



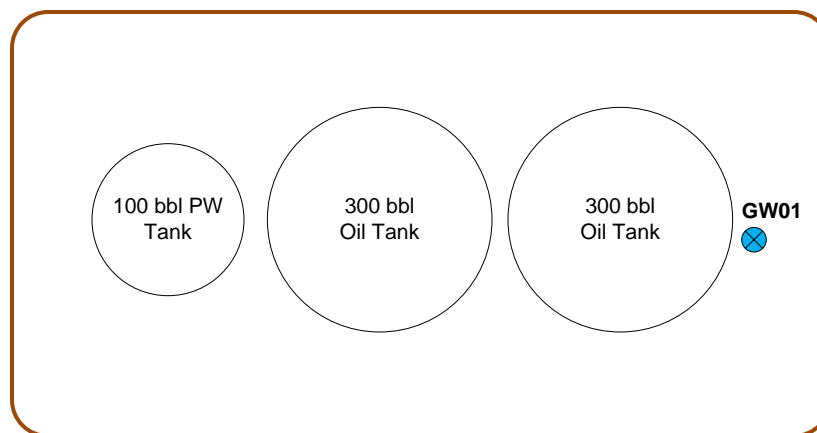
DCP / PDC Tank Battery

Property Fence

BH03



BH03		
Compound (ug/L)	9/23/2013	12/18/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	1.2



BH01

BH01		
Compound (ug/L)	9/23/2013	12/18/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	1.5

BH02

BH02		
Compound (ug/L)	9/23/2013	12/18/2013
Benzene	35	550
Toluene	<1.0	<1.0
Ethylbenzene	39	1.4
Total Xylenes	39	110

Separator 10 bbl

Separator 10 bbl

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

DRAWN BY: ESS

DATE: 1/6/2014

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



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
Not to Scale

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

December 23, 2013

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Adamson 28-1,2,5 & 1-6L

Enclosed are the results of analyses for samples received by Summit Scientific on 12/17/13 17:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' or 'Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Manager



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

Project: Adamson 28-1,2,5 & 1-6L

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/23/13 17:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	R312103-01	Water	12/17/13 11:00	12/17/13 17:20
BH02	R312103-02	Water	12/17/13 11:00	12/17/13 17:20
BH03	R312103-03	Water	12/17/13 11:00	12/17/13 17:20
BH04	R312103-04	Water	12/17/13 11:00	12/17/13 17:20
BH05	R312103-05	Water	12/17/13 11:00	12/17/13 17:20
BH06	R312103-06	Water	12/17/13 11:00	12/17/13 17:20
BH07	R312103-07	Water	12/17/13 11:00	12/17/13 17:20

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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/23/13 17:25

BH01
R312103-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	3121806	12/19/13	12/19/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.0 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
12/23/13 17:25

BH02
R312103-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3121806	12/19/13	12/19/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		110 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		99.1 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.4 %		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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
12/23/13 17:25

BH03
R312103-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	3121806	12/19/13	12/19/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	2.1	1.0	"	"	"	"	"	"	

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
12/23/13 17:25

BH04
R312103-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	3121806	12/19/13	12/19/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	11	1.0	"	"	"	"	"	"	

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.5 %	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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/23/13 17:25

BH05
R312103-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3121806	12/19/13	12/19/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		108 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		98.8 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %		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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
12/23/13 17:25

BH06
R312103-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	3121806	12/19/13	12/19/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		110 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		100 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/23/13 17:25

BH07
R312103-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	3121806	12/19/13	12/19/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: 12/17/13 11:00

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		104 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/23/13 17:25

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 3121806 - EPA 5030 Water MS

Blank (3121806-BLK1)

Prepared & Analyzed: 12/18/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.2		109	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.5	45-149			
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3		104	45-146			

LCS (3121806-BS1)

Prepared & Analyzed: 12/18/13

Benzene	29.2	1.0	ug/l	33.3		87.6	51-132			
Toluene	34.6	1.0	"	33.3		104	51-138			
Ethylbenzene	45.6	1.0	"	33.3		137	58-146			
m,p-Xylene	79.5	2.0	"	66.7		119	57-144			
o-Xylene	42.2	1.0	"	33.3		127	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.2		110	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.4	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	45-146			

Matrix Spike (3121806-MS1)

Source: R312102-02

Prepared & Analyzed: 12/18/13

Benzene	29.8	1.0	ug/l	33.3	ND	89.3	34-141			
Toluene	35.3	1.0	"	33.3	ND	106	27-151			
Ethylbenzene	45.9	1.0	"	33.3	ND	138	29-160			
m,p-Xylene	80.0	2.0	"	66.7	ND	120	20-166			
o-Xylene	43.2	1.0	"	33.3	ND	129	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.6		"	13.2		110	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.2	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		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: Adamson 28-1,2,5 & 1-6L
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
12/23/13 17:25

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 3121806 - EPA 5030 Water MS

Matrix Spike Dup (3121806-MSD1)	Source: R312102-02			Prepared & Analyzed: 12/18/13						
Benzene	29.9	1.0	ug/l	33.3	ND	89.6	34-141	0.335	32	
Toluene	35.3	1.0	"	33.3	ND	106	27-151	0.0567	25	
Ethylbenzene	46.7	1.0	"	33.3	ND	140	29-160	1.73	50	
m,p-Xylene	81.1	2.0	"	66.7	ND	122	20-166	1.38	36	
o-Xylene	43.4	1.0	"	33.3	ND	130	33-159	0.693	26	
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.2		110	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.5	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		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: Adamson 28-1,2,5 & 1-6L

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
12/23/13 17:25

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

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