



PDC Energy, Inc.
Second Quarter 2013 Groundwater Monitoring Summary

September 1, 2013

Pfenning 43, 44-31 Tank Battery
SESE Section 31 T7N R64W
Weld County, API # 05-123-22574

This groundwater monitoring summary has been prepared by Tasman Geosciences, LLC for the Pfenning 43, 44-31 tank battery. Groundwater monitoring was attempted during June 2013 but was postponed due to severe weather. Consequently, groundwater samples were collected for the second quarter monitoring event on July 29, 2013. Groundwater samples were collected from seven of the eight monitoring locations; MW03 contained insufficient water from sample collection. 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 lab report is included as Attachment A. Sample locations and corresponding second quarter 2013 analytical results are illustrated on Figure 2. Second quarter analytical results indicate that BTEX concentrations are below laboratory detection limits in the seven monitoring locations sampled during the reporting period.

Monitored natural attenuation will remain the selected remediation strategy through third quarter 2013. Two additional quarters of BTEX concentrations below regulatory standards is required for site closure.

The third quarter 2013 groundwater sampling event will be conducted during September 2013.

TABLE 1
PFENNING 43, 44-31
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	9/5/2008	390	13	3.7	190	NM
GW02	9/8/2008	900	28	<1.0	75	NM
MW01	9/25/2008	<1.0	<1.0	1.4	4.5	NM
MW01	12/23/2008	<1.0	<1.0	<1.0	<1.0	7.91
MW01	3/19/2009	<1.0	<1.0	<1.0	<1.0	7.56
MW01	6/18/2009	<1.0	<1.0	<1.0	<1.0	5.85
MW01	9/23/2009	<1.0	<1.0	<1.0	<1.0	4.78
MW01	12/9/2009	<1.0	<1.0	<1.0	<1.0	5.91
MW01	3/18/2010	220	<1.0	<1.0	1.0	5.50
MW01	6/23/2010	740	<1.0	<1.0	2.4	4.73
MW01	9/8/2010	200	<1.0	<1.0	<1.0	5.8
MW01	12/7/2010	450	<1.0	<1.0	<1.0	7.58
MW01	3/3/2011	100	<1.0	<1.0	<1.0	7.70
MW01	6/6/2011	7.4	<1.0	<1.0	<1.0	5.06
MW01	7/5/2011	1.2	<1.0	<1.0	<1.0	NM
MW01	9/22/2011	140	<1.0	<1.0	<1.0	5.36
MW01	12/8/2011	91	<1.0	<1.0	<1.0	5.70
MW01	3/21/2012	8.8	<1.0	<1.0	<1.0	5.74
MW01	6/19/2012	<1.0	<1.0	<1.0	<1.0	8.33
MW01	9/19/2012	DRY	DRY	DRY	DRY	DRY
MW01	12/20/2012	DRY	DRY	DRY	DRY	DRY
MW01	7/29/2013	<1.0	<1.0	<1.0	<1.0	7.59
MW02	9/25/2008	36	<1.0	<1.0	3.6	NM
MW02	12/23/2008	60	<1.0	<1.0	<1.0	6.65
MW02	3/19/2009	110	<1.0	<1.0	<1.0	7.11
MW02	6/18/2009	<1.0	<1.0	<1.0	<1.0	5.52
MW02	9/23/2009	6.8	<1.0	<1.0	<1.0	4.95
MW02	12/9/2009	<1.0	<1.0	<1.0	<1.0	5.46
MW02	3/18/2010	<1.0	<1.0	<1.0	<1.0	5.51
MW02	6/23/2010	<1.0	<1.0	<1.0	<1.0	4.51
MW02	9/8/2010	<1.0	<1.0	<1.0	<1.0	5.56
MW02	12/7/2010	<1.0	<1.0	<1.0	<1.0	7.26
MW02	3/3/2011	<1.0	<1.0	<1.0	<1.0	7.24
MW02	6/6/2011	<1.0	<1.0	<1.0	<1.0	4.75
MW02	9/22/2011	<1.0	<1.0	<1.0	<1.0	5.43
MW02	12/8/2011	<1.0	<1.0	<1.0	<1.0	5.55
MW02	3/21/2012	<1.0	<1.0	<1.0	<1.0	5.46
MW02	6/19/2012	<1.0	<1.0	<1.0	<1.0	8.19

TABLE 1
PFENNING 43, 44-31
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

MW02	9/19/2012	DRY	DRY	DRY	DRY	DRY
MW02	12/20/2012	DRY	DRY	DRY	DRY	DRY
MW02	7/29/2013	<1.0	<1.0	<1.0	<1.0	7.38
MW03	9/25/2008	<1.0	<1.0	<1.0	11	NM
MW03	12/23/2008	<1.0	<1.0	<1.0	<1.0	7.22
MW03	3/19/2009	<1.0	<1.0	<1.0	<1.0	7.38
MW03	6/18/2009	230	<1.0	<1.0	<1.0	5.55
MW03	9/23/2009	31	<1.0	<1.0	<1.0	5.83
MW03	12/9/2009	23	<1.0	<1.0	<1.0	5.76
MW03	3/18/2010	<1.0	<1.0	<1.0	<1.0	5.16
MW03	6/23/2010	<1.0	<1.0	<1.0	<1.0	4.87
MW03	9/8/2010	<1.0	<1.0	<1.0	<1.0	6.10
MW03	12/7/2010	<1.0	<1.0	<1.0	<1.0	7.75
MW03	3/3/2011	<1.0	<1.0	<1.0	<1.0	7.60
MW03	6/6/2011	<1.0	<1.0	<1.0	<1.0	5.04
MW03	9/22/2011	<1.0	<1.0	<1.0	<1.0	5.78
MW03	12/8/2011	<1.0	<1.0	<1.0	<1.0	5.82
MW03	3/21/2012	<1.0	<1.0	<1.0	<1.0	5.79
MW03	6/19/2012	<1.0	<1.0	<1.0	<1.0	8.19
MW03	9/19/2012	NS	NS	NS	NS	NM
MW03	12/20/2012	DRY	DRY	DRY	DRY	DRY
MW03	7/29/2013	DRY	DRY	DRY	DRY	DRY
MW04	4/23/2009	<1.0	<1.0	<1.0	<1.0	4.31
MW04	6/18/2009	<1.0	<1.0	<1.0	<1.0	5.90
MW04	9/23/2009	<1.0	<1.0	<1.0	<1.0	2.96
MW04	12/9/2009	<1.0	<1.0	<1.0	<1.0	3.20
MW04	3/18/2010	<1.0	<1.0	<1.0	<1.0	2.98
MW04	6/23/2010	<1.0	<1.0	<1.0	<1.0	2.45
MW04	9/8/2010	<1.0	<1.0	<1.0	<1.0	3.26
MW04	12/7/2010	<1.0	<1.0	<1.0	<1.0	NM
MW04	3/3/2011	<1.0	<1.0	<1.0	<1.0	NM
MW04	6/6/2011	<1.0	<1.0	<1.0	<1.0	NM
MW04	12/8/2011	<1.0	<1.0	<1.0	<1.0	3.35
MW04R	8/7/2009	<1.0	<1.0	<1.0	<1.0	NM
MW04R	9/22/2011	<1.0	<1.0	<1.0	<1.0	3.11
MW04R	3/21/2012	<1.0	<1.0	<1.0	<1.0	3.33
MW04R	6/19/2012	<1.0	<1.0	<1.0	<1.0	5.49
MW04R	9/19/2012	<1.0	<1.0	<1.0	<1.0	5.92
MW04R	12/20/2012	<1.0	<1.0	<1.0	<1.0	6.11
MW04R	7/29/2013	<1.0	<1.0	<1.0	<1.0	5.31

TABLE 1
PFENNING 43, 44-31
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

MW05	8/7/2009	<1.0	<1.0	<1.0	<1.0	NM
MW05	9/23/2009	<1.0	<1.0	<1.0	<1.0	1.94
MW05	12/9/2009	<1.0	<1.0	<1.0	<1.0	3.27
MW05	3/18/2010	<1.0	<1.0	<1.0	<1.0	3.05
MW05	6/23/2010	<1.0	<1.0	<1.0	<1.0	2.27
MW05	9/8/2010	<1.0	<1.0	<1.0	<1.0	2.80
MW05	12/7/2010	<1.0	<1.0	<1.0	<1.0	4.94
MW05	3/3/2011	<1.0	<1.0	<1.0	<1.0	5.23
MW05	6/6/2011	<1.0	<1.0	<1.0	<1.0	2.68
MW05	9/22/2011	<1.0	<1.0	<1.0	<1.0	2.83
MW05	12/8/2011	<1.0	<1.0	<1.0	<1.0	3.57
MW05	3/21/2012	<1.0	<1.0	<1.0	<1.0	3.54
MW05	6/19/2012	<1.0	<1.0	<1.0	<1.0	5.98
MW05	9/19/2012	<1.0	<1.0	<1.0	<1.0	7.10
MW05	12/20/2012	<1.0	<1.0	<1.0	<1.0	7.34
MW05	7/29/2013	<1.0	<1.0	<1.0	<1.0	5.73
MW06	8/7/2009	<1.0	<1.0	<1.0	<1.0	NM
MW06	9/23/2009	<1.0	<1.0	<1.0	<1.0	6.00
MW06	12/9/2009	<1.0	<1.0	<1.0	<1.0	6.45
MW06	3/18/2010	<1.0	<1.0	<1.0	<1.0	5.62
MW06	6/23/2010	<1.0	<1.0	<1.0	<1.0	5.48
MW06	9/8/2010	<1.0	<1.0	<1.0	<1.0	7.00
MW06	12/7/2010	<1.0	<1.0	<1.0	<1.0	8.83
MW06	3/3/2011	<1.0	<1.0	<1.0	<1.0	8.46
MW06	6/6/2011	<1.0	<1.0	<1.0	<1.0	5.86
MW06	9/22/2011	<1.0	<1.0	<1.0	<1.0	6.36
MW06	12/8/2011	<1.0	<1.0	<1.0	<1.0	5.44
MW06	3/21/2012	<1.0	<1.0	<1.0	<1.0	6.36
MW06	6/19/2012	<1.0	<1.0	<1.0	<1.0	7.87
MW06	9/19/2012	<1.0	<1.0	<1.0	<1.0	8.06
MW06	12/20/2012	<1.0	<1.0	<1.0	<1.0	8.42
MW06	7/29/2013	<1.0	<1.0	<1.0	<1.0	8.47
MW07	8/7/2009	<1.0	<1.0	<1.0	<1.0	NM
MW07	9/23/2009	200	<1.0	<1.0	<1.0	3.54
MW07	12/9/2009	380	<1.0	<1.0	<1.0	3.34
MW07	3/18/2010	1.4	<1.0	<1.0	<1.0	2.74
MW07	6/23/2010	22	<1.0	<1.0	<1.0	2.53
MW07	9/8/2010	<1.0	<1.0	<1.0	<1.0	3.76
MW07	12/7/2010	<1.0	<1.0	<1.0	<1.0	5.25
MW07	3/3/2011	<1.0	<1.0	<1.0	<1.0	5.02

TABLE 1
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GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

MW07	6/6/2011	<1.0	<1.0	<1.0	<1.0	2.74
MW07	9/22/2011	<1.0	<1.0	<1.0	<1.0	3.36
MW07	12/8/2011	<1.0	<1.0	<1.0	<1.0	3.33
MW07	3/21/2012	<1.0	<1.0	<1.0	<1.0	3.16
MW07	6/19/2012	<1.0	<1.0	<1.0	<1.0	5.72
MW07	9/19/2012	<1.0	<1.0	<1.0	<1.0	5.97
MW07	12/20/2012	<1.0	<1.0	<1.0	<1.0	5.50
MW07	7/29/2013	<1.0	<1.0	<1.0	<1.0	5.56
MW08	4/15/2011	<1.0	<1.0	<1.0	<1.0	4.56
MW08	6/6/2011	<1.0	<1.0	<1.0	<1.0	2.54
MW08	9/22/2011	<1.0	<1.0	<1.0	<1.0	2.83
MW08	12/8/2011	<1.0	<1.0	<1.0	<1.0	3.50
MW08	3/21/2012	<1.0	<1.0	<1.0	<1.0	3.43
MW08	6/19/2012	<1.0	<1.0	<1.0	<1.0	5.90
MW08	9/19/2012	<1.0	<1.0	<1.0	<1.0	6.72
MW08	12/20/2012	<1.0	<1.0	<1.0	<1.0	6.66
MW08	7/29/2013	<1.0	<1.0	<1.0	<1.0	5.56
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

NS = Not Sampled, well damaged



Pasture

Fence Line

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

MW06		
Compound (ug/L)	12/20/2012	7/29/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

Surface
Drainage

MW02		
Compound (ug/L)	12/20/2013	7/29/2013
Benzene	DRY	<1.0
Toluene	DRY	<1.0
Ethylbenzene	DRY	<1.0
Total Xylenes	DRY	<1.0

MW01		
Compound (ug/L)	12/20/2012	7/29/2013
Benzene	DRY	<1.0
Toluene	DRY	<1.0
Ethylbenzene	DRY	<1.0
Total Xylenes	DRY	<1.0

MW06

M

MW03		
Compound (ug/L)	12/20/2012	7/29/2013
Benzene	DRY	DRY
Toluene	DRY	DRY
Ethylbenzene	DRY	DRY
Total Xylenes	DRY	DRY

MW03

GW01



MW02

GW02



MW01

100 bbl PW
Tank

300 bbl
Oil Tank

Pasture

Fence Line

MW07

MW07		
Compound (ug/L)	12/20/2012	7/29/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW04R

MW04R		
Compound (ug/L)	12/20/2012	7/29/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW08

MW08		
Compound (ug/L)	12/20/2012	7/29/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW08

MW05

MW05		
Compound (ug/L)	12/20/2012	7/29/2013
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: 8/16/2013

Facility Diagram
PDC Energy – DJ Basin
Pfering 43, 44-31
SESE S31 T7N 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



Meter Shed

FIGURE 2
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 02, 2013

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Pfenning 43, 44-31

Enclosed are the results of analyses for samples received by Summit Scientific on 07/29/13 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written approval of Summit Scientific. Test results relate only to samples analyzed.

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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/02/13 09:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	R307283-01	Water	07/29/13 10:40	07/29/13 16:45
MW02	R307283-02	Water	07/29/13 10:47	07/29/13 16:45
MW04R	R307283-03	Water	07/29/13 10:27	07/29/13 16:45
MW05	R307283-04	Water	07/29/13 10:33	07/29/13 16:45
MW06	R307283-05	Water	07/29/13 10:29	07/29/13 16:45
MW07	R307283-06	Water	07/29/13 10:37	07/29/13 16:45
MW08	R307283-07	Water	07/29/13 10:42	07/29/13 16:45

Summit Scientific

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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/02/13 09:59

Summit Scientific R 307283

741 Corporate Circle Suite 1 • Golden, Colorado 80401
303-277-4910 • 303-574-9333 Fax

Page 1 of 1

Client: PDC/Tessman
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____
Sample Name: Eric Sigel
Project Manager: Brandon Bruns
E-Mail: _____
Project Name: Pfenning 43 44-31
Project Number: _____

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative	Matrix	Analyze For:	Special Instructions
MW01	7/26/13	1040	1	X HCl	Soil		
MW02		1047	1	X Other (Specify)	Other (Specify)		Low Volume
MW04R		1027	3				
MW05		1033	1				
MW06		1024	1				
MW07		1037	1				
MW08		1042	1				
Requisitioned by: E.A. Sigel Date/Time: 7/26/13 7:00/13 145							
Received by: [Signature] Date/Time: 7/26/13 145							
Requisitioned by: [Signature] Date/Time: 7/26/13 145							
Received by: [Signature] Date/Time: 7/26/13 145							
Requisitioned by: [Signature] Date/Time: 7/26/13 145							
Received by: [Signature] Date/Time: 7/26/13 145							

[Signature]



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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/02/13 09:59

MW01
R307283-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/29/13 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3073119	08/01/13	08/01/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/29/13 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		108 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		96.2 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		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: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/02/13 09:59

MW02

R307283-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/29/13 10:47**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3073119	08/01/13	08/01/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/29/13 10:47**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		107 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		97.7 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/02/13 09:59

MW04R
R307283-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/29/13 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3073119	08/01/13	08/01/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/29/13 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		109 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		96.8 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/02/13 09:59

MW05
R307283-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/29/13 10:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3073119	08/01/13	08/01/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/29/13 10:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		107 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		97.4 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/02/13 09:59

MW06
R307283-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/29/13 10:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3073119	08/01/13	08/01/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/29/13 10:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		107 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		97.5 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		45-146		"	"	"	"	

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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/02/13 09:59

MW07

R307283-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/29/13 10:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3073119	08/01/13	08/01/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/29/13 10:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		109 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		97.0 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/02/13 09:59

MW08

R307283-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/29/13 10:42**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3073119	08/01/13	08/01/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/29/13 10:42**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		109 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		97.1 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Pfenning 43, 44-31
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
08/02/13 09:59

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 3073119 - EPA 5030 Water MS

Blank (3073119-BLK1)

Prepared & Analyzed: 07/31/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	15.1		"	13.2		114	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		96.9	45-149			
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3		104	45-146			

Blank (3073119-BLK2)

Prepared & Analyzed: 07/31/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.7		"	13.2		111	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.2	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		103	45-146			

LCS (3073119-BS1)

Prepared & Analyzed: 07/31/13

Benzene	25.5	1.0	ug/l	33.3		76.6	51-132			
Toluene	26.5	1.0	"	33.3		79.6	51-138			
Ethylbenzene	27.1	1.0	"	33.3		81.2	58-146			
m,p-Xylene	54.5	2.0	"	66.7		81.7	57-144			
o-Xylene	26.6	1.0	"	33.3		79.9	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.7		"	13.2		111	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.8	45-149			
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		101	45-146			

LCS (3073119-BS2)

Prepared & Analyzed: 07/31/13

Benzene	24.2	1.0	ug/l	33.3		72.6	51-132			
Toluene	25.2	1.0	"	33.3		75.7	51-138			
Ethylbenzene	25.9	1.0	"	33.3		77.8	58-146			
m,p-Xylene	51.8	2.0	"	66.7		77.8	57-144			
o-Xylene	25.6	1.0	"	33.3		77.0	53-146			
Surrogate: 1,2-Dichloroethane-d4	15.0		"	13.2		114	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.6	45-149			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		102	45-146			

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

Project: Pfenning 43, 44-31
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/02/13 09:59

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 3073119 - EPA 5030 Water MS

LCS Dup (3073119-BSD1)

Prepared & Analyzed: 07/31/13

Benzene	23.4	1.0	ug/l	33.3		70.2	51-132	8.71	17	
Toluene	24.4	1.0	"	33.3		73.1	51-138	8.45	17	
Ethylbenzene	24.8	1.0	"	33.3		74.4	58-146	8.76	16	
m,p-Xylene	50.9	2.0	"	66.7		76.4	57-144	6.76	16	
o-Xylene	24.6	1.0	"	33.3		73.7	53-146	8.08	15	
Surrogate: 1,2-Dichloroethane-d4	15.3		"	13.2		116	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.2	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		103	45-146			

LCS Dup (3073119-BSD2)

Prepared & Analyzed: 07/31/13

Benzene	20.8	1.0	ug/l	33.3		62.4	51-132	15.0	17	
Toluene	21.9	1.0	"	33.3		65.8	51-138	14.0	17	
Ethylbenzene	22.5	1.0	"	33.3		67.5	58-146	14.1	16	
m,p-Xylene	44.9	2.0	"	66.7		67.4	57-144	14.3	16	
o-Xylene	22.2	1.0	"	33.3		66.6	53-146	14.4	15	
Surrogate: 1,2-Dichloroethane-d4	14.6		"	13.2		110	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.6	45-149			
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		101	45-146			

Matrix Spike (3073119-MS1)

Source: R307274-01

Prepared & Analyzed: 07/31/13

Benzene	25.3	1.0	ug/l	33.3	ND	75.8	34-141			
Toluene	26.4	1.0	"	33.3	ND	79.3	27-151			
Ethylbenzene	28.4	1.0	"	33.3	ND	85.1	29-160			
m,p-Xylene	56.3	2.0	"	66.7	ND	84.5	20-166			
o-Xylene	27.5	1.0	"	33.3	ND	82.4	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.5		"	13.2		102	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		97.1	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.0	45-146			

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

Project: Pfenning 43, 44-31
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/02/13 09:59

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 3073119 - EPA 5030 Water MS

Matrix Spike (3073119-MS2)		Source: R307274-02			Prepared & Analyzed: 07/31/13					
Benzene	27.3	1.0	ug/l	33.3	1.60	77.0	34-141			
Toluene	26.3	1.0	"	33.3	ND	78.9	27-151			
Ethylbenzene	28.0	1.0	"	33.3	ND	83.9	29-160			
m,p-Xylene	56.1	2.0	"	66.7	ND	84.1	20-166			
o-Xylene	27.4	1.0	"	33.3	ND	82.3	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.2		108	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.9	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		104	45-146			

Matrix Spike Dup (3073119-MSD1)		Source: R307274-01			Prepared & Analyzed: 07/31/13					
Benzene	21.7	1.0	ug/l	33.3	ND	65.0	34-141	15.3	32	
Toluene	22.8	1.0	"	33.3	ND	68.4	27-151	14.8	25	
Ethylbenzene	24.5	1.0	"	33.3	ND	73.4	29-160	14.7	50	
m,p-Xylene	49.1	2.0	"	66.7	ND	73.7	20-166	13.7	36	
o-Xylene	24.0	1.0	"	33.3	ND	72.0	33-159	13.4	26	
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.2		105	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		97.1	45-149			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	45-146			

Matrix Spike Dup (3073119-MSD2)		Source: R307274-02			Prepared & Analyzed: 07/31/13					
Benzene	27.8	1.0	ug/l	33.3	1.60	78.5	34-141	1.71	32	
Toluene	26.9	1.0	"	33.3	ND	80.6	27-151	2.22	25	
Ethylbenzene	28.0	1.0	"	33.3	ND	83.9	29-160	0.107	50	
m,p-Xylene	56.1	2.0	"	66.7	ND	84.1	20-166	0.0535	36	
o-Xylene	27.2	1.0	"	33.3	ND	81.7	33-159	0.805	26	
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.2		106	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.3	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: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
08/02/13 09:59

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 read 'Daniel A. Bruns IV'.