

PDC Energy, Inc.
Fourth Quarter 2013 Groundwater Monitoring Summary

January 14, 2014

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 sampling was conducted at eight monitoring well locations on December 27, 2013. 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 third and fourth quarter 2013 analytical results are illustrated on Figure 1. Fourth quarter analytical results indicate that BTEX concentrations are below COGCC regulatory standards at all eight monitoring wells, for the fourth consecutive quarter.

Monitored natural attenuation was the selected remediation strategy during the fourth quarter 2013. Tasman will submit a request for site closure to the COGCC, as BTEX concentrations have remained below regulatory limits for four consecutive groundwater monitoring events.

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
MW01	9/25/2013	<1.0	<1.0	<1.0	<1.0	4.92
MW01	12/27/2013	<1.0	<1.0	<1.0	<1.0	7.25
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

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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)
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
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
MW02	9/25/2013	<1.0	<1.0	<1.0	<1.0	4.13
MW02	12/27/2013	<1.0	<1.0	<1.0	<1.0	6.94
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
MW03	9/25/2013	<1.0	<1.0	<1.0	<1.0	5.28
MW03	12/27/2013	<1.0	<1.0	<1.0	<1.0	7.11
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

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)
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
MW04R	9/25/2013	<1.0	<1.0	<1.0	<1.0	3.78
MW04R	12/27/2013	<1.0	<1.0	<1.0	<1.0	4.89
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
MW05	9/25/2013	<1.0	<1.0	<1.0	<1.0	3.52
MW05	12/27/2013	<1.0	<1.0	<1.0	<1.0	5.34
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

TABLE 1
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Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (feet)
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
MW06	9/25/2013	<1.0	<1.0	<1.0	<1.0	6.55
MW06	12/27/2013	<1.0	<1.0	<1.0	<1.0	7.71
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
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
MW07	9/25/2013	<1.0	<1.0	<1.0	<1.0	3.56
MW07	12/27/2013	<1.0	<1.0	<1.0	<1.0	4.43
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
MW08	9/25/2013	<1.0	<1.0	<1.0	<1.0	3.59
MW08	12/27/2013	<1.0	<1.0	<1.0	<1.0	4.89

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)
MW08	12/27/2013	<1.0	<1.0	<1.0	<1.0	4.89
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)	9/25/2013	12/27/2013
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)	9/25/2013	12/27/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW01		
Compound (ug/L)	9/25/2013	12/27/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW03		
Compound (ug/L)	9/25/2013	12/27/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

GW01

GW02

100 bbl PW
Tank

300 bbl
Oil Tank

MW06

M

MW03

MW02

MW01

Pasture

Fence Line

MW07

MW04R

MW08

MW05

MW07		
Compound (ug/L)	9/25/2013	12/27/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW04R		
Compound (ug/L)	9/25/2013	12/27/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW08		
Compound (ug/L)	9/25/2013	12/27/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW05		
Compound (ug/L)	9/25/2013	12/27/2013
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: 1/7/2014

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

M Meter Shed

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

January 02, 2014

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 12/27/13 16:45. 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', written in a cursive style.

Ben Shrewsbury
President / Laboratory Manager



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

Project: Pfenning 43, 44-31

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/02/14 17:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-01	R312177-01	Water	12/27/13 11:10	12/27/13 16:45
MW-02	R312177-02	Water	12/27/13 10:55	12/27/13 16:45
MW-03	R312177-03	Water	12/27/13 10:00	12/27/13 16:45
MW-04	R312177-04	Water	12/27/13 11:25	12/27/13 16:45
MW-05	R312177-05	Water	12/27/13 10:40	12/27/13 16:45
MW-06	R312177-06	Water	12/27/13 09:50	12/27/13 16:45
MW-07	R312177-07	Water	12/27/13 11:35	12/27/13 16:45
MW-08	R312177-08	Water	12/27/13 10:15	12/27/13 16:45

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 Bruns

Reported:
01/02/14 17:35

Summit Scientific

741 Corporate Circle Suite 1 • Golden, Colorado 80401
303-277-9310 • 303-314-9333 Fax

Client: PDC Energy
Address:
City/State/Zip:
Phone: 303-631-3941 Fax:
Sample Name: Dwi Baggs / Key's Circle
Project Manager: Brandon Bruns
E-Mail: Brandon.Bruns@PDC.com
Project Name: Pfenning 43, 44-31
Project Number:
Page 1 of 1

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)			
MW-01	12/20/13	1110	3	X										
MW-02		1055												
MW-03		1000												
MW-04		1025												
MW-05		1040												
MW-06		0450												
MW-07		1135												
MW-08		1015												

Retinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
D. Bruns	12/21/13	12/21/13	16:45	72 Hours 24 Hours 48 Hours	72 Hours Standard
Retinquished by: <th>Date/Time:</th> <th>Received by:</th> <th>Date/Time:</th> <td></td> <td></td>	Date/Time:	Received by:	Date/Time:		
Retinquished by: <th>Date/Time:</th> <th>Received in Lab by:</th> <th>Date/Time:</th> <td></td> <td></td>	Date/Time:	Received in Lab by:	Date/Time:		

Sample Integrity: 9.0
Temperature Upon Receipt: 4.0
Impact: Yes ☒ No ☐

www.summitscientific.com

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:
01/02/14 17:35

MW-01
R312177-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/27/13 11:10

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3123003	12/31/13	12/31/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: 12/27/13 11:10

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		115 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		95.1 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		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:
01/02/14 17:35

MW-02
R312177-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/27/13 10:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3123003	12/31/13	12/31/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **12/27/13 10:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		118 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		95.5 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %		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:
01/02/14 17:35

MW-03
R312177-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/27/13 10:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	3123003	12/31/13	12/31/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **12/27/13 10:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		113 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		93.8 %	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:
01/02/14 17:35

MW-04
R312177-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 12/27/13 11:25

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3123003	12/31/13	12/31/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: 12/27/13 11:25

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		120 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		99.0 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %		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:
01/02/14 17:35

MW-05
R312177-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/27/13 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3123003	12/31/13	12/31/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **12/27/13 10:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		117 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		95.4 %		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:
01/02/14 17:35

MW-06
R312177-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/27/13 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	3123003	12/31/13	12/31/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **12/27/13 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		112 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	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:
01/02/14 17:35

MW-07
R312177-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/27/13 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3123003	12/31/13	12/31/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **12/27/13 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		113 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		99.0 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %		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:
01/02/14 17:35

MW-08
R312177-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/27/13 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	3123003	12/31/13	12/31/13	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **12/27/13 10:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		112 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		93.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	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 Bruns

Reported:
01/02/14 17:35

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 3123003 - EPA 5030 Water MS

Blank (3123003-BLK1)

Prepared & Analyzed: 12/31/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2	104	37-154				
Surrogate: Toluene-d8	12.1		"	13.3	90.8	45-149				
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3	97.8	45-146				

LCS (3123003-BS1)

Prepared & Analyzed: 12/31/13

Benzene	30.1	1.0	ug/l	33.3	90.4	51-132				
Toluene	31.7	1.0	"	33.3	95.1	51-138				
Ethylbenzene	33.2	1.0	"	33.3	99.5	58-146				
m,p-Xylene	64.8	2.0	"	66.7	97.2	57-144				
o-Xylene	31.3	1.0	"	33.3	94.0	53-146				
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.2	112	37-154				
Surrogate: Toluene-d8	12.9		"	13.3	96.9	45-149				
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3	96.6	45-146				

LCS (3123003-BS2)

Prepared & Analyzed: 12/31/13

Benzene	29.8	1.0	ug/l	33.3	89.4	51-132				
Toluene	30.7	1.0	"	33.3	92.1	51-138				
Ethylbenzene	33.2	1.0	"	33.3	99.5	58-146				
m,p-Xylene	65.2	2.0	"	66.7	97.8	57-144				
o-Xylene	31.2	1.0	"	33.3	93.5	53-146				
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.2	109	37-154				
Surrogate: Toluene-d8	13.0		"	13.3	97.1	45-149				
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3	99.6	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 Bruns

Reported:
01/02/14 17:35

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 3123003 - EPA 5030 Water MS

Matrix Spike (3123003-MS1)		Source: R312176-01			Prepared & Analyzed: 12/31/13					
Benzene	30.2	1.0	ug/l	33.3	ND	90.7	34-141			
Toluene	31.1	1.0	"	33.3	ND	93.4	27-151			
Ethylbenzene	33.0	1.0	"	33.3	ND	99.2	29-160			
m,p-Xylene	64.6	2.0	"	66.7	ND	96.8	20-166			
o-Xylene	31.5	1.0	"	33.3	ND	94.4	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.2		108	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.5	45-146			

Matrix Spike (3123003-MS2)		Source: R312176-02			Prepared & Analyzed: 12/31/13					
Benzene	30.7	1.0	ug/l	33.3	ND	92.1	34-141			
Toluene	31.7	1.0	"	33.3	ND	95.1	27-151			
Ethylbenzene	33.3	1.0	"	33.3	ND	99.8	29-160			
m,p-Xylene	64.3	2.0	"	66.7	ND	96.4	20-166			
o-Xylene	31.2	1.0	"	33.3	ND	93.7	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.8		"	13.2		112	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.2	45-146			

Matrix Spike Dup (3123003-MSD1)		Source: R312176-01			Prepared & Analyzed: 12/31/13					
Benzene	30.8	1.0	ug/l	33.3	ND	92.4	34-141	1.84	32	
Toluene	31.1	1.0	"	33.3	ND	93.2	27-151	0.193	25	
Ethylbenzene	33.4	1.0	"	33.3	ND	100	29-160	0.904	50	
m,p-Xylene	64.9	2.0	"	66.7	ND	97.4	20-166	0.572	36	
o-Xylene	31.7	1.0	"	33.3	ND	95.2	33-159	0.823	26	
Surrogate: 1,2-Dichloroethane-d4	15.4		"	13.2		116	37-154			
Surrogate: Toluene-d8	12.8		"	13.3		96.4	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.4	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 Bruns

Reported:
01/02/14 17:35

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 3123003 - EPA 5030 Water MS

Matrix Spike Dup (3123003-MSD2)	Source: R312176-02			Prepared & Analyzed: 12/31/13						
Benzene	29.5	1.0	ug/l	33.3	ND	88.6	34-141	3.88	32	
Toluene	30.4	1.0	"	33.3	ND	91.1	27-151	4.25	25	
Ethylbenzene	33.5	1.0	"	33.3	ND	100	29-160	0.689	50	
m,p-Xylene	65.8	2.0	"	66.7	ND	98.7	20-166	2.40	36	
o-Xylene	31.8	1.0	"	33.3	ND	95.3	33-159	1.68	26	
Surrogate: 1,2-Dichloroethane-d4	15.2		"	13.2		115	37-154			
Surrogate: Toluene-d8	12.8		"	13.3		96.1	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	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 Bruns

Reported:
01/02/14 17:35

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'.