



**PDC Energy, Inc.**  
**Third Quarter 2013 Groundwater Monitoring Summary**

November 21, 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 sampling was conducted at eight monitoring well locations on September 25, 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 second and third quarter 2013 analytical results are illustrated on Figure 2. Third quarter analytical results indicate that BTEX concentrations are below COGCC regulatory standards in the eight monitoring well locations.

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

Fourth quarter 2013 groundwater sampling will be conducted during December 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
MW01	9/25/2013	<1.0	<1.0	<1.0	<1.0	4.92
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

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (feet)
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
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
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

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (feet)
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
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
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
MW06	9/25/2013	<1.0	<1.0	<1.0	<1.0	6.55
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

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (feet)
MW07	12/9/2009	<b>380</b>	<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	<b>22</b>	<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
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
<b>COGCC standards for Groundwater (ug/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	

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)	7/29/2013	9/25/2013
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)	7/29/2013	9/25/2013
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)	7/29/2013	9/25/2013
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)	7/29/2013	9/25/2013
Benzene	DRY	<1.0
Toluene	DRY	<1.0
Ethylbenzene	DRY	<1.0
Total Xylenes	DRY	<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)	7/29/2013	9/25/2013
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)	7/29/2013	9/25/2013
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)	7/29/2013	9/25/2013
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)	7/29/2013	9/25/2013
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: 10/7/2013

**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

M Meter Shed

FIGURE 2

GROUNDWATER  
ANALYTICAL RESULTS  
Not to Scale

# Summit Scientific

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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

*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:**  
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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
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

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

**MW04R**  
**R307283-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 07/29/13 10:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Bruns

**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		"	"	"	"	

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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		"	"	"	"	

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

**MW07**

**R307283-06 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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			

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	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**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 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**

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'.