



**PDC Energy, Inc.**  
Second Quarter 2014 Groundwater Monitoring Summary

June 10, 2014

Wiedeman 21B, 24-21, 21-2 Tank Battery  
NESW S21 T5N R67W  
Weld County, API # 05-123-11427

This groundwater summary has been prepared by Tasman Geosciences, LLC for the Wiedeman 21B, 24-21, 21-2 tank battery. On May 30, 2014, groundwater sampling was conducted at five monitoring well locations. Groundwater samples were submitted for laboratory analysis of BTEX constituents using USEPA Method 8260B. Analytical results are summarized in Table 1 below and are illustrated on Figure 1. The laboratory analytical report is included as Attachment A. Evaluation of second quarter analytical results indicates that benzene concentrations are in exceedance of COGCC regulatory standards at well MW01. BTEX concentrations remain below laboratory detection limits at the other four monitoring locations.

Monitored natural attenuation will remain the selected remedial strategy through the third quarter 2014.

Third quarter 2014 groundwater sampling will be conducted during August 2014.

**TABLE 1**  
**WIEDEMAN 21B, 24-21, 21-2**  
**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	6/29/2007	180	15	<1.0	740	NM
MW01	8/17/2007	210	<1.0	91	360	6.19
MW01	2/21/2008	30	<1.0	14	<1.0	12.65
MW01	5/6/2008	22	<1.0	<1.0	<1.0	12.72
MW01	8/27/2008	500	<1.0	110	290	6.68
MW01	11/12/2008	50	<1.0	63	180	9.63
MW01	2/9/2009	12	<1.0	5.1	3.1	11.90
MW01	5/8/2009	130	<1.0	18	6.5	10.98
MW01	8/28/2009	70	<1.0	77	81	6.18
MW01	11/11/2009	800	<1.0	71	210	9.06
MW01	2/25/2010	13	<1.0	2.1	5	11.70
MW01	5/18/2010	200	<1.0	48	100	NM
MW01	8/11/2010	310	<1.0	110	180	5.90
MW01	11/10/2010	10	<1.0	15	20	10.30
MW01	2/24/2011	33	<1.0	4.6	12	12.62
MW01	5/5/2011	17	<1.0	1.4	<1.0	NM
MW01	8/2/2011	170	<1.0	100	200	5.64
MW01	11/30/2011	7.2	<1.0	2.2	2.3	8.80
MW01	2/21/2012	200	<1.0	82	210	10.61
MW01	5/29/2012	180	<1.0	120	350	9.37
MW01	5/23/2013	NS	NS	NS	NS	DRY
MW01	8/27/2013	22	<1.0	2.6	3.4	4.24
MW01	11/26/2013	<1.0	<1.0	<1.0	<1.0	7.12
MW01	2/20/2014	7.3	<1.0	3.1	4.3	8.61
MW01	5/30/2014	18	<1.0	17	6.5	6.19
MW02	8/17/2007	<1.0	<1.0	<1.0	<1.0	5.43
MW02	2/21/2008	7.4	<1.0	1.1	<1.0	12.20
MW02	5/6/2008	1.4	<1.0	<1.0	<1.0	12.47
MW02	8/27/2008	12	<1.0	1.6	<1.0	6.12
MW02	11/12/2008	59	<1.0	38	<1.0	9.38
MW02	2/9/2009	12	<1.0	10	<1.0	11.60
MW02	5/8/2009	8.2	<1.0	4.2	<1.0	10.42
MW02	8/28/2009	5.5	<1.0	<1.0	<1.0	5.53
MW02	11/11/2009	22	<1.0	37	<1.0	8.72
MW02	2/25/2010	<1.0	<1.0	1.3	<1.0	11.35
MW02	5/18/2010	8.7	<1.0	14	<1.0	NM

**TABLE 1**  
**WIEDEMAN 21B, 24-21, 21-2**  
**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	8/11/2010	<1.0	<1.0	<1.0	<1.0	5.26
MW02	11/10/2010	<1.0	<1.0	<1.0	<1.0	10.00
MW02	2/24/2011	<1.0	<1.0	<1.0	<1.0	12.22
MW02	5/5/2011	<1.0	<1.0	<1.0	<1.0	NM
MW02	8/2/2011	<1.0	<1.0	<1.0	<1.0	4.84
MW02	11/30/2011	<1.0	<1.0	5.9	<1.0	7.64
MW02	2/21/2012	1.1	<1.0	14	<1.0	10.23
MW02	5/29/2012	<1.0	<1.0	18	<1.0	8.84
MW02	5/23/2013	4.5	<1.0	20	74	11.83
MW02	8/27/2013	4.6	<1.0	13	11	5.77
MW02	11/26/2013	1.1	<1.0	<1.0	<1.0	8.86
MW02	2/20/2014	<1.0	<1.0	<1.0	<1.0	10.44
MW/02	5/30/2014	<1.0	<1.0	<1.0	<1.0	7.9
MW03	8/17/2007	<1.0	<1.0	<1.0	<1.0	6.23
MW03	2/21/2008	<1.0	<1.0	<1.0	<1.0	13.08
MW03	5/6/2008	<1.0	<1.0	<1.0	<1.0	13.68
MW03	8/27/2008	<1.0	<1.0	<1.0	<1.0	7.10
MW03	11/12/2008	<1.0	<1.0	<1.0	<1.0	10.64
MW03	2/9/2009	<1.0	<1.0	<1.0	<1.0	12.84
MW03	5/8/2009	<1.0	<1.0	<1.0	<1.0	11.76
MW03	8/28/2009	<1.0	<1.0	<1.0	<1.0	6.51
MW03	11/11/2009	<1.0	<1.0	<1.0	<1.0	10.01
MW03	2/25/2010	<1.0	<1.0	<1.0	<1.0	12.55
MW03	5/18/2010	<1.0	<1.0	<1.0	<1.0	NM
MW03	8/11/2010	<1.0	<1.0	<1.0	<1.0	6.20
MW03	11/10/2010	<1.0	<1.0	<1.0	<1.0	11.23
MW03	2/24/2011	<1.0	<1.0	<1.0	<1.0	13.44
MW03	5/5/2011	<1.0	<1.0	<1.0	<1.0	NM
MW03	8/2/2011	<1.0	<1.0	<1.0	<1.0	13.82
MW03	11/30/2011	<1.0	<1.0	<1.0	<1.0	8.80
MW03	2/21/2012	<1.0	<1.0	<1.0	<1.0	11.49
MW03	5/29/2012	1.5	2.4	<1.0	<1.0	9.79
MW03	5/23/2013	<1.0	<1.0	<1.0	<1.0	13.00
MW03	8/27/2013	<1.0	<1.0	<1.0	<1.0	6.70
MW03	11/26/2013	<1.0	<1.0	<1.0	<1.0	9.97
MW03	2/20/2014	<1.0	<1.0	<1.0	<1.0	11.55
MW03	5/30/2014	<1.0	<1.0	<1.0	<1.0	8.72

**TABLE 1**  
**WIEDEMAN 21B, 24-21, 21-2**  
**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	2/21/2008	<1.0	<1.0	<1.0	<1.0	13.20
MW04	5/6/2008	<1.0	<1.0	<1.0	<1.0	13.38
MW04	8/27/2008	<1.0	<1.0	<1.0	<1.0	NM
MW04	11/12/2008	<1.0	<1.0	<1.0	<1.0	NM
MW04	2/9/2009	<1.0	<1.0	<1.0	<1.0	NM
MW04	5/8/2009	<1.0	<1.0	<1.0	<1.0	NM
MW04	11/11/2009	<1.0	<1.0	<1.0	<1.0	NM
MW04	2/25/2010	<1.0	<1.0	<1.0	<1.0	0.00
MW04	5/18/2010	<1.0	<1.0	<1.0	<1.0	NM
MW04	8/11/2010	<1.0	<1.0	<1.0	<1.0	7.54
MW04	11/10/2010	<1.0	<1.0	<1.0	<1.0	10.61
MW04	2/24/2011	<1.0	<1.0	<1.0	<1.0	NM
MW04	5/5/2011	<1.0	<1.0	<1.0	<1.0	NM
MW04	8/2/2011	<1.0	<1.0	<1.0	<1.0	7.14
MW04	11/30/2011	<1.0	<1.0	<1.0	<1.0	8.50
MW04	2/21/2012	<1.0	<1.0	<1.0	<1.0	10.92
MW04	5/29/2012	<1.0	<1.0	<1.0	<1.0	10.76
MW04	5/23/2013	<1.0	<1.0	<1.0	<1.0	12.48
MW04	8/27/2013	<1.0	<1.0	<1.0	<1.0	7.67
MW04	11/26/2013	<1.0	<1.0	<1.0	<1.0	9.36
MW04	2/20/2014	<1.0	<1.0	<1.0	<1.0	11.07
MW04	5/30/2014	<1.0	<1.0	<1.0	<1.0	9.96
MW05	2/21/2008	<1.0	<1.0	<1.0	<1.0	13.10
MW05	5/6/2008	<1.0	<1.0	<1.0	<1.0	13.24
MW05	8/27/2008	<1.0	<1.0	<1.0	<1.0	7.17
MW05	11/12/2008	<1.0	<1.0	<1.0	<1.0	9.86
MW05	2/9/2009	<1.0	<1.0	<1.0	<1.0	12.20
MW05	5/8/2009	<1.0	<1.0	<1.0	<1.0	11.30
MW05	8/28/2009	<1.0	<1.0	<1.0	<1.0	6.83
MW05	11/11/2009	<1.0	<1.0	<1.0	<1.0	9.31
MW05	2/25/2010	<1.0	<1.0	<1.0	<1.0	12.00
MW05	5/18/2010	<1.0	<1.0	<1.0	<1.0	NM
MW05	8/11/2010	<1.0	<1.0	<1.0	<1.0	6.58
MW05	11/10/2010	<1.0	<1.0	<1.0	<1.0	10.67
MW05	2/24/2011	<1.0	<1.0	<1.0	<1.0	12.88

**TABLE 1**  
**WIEDEMAN 21B, 24-21, 21-2**  
**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)
MW05	5/5/2011	<1.0	<1.0	<1.0	<1.0	NM
MW05	8/2/2011	<1.0	<1.0	<1.0	<1.0	6.12
MW05	11/30/2011	<1.0	<1.0	<1.0	<1.0	9.32
MW05	2/21/2012	<1.0	<1.0	<1.0	<1.0	10.95
MW05	5/29/2012	<1.0	<1.0	<1.0	<1.0	10.09
MW05	5/23/2013	<1.0	<1.0	<1.0	<1.0	12.52
MW05	8/27/2013	<1.0	<1.0	<1.0	<1.0	5.35
MW05	11/26/2013	<1.0	<1.0	<1.0	<1.0	7.60
MW05	2/20/2014	<1.0	<1.0	<1.0	<1.0	9.28
MW05	5/30/2014	<1.0	<1.0	<1.0	<1.0	7.58
<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:

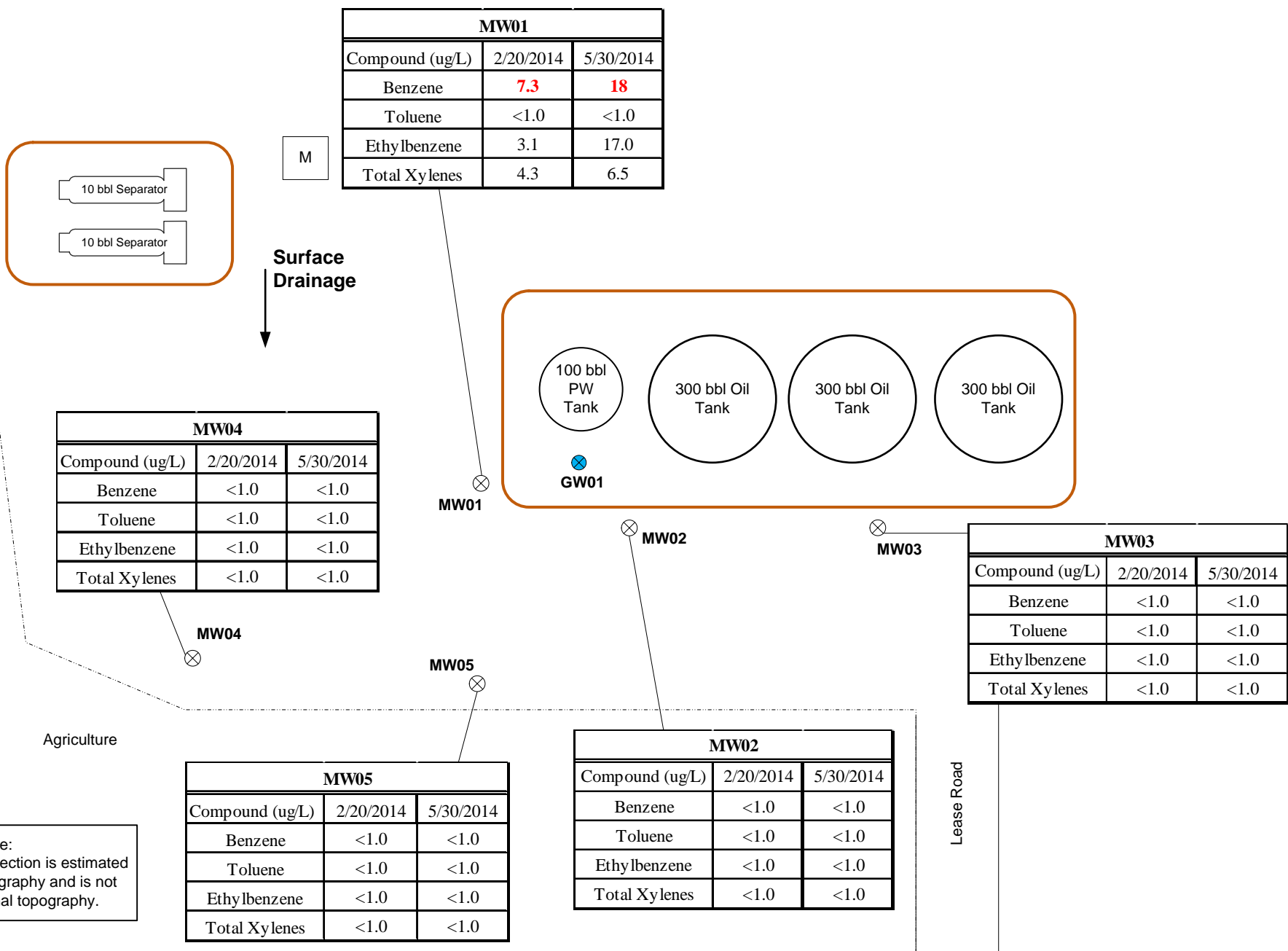
1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

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

ug/L= Micrograms per liter

NR - Not Recorded

NM - Not Measured



DRAWN BY: DEB

DATE: 6/10/2014

**Facility Diagram**  
PDC Energy – DJ Basin  
Wiedeman 21B, 24-21, 21-2  
NESW S21 T5N R67W  
Weld County, CO



6899 Pecos St., Unit C  
Denver CO 80221

**LEGEND**

— Earthen Berm

⊗ Temporary Monitoring Well Location

⊗ Groundwater Sample Location

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

June 09, 2014

Brandon Bruns

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Wiedeman 21B, 24-21, 21-2

Enclosed are the results of analyses for samples received by Summit Scientific on 05/30/14 17:35. 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: Wiedeman 21B, 24-21, 21-2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/09/14 19:35

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	1405192-01	Water	05/30/14 09:55	05/30/14 17:35
MW02	1405192-02	Water	05/30/14 10:00	05/30/14 17:35
MW03	1405192-03	Water	05/30/14 10:05	05/30/14 17:35
MW04	1405192-04	Water	05/30/14 10:10	05/30/14 17:35
MW05	1405192-05	Water	05/30/14 10:05	05/30/14 17:35

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: Wiedeman 21B, 24-21, 21-2

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
06/09/14 19:35

1405192  
Summit Scientific

S2

741 Corporate Circle, Suite J&K • Golden, Colorado 80401  
303-277-9310 • 303-374-5933

Client: PDC/Tasman  
Address:  
City/State/Zip:  
Phone:  
Fax:  
Project Name: Wiedeman 21B, 24-21, 21-2  
Project Number:  
Sampler Name: Eric Siegel  
Project Manager: Brandon Bruns  
E-Mail:  
Page 1 of 1

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested	Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #		
1	MW01	5/26/14	4:55	3		X							
2	MW02		10:00			X							
3	MW03		10:05										
4	MW04		10:10										
5	MW05		10:15										
6													
7													
8													
9													
10													

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
Eric Siegel	5/26/14	MD	5/29/14	72 hours Same Day 24 hours 48 hours	72 hours Standard X
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	3°C
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt:	Intact: Yes No

www.s2scientific.com

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: Wiedeman 21B, 24-21, 21-2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/09/14 19:35

**MW01**  
**1405192-01 (Water)**

**Summit Scientific**

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

Date Sampled: **05/30/14 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>18</b>	1.0	ug/l	1	1406020	06/06/14	06/06/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>17</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>6.5</b>	1.0	"	"	"	"	"	"	

Date Sampled: **05/30/14 09:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.9 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.6 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		106 %	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: Wiedeman 21B, 24-21, 21-2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/09/14 19:35

**MW02**  
**1405192-02 (Water)**

**Summit Scientific**

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

Date Sampled: **05/30/14 10:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1406020	06/06/14	06/06/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **05/30/14 10:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		97.2 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.2 %	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: Wiedeman 21B, 24-21, 21-2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/09/14 19:35

**MW03**  
**1405192-03 (Water)**

**Summit Scientific**

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

Date Sampled: **05/30/14 10:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1406020	06/06/14	06/06/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **05/30/14 10:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		96.3 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.9 %	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: Wiedeman 21B, 24-21, 21-2

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/09/14 19:35

**MW04**  
**1405192-04 (Water)**

**Summit Scientific**

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

Date Sampled: **05/30/14 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1406020	06/06/14	06/06/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **05/30/14 10:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		97.3 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.6 %	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: Wiedeman 21B, 24-21, 21-2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
06/09/14 19:35

**MW05**  
**1405192-05 (Water)**

**Summit Scientific**

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

Date Sampled: **05/30/14 10:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1406020	06/06/14	06/06/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **05/30/14 10:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		94.6 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.0 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.3 %	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: Wiedeman 21B, 24-21, 21-2

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
06/09/14 19:35

## 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 1406020 - EPA 5030 Water MS

##### Blank (1406020-BLK1)

Prepared & Analyzed: 06/04/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.0		"	13.2	106	37-154				
Surrogate: Toluene-d8	13.3		"	13.3	100	45-149				
Surrogate: 4-Bromofluorobenzene	14.3		"	13.3	107	45-146				

##### Blank (1406020-BLK2)

Prepared & Analyzed: 06/04/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2	105	37-154				
Surrogate: Toluene-d8	13.4		"	13.3	101	45-149				
Surrogate: 4-Bromofluorobenzene	14.6		"	13.3	109	45-146				

##### LCS (1406020-BS1)

Prepared & Analyzed: 06/04/14

Benzene	37.7	1.0	ug/l	33.3	113	51-132				
Toluene	41.7	1.0	"	33.3	125	51-138				
Ethylbenzene	38.3	1.0	"	33.1	116	58-146				
m,p-Xylene	76.2	2.0	"	66.5	115	57-144				
o-Xylene	38.2	1.0	"	32.8	117	53-146				
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.2	102	37-154				
Surrogate: Toluene-d8	13.7		"	13.3	103	45-149				
Surrogate: 4-Bromofluorobenzene	14.2		"	13.3	106	45-146				

##### LCS (1406020-BS2)

Prepared & Analyzed: 06/04/14

Benzene	37.4	1.0	ug/l	33.3	112	51-132				
Toluene	41.4	1.0	"	33.3	124	51-138				
Ethylbenzene	39.1	1.0	"	33.1	118	58-146				
m,p-Xylene	77.6	2.0	"	66.5	117	57-144				
o-Xylene	39.0	1.0	"	32.8	119	53-146				
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.2	101	37-154				
Surrogate: Toluene-d8	13.4		"	13.3	101	45-149				
Surrogate: 4-Bromofluorobenzene	14.2		"	13.3	106	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: Wiedeman 21B, 24-21, 21-2  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
06/09/14 19:35

**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 1406020 - EPA 5030 Water MS**

Matrix Spike (1406020-MS1)		Source: 1405186-03			Prepared & Analyzed: 06/04/14					
Benzene	36.3	1.0	ug/l	33.3	ND	109	34-141			
Toluene	40.5	1.0	"	33.3	ND	122	27-151			
Ethylbenzene	39.9	1.0	"	33.1	ND	121	29-160			
m,p-Xylene	78.4	2.0	"	66.5	ND	118	20-166			
o-Xylene	39.3	1.0	"	32.8	ND	120	33-159			
Surrogate: 1,2-Dichloroethane-d4	12.5		"	13.2		94.2	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.6	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		104	45-146			

Matrix Spike (1406020-MS2)		Source: 1405186-02			Prepared & Analyzed: 06/04/14					
Benzene	37.6	1.0	ug/l	33.3	ND	113	34-141			
Toluene	42.2	1.0	"	33.3	ND	127	27-151			
Ethylbenzene	39.6	1.0	"	33.1	ND	120	29-160			
m,p-Xylene	78.5	2.0	"	66.5	ND	118	20-166			
o-Xylene	39.2	1.0	"	32.8	ND	119	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.2		100	37-154			
Surrogate: Toluene-d8	13.7		"	13.3		103	45-149			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	45-146			

Matrix Spike Dup (1406020-MSD1)		Source: 1405186-03			Prepared & Analyzed: 06/04/14					
Benzene	36.2	1.0	ug/l	33.3	ND	109	34-141	0.248	32	
Toluene	41.2	1.0	"	33.3	ND	124	27-151	1.57	25	
Ethylbenzene	39.6	1.0	"	33.1	ND	120	29-160	0.931	50	
m,p-Xylene	78.2	2.0	"	66.5	ND	118	20-166	0.204	36	
o-Xylene	39.1	1.0	"	32.8	ND	119	33-159	0.484	26	
Surrogate: 1,2-Dichloroethane-d4	12.5		"	13.2		94.8	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	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: Wiedeman 21B, 24-21, 21-2

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
06/09/14 19:35

**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 1406020 - EPA 5030 Water MS**

Matrix Spike Dup (1406020-MSD2)		Source: 1405186-02			Prepared & Analyzed: 06/04/14					
Benzene	39.8	1.0	ug/l	33.3	ND	119	34-141	5.66	32	
Toluene	40.9	1.0	"	33.3	ND	123	27-151	3.15	25	
Ethylbenzene	39.2	1.0	"	33.1	ND	119	29-160	1.01	50	
m,p-Xylene	77.2	2.0	"	66.5	ND	116	20-166	1.68	36	
o-Xylene	37.6	1.0	"	32.8	ND	115	33-159	4.04	26	
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.2		99.5	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		104	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: Wiedeman 21B, 24-21, 21-2

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
06/09/14 19:35

### 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'.