

Project: 4071
Document #: 2211008
Date: 01/22/2016



PDC Energy, Inc.
First Quarter 2015 Groundwater Monitoring Summary

April 9, 2015

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 for the Wiedeman 21B, 24-21, 21-2 tank battery. On February 26, 2015, 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. First quarter analytical results indicate that benzene concentration are in exceedance of COGCC Table 910-1 standards in one monitoring well location (MW01). BTEX concentrations are below COGCC regulatory standards in the remaining four sample locations.

Monitored natural attenuation will remain the selected remedial strategy through the second quarter 2015.

Second quarter 2015 groundwater monitoring will be conducted during May 2015.

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
MW01	8/18/2014	18	<1.0	9.0	4.7	2.92
MW01	11/26/2014	<1.0	<1.0	<1.0	<1.0	7.00
MW01	2/26/2015	21	<1.0	18	11	9.17
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
MW02	8/11/2010	<1.0	<1.0	<1.0	<1.0	5.26

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	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
MW02	5/30/2014	<1.0	<1.0	<1.0	<1.0	7.90
MW02	8/18/2014	<1.0	<1.0	<1.0	<1.0	4.58
MW02	11/26/2014	1.1	<1.0	1.4	<1.0	8.85
MW02	2/26/2015	<1.0	<1.0	<1.0	<1.0	10.98
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
MW03	8/18/2014	<1.0	<1.0	<1.0	<1.0	5.63

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)
MW03	5/30/2014	<1.0	<1.0	<1.0	<1.0	8.72
MW03	8/18/2014	<1.0	<1.0	<1.0	<1.0	5.63
MW03	11/26/2014	<1.0	<1.0	<1.0	<1.0	10.03
MW03	2/26/2015	<1.0	<1.0	<1.0	<1.0	12.21
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
MW04	8/18/2014	<1.0	<1.0	<1.0	<1.0	5.69
MW04	11/26/2014	<1.0	<1.0	<1.0	<1.0	9.46
MW04	2/26/2015	<1.0	<1.0	<1.0	<1.0	11.77
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

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	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
MW05	2/24/2011	<1.0	<1.0	<1.0	<1.0	12.88
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
MW05	8/18/2014	<1.0	<1.0	<1.0	<1.0	3.58
MW05	11/26/2014	<1.0	<1.0	<1.0	<1.0	7.66
MW05	2/26/2015	<1.0	<1.0	<1.0	<1.0	9.92
COGCC standards for Groundwater (ug/L) ⁽¹⁾		5	560	700	1,400	

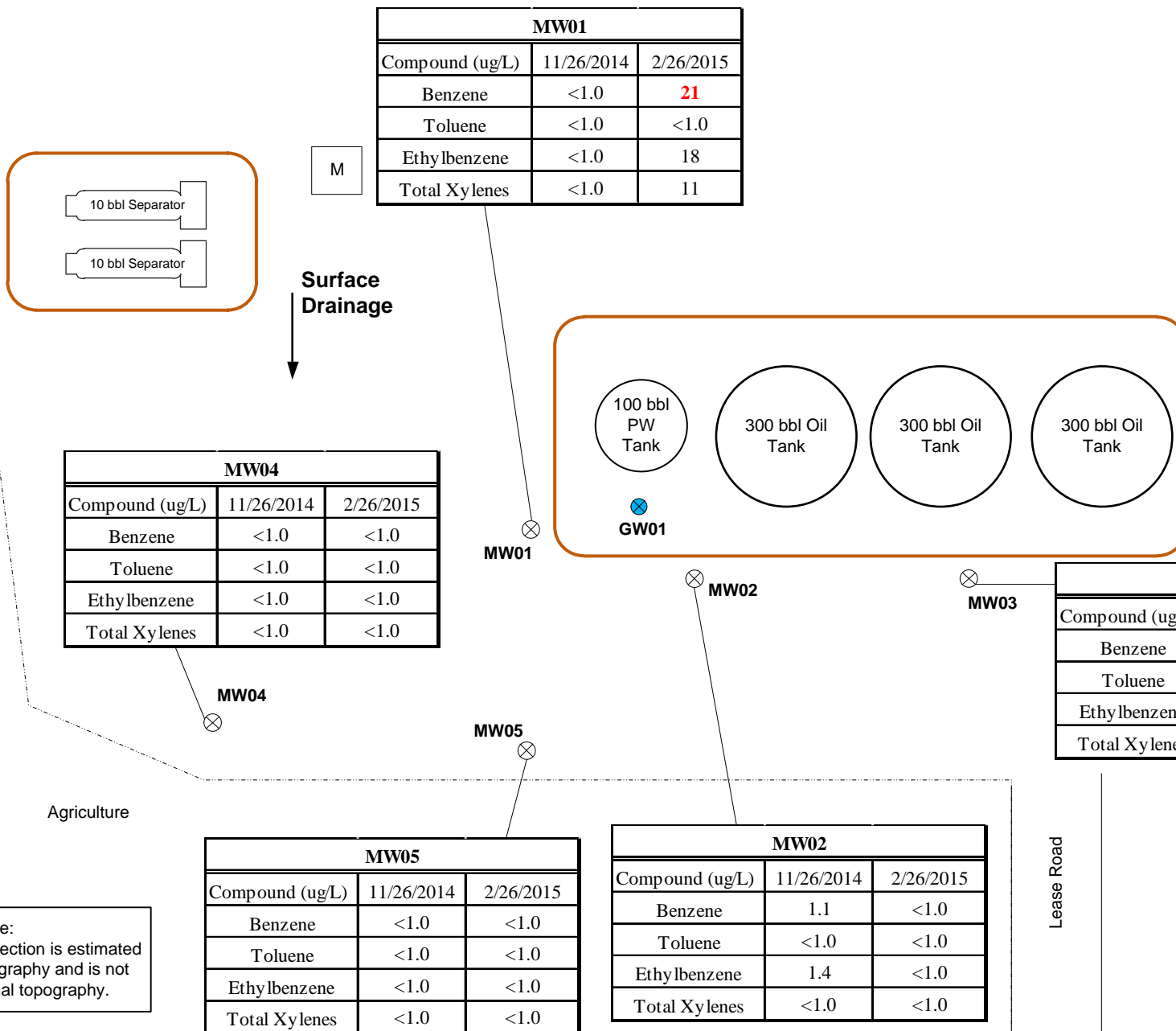
Notes:

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.

Red values indicate an exceedance of the COGCC groundwater standards for the site.

ug/L- Micrograms per liter

NM - Not Measured



MW01		
Compound (ug/L)	11/26/2014	2/26/2015
Benzene	<1.0	21
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	18
Total Xylenes	<1.0	11

MW04		
Compound (ug/L)	11/26/2014	2/26/2015
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)	11/26/2014	2/26/2015
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)	11/26/2014	2/26/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

MW02		
Compound (ug/L)	11/26/2014	2/26/2015
Benzene	1.1	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	1.4	<1.0
Total Xylenes	<1.0	<1.0

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

DRAWN BY: ATF

DATE: 3/27/15

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 J ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.374.5933 - fax

March 03, 2015

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 02/27/15 11:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Joseph J. Egry IV".

Joseph J Egry IV For Paul Shrewsbury
President

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

Summit Scientific is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.



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:
03/03/15 13:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	1502205-01	Water	02/26/15 11:22	02/27/15 11:00
MW02	1502205-02	Water	02/26/15 11:15	02/27/15 11:00
MW03	1502205-03	Water	02/26/15 10:53	02/27/15 11:00
MW04	1502205-04	Water	02/26/15 10:43	02/27/15 11:00
MW05	1502205-05	Water	02/26/15 11:09	02/27/15 11:00

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.

Joseph J Egry IV For Paul Shrewsbury, President

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:
03/03/15 13:54

Summit Scientific 1502205

741 Corporate Circle Suite I • Golden, Colorado 80401
303-277-9310 • 303-374-5933 Fax

Page (of)

Client: Tasman Geo
Address: 6899 Fares St. Unit C
City/State/Zip: Denver
Phone: 303 487 1228 Fax:
Sampler Name: Matt Peterson

Project Manager: Brandon Bruns
E-Mail: brandon.bruns@pcc.com
Project Name: Wiedeman ZIB, 24-21, 21-2
Project Number:

[illegible]

www.s2scientific.com

Soil samples reported on a wet-weight basis unless otherwise indicated on results page.

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.

Carol J. Gray ¹⁰

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

Sample Receipt Checklist

S2 Work Order: 1502205

Client: PDC

Client Project ID: Wiedeman 21B, 24-21, 21-2

Shipped Via: Pick up
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: —

Matrix (check all that apply): — Air — Soil/Solid ✓ Water — Other: —
(Describe)

Cooler ID	<u>1</u>				
Temp (°C)	<u>6.1</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?		<u>✓</u>		
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<u>✓</u>			
Was adequate sample volume provided ⁽¹⁾ ?	<u>✓</u>			
If custody seals are present, are they intact ⁽¹⁾ ?			<u>✓</u>	
Are short holding time analytes or samples with HTs due within 48 hours present?		<u>✓</u>		
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<u>✓</u>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<u>✓</u>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<u>✓</u>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<u>✓</u>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		<u>✓</u>		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, etc.	<u>✓</u>			<u>HCl</u>
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			<u>✓</u>	
If dissolved metals are requested, were samples field filtered?			<u>✓</u>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Joseph J Egry IV
Custodian Printed Name

Joseph J Egry IV
Signature or Initials of Custodian

3/2/15
Date/Time

Soil samples reported on a wet-weight basis unless otherwise indicated on results page.

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.

Joseph J Egry IV

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

MW01
1502205-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/26/15 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	21	1.0	ug/l	1	1503011	03/02/15	03/02/15 21:48	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	18	1.0	"	"	"	"	"	"	
Xylenes (total)	11	1.0	"	"	"	"	"	"	

Date Sampled: **02/26/15 11:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	91.1 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	102 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	112 %	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.

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

MW02
1502205-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/26/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1503011	03/02/15	03/02/15 22:11	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/26/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	91.0 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	97.8 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	114 %	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.

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

MW03
1502205-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/26/15 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1503011	03/02/15	03/02/15 22:35	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/26/15 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	92.7 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	99.4 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	115 %	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.

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

MW04
1502205-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/26/15 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1503011	03/02/15	03/02/15 22:58	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/26/15 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	90.9 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	98.1 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	113 %	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.

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

MW05
1502205-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/26/15 11:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1503011	03/02/15	03/02/15 23:21	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/26/15 11:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	92.0 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	97.4 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	114 %	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.

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

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 1503011 - EPA 5030 Water MS

Blank (1503011-BLK1)

Prepared & Analyzed: 03/02/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>12.0</i>		<i>"</i>	<i>13.2</i>		<i>91.1</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.2</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.6</i>		<i>"</i>	<i>13.3</i>		<i>110</i>	<i>45-146</i>			

LCS (1503011-BS1)

Prepared & Analyzed: 03/02/15

Benzene	30.5	1.0	ug/l	33.3		91.5	51-132			
Toluene	28.1	1.0	"	33.3		84.3	51-138			
Ethylbenzene	30.4	1.0	"	33.1		91.8	58-146			
m,p-Xylene	62.3	2.0	"	66.5		93.7	57-144			
o-Xylene	29.6	1.0	"	32.8		90.4	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>11.9</i>		<i>"</i>	<i>13.2</i>		<i>90.4</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.9</i>		<i>"</i>	<i>13.3</i>		<i>96.9</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.3</i>		<i>"</i>	<i>13.3</i>		<i>107</i>	<i>45-146</i>			

Matrix Spike (1503011-MS1)

Source: 1502205-01

Prepared & Analyzed: 03/02/15

Benzene	53.0	1.0	ug/l	33.3	20.7	96.9	34-141			
Toluene	28.4	1.0	"	33.3	ND	85.3	27-151			
Ethylbenzene	49.9	1.0	"	33.1	17.9	96.6	29-160			
m,p-Xylene	74.5	2.0	"	66.5	11.4	94.8	20-166			
o-Xylene	30.2	1.0	"	32.8	ND	91.9	33-159			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>12.0</i>		<i>"</i>	<i>13.2</i>		<i>91.3</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>100</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.4</i>		<i>"</i>	<i>13.3</i>		<i>108</i>	<i>45-146</i>			

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.

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

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 1503011 - EPA 5030 Water MS

Matrix Spike Dup (1503011-MSD1)	Source: 1502205-01			Prepared & Analyzed: 03/02/15						
Benzene	50.9	1.0	ug/l	33.3	20.7	90.6	34-141	4.03	32	
Toluene	29.9	1.0	"	33.3	ND	89.7	27-151	5.04	25	
Ethylbenzene	46.7	1.0	"	33.1	17.9	87.1	29-160	6.50	50	
m,p-Xylene	72.6	2.0	"	66.5	11.4	92.0	20-166	2.56	36	
o-Xylene	30.0	1.0	"	32.8	ND	91.4	33-159	0.565	26	
Surrogate: 1,2-Dichloroethane-d4	13.0		"	13.2		98.6	37-154			
Surrogate: Toluene-d8	13.6		"	13.3		102	45-149			
Surrogate: 4-Bromofluorobenzene	14.5		"	13.3		109	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.

Joseph J Egry IV For Paul Shrewsbury, President



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:
03/03/15 13:54

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

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.

A handwritten signature in black ink, appearing to read 'Joseph J Egry IV'.

Joseph J Egry IV For Paul Shrewsbury, President