



PDC Energy, Inc.
First Quarter 2015 Groundwater Monitoring Summary

April 1, 2015

Becker 5-1, 2, 14, 15 Tank Battery
SE 1/4 Section 5 T3N R64W
Weld County, API # 05-123-12297

This groundwater summary has been prepared by Tasman Geosciences for the Becker 5-1, 2, 14, 15 tank battery. On March 27, 2015 groundwater sampling was conducted at eight monitoring well locations. 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 the complete lab report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. First quarter analytical results indicate that BTEX concentrations are below applicable COGCC regulatory standards at all of the eight sample locations.

Tasman temporarily discontinued enhanced fluid recovery (EFR) and air sparge (AS) events at the site after the fourth quarter 2013 until additional remediation wells could be installed. EFR/AS activities were resumed during the second quarter 2014, and will remain the selected remediation strategy through the second quarter 2015. A summary of the EFR/AS operational data is provided in Table 2.

Second quarter 2015 groundwater sampling will be conducted in June 2015.

TABLE 1
BECKER 5-1, 2, 14, 15
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	11/29/2012	3,100	610	320	3,700	NM
BH01	12/20/2012	97	<1.0	180	1,200	13.24
BH01	3/19/2013	1.7	<1.0	4.9	48	13.27
BH01	6/21/2013	<1.0	<1.0	8.0	49	13.01
BH01	9/23/2013	<1.0	<1.0	<1.0	<1.0	12.52
BH01	12/18/2013	1.5	<1.0	<1.0	<1.0	12.80
BH01	3/28/2014	<1.0	1.9	<1.0	2.2	12.81
BH01	6/25/2014	<1.0	<1.0	15	8.9	11.44
BH01	9/17/2014	<1.0	<1.0	11	2.1	10.93
BH01	12/16/2014	7.4	<1.0	11	<1.0	11.45
BH01	3/27/2015	1.4	4.2	2.2	24	11.59
BH02	12/20/2012	170	1.6	490	1,700	10.20
BH02	3/19/2013	<1.0	<1.0	<1.0	2.8	10.44
BH02	6/21/2013	82	<1.0	66	410	9.85
BH02	9/23/2013	35	<1.0	39	39	9.31
BH02	12/18/2013	550	<1.0	1.4	110	9.74
BH02	3/28/2014	660	150	1.0	280	9.78
BH02	6/25/2014	<1.0	<1.0	<1.0	<1.0	8.12
BH02	9/17/2014	110	<1.0	120	24	7.78
BH02	12/16/2014	<1.0	<1.0	<1.0	<1.0	8.41
BH02	3/27/2015	<1.0	1.8	<1.0	6.5	8.76
BH03	12/20/2012	<1.0	<1.0	<1.0	<1.0	12.78
BH03	3/19/2013	<1.0	<1.0	<1.0	<1.0	12.60
BH03	6/21/2013	<1.0	<1.0	<1.0	<1.0	12.39
BH03	9/23/2013	<1.0	<1.0	<1.0	<1.0	12.18
BH03	12/18/2013	1.2	<1.0	<1.0	<1.0	12.09
BH03	3/28/2014	<1.0	<1.0	<1.0	<1.0	12.06
BH03	6/25/2014	<1.0	<1.0	<1.0	<1.0	10.92
BH03	9/17/2014	<1.0	<1.0	<1.0	<1.0	10.44
BH03	12/16/2014	<1.0	<1.0	<1.0	<1.0	10.79
BH03	3/27/2015	<1.0	<1.0	<1.0	<1.0	11.05

TABLE 1
BECKER 5-1, 2, 14, 15
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)
BH04	6/25/2014	18	<1.0	53	130	8.72
BH04	9/17/2014	1.1	<1.0	<1.0	<1.0	8.13
BH04	12/16/2014	3.3	<1.0	6.0	21	8.73
BH04	3/27/2015	<1.0	<1.0	<1.0	20	8.88
BH05	6/25/2014	<1.0	<1.0	<1.0	<1.0	10.55
BH05	9/17/2014	<1.0	<1.0	<1.0	<1.0	10.70
BH05	12/16/2014	<1.0	<1.0	<1.0	<1.0	10.78
BH05	3/27/2015	<1.0	<1.0	<1.0	<1.0	10.92
BH06	6/25/2014	<1.0	<1.0	<1.0	<1.0	8.67
BH06	9/17/2014	<1.0	<1.0	<1.0	<1.0	8.12
BH06	12/16/2014	<1.0	<1.0	<1.0	<1.0	8.77
BH06	3/27/2015	<1.0	<1.0	<1.0	<1.0	9.14
BH07	6/25/2014	<1.0	<1.0	<1.0	<1.0	8.94
BH07	9/17/2014	<1.0	<1.0	<1.0	<1.0	8.40
BH07	12/16/2014	<1.0	<1.0	<1.0	<1.0	8.17
BH07	3/27/2015	<1.0	<1.0	<1.0	<1.0	9.42
BH08	6/25/2014	<1.0	<1.0	<1.0	<1.0	8.92
BH08	9/17/2014	<1.0	<1.0	<1.0	<1.0	8.40
BH08	12/16/2014	<1.0	<1.0	<1.0	<1.0	9.02
BH08	3/27/2015	<1.0	<1.0	<1.0	<1.0	9.39
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

TABLE 2
BECKER 5-1, 2, 14, 15
AIR SPARGE / EFR OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)	Average Air Flow Rate (cfm)
First Quarter 2013						
1/28/2013	BH01, BH02	6	4.5	BH01, BH02	10	
2/16/2013		5.5	16		10	
3/3/2013		6	0		10	
3/18/2013		6	7		10	
Quarterly Totals		23.5	27.5		-	
Second Quarter 2013						
4/15/2013	BH01, BH02	6	9	BH01, BH02	10	
5/3/2013		4	0		10	
5/20/2013		6	2		10	
Quarterly Totals		16	11		-	
Third Quarter 2013						
7/8/2013	BH01, BH02	6	7	BH01, BH02	10	
7/23/2013		6.25	0		10	
8/9/2013		6.25	2		15	
8/22/2013		6	0		Not Recorded	
9/9/2013		6	13		10	
9/17/2013		6	0		12	
9/24/2013		6	15		15	
Quarterly Totals		42.5	37		-	
Fourth Quarter 2013						
10/7/2013	BH01, BH02	6	1	BH01, BH02	10	
10/15/2013		6.25	5		10	
10/29/2013		6	0		10	
11/13/2013		6	0		10	
11/25/2013		6	0.5		10	
12/19/2013		6	0		10	
Quarterly Totals		36.25	6.5		-	

TABLE 2
BECKER 5-1, 2, 14, 15
AIR SPARGE / EFR OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)	Average Air Flow Rate (cfm)
Second Quarter 2014						
4/16/2014	BH02	6	0	BH02, BH04, BH05, BH06, BH07	10	10
5/1/2014		6	0		20	3
5/7/2014		6	0		10	16
5/21/2014		4.5	0		10	17.5
6//2014		6	0		10	14
6/19/2014		6	0		20	24
Quarterly Totals		34.5	0		-	
Third Quarter 2014						
7/9/2014	BH02	6	0	BH02, BH04, BH05, BH06, BH07	20	16
7/14/2014		6	0		20	15
8/5/2014		6	42		20	17
8/22/2014		6	0		20	12
9/11/2014		6	20		20	20
Quarterly Totals		30	62		-	
Fourth Quarter 2014						
10/1/2014	BH04, BH05, BH06, BH07	6	0	BH02, BH04, BH05, BH06, BH07	20	20
10/20/2014		6	50		20	19
11/3/2014		6	18		20	30
11/20/2014		6	0		20	30
12/8/2014		6	0		30	22.5
12/19/2014		6	10		30	29
Quarterly Totals		36	78		-	
First Quarter 2015						
1/8/2015	BH01, BH02, BH04, BH06	6	0	BH01, BH02, BH04, BH06	20	25
2/6/2015		6	0		20	18
2/19/2015		6	5		20	16.5
3/10/2015		6	25		20	15.5
3/23/2015		6	0		20	21.5
Quarterly Totals		30	30		-	



Surface
Drainage

DCP Tank Battery

BH03		
Compound (ug/L)	12/16/2014	3/27/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH01		
Compound (ug/L)	12/16/2014	3/27/2015
Benzene	7.4	1.4
Toluene	<1.0	4.2
Ethylbenzene	11	2.2
Total Xylenes	<1.0	24

BH04		
Compound (ug/L)	12/16/2014	3/27/2015
Benzene	3.3	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	6.0	<1.0
Total Xylenes	21	20

BH05		
Compound (ug/L)	12/16/2014	3/27/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

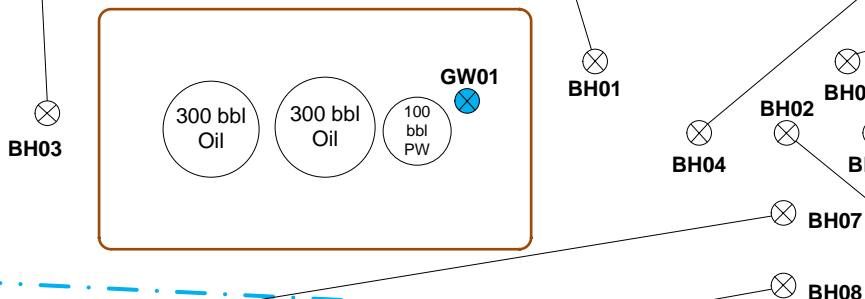
BH06		
Compound (ug/L)	12/16/2014	3/27/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH07		
Compound (ug/L)	12/16/2014	3/27/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH08		
Compound (ug/L)	12/16/2014	3/27/2015
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH02		
Compound (ug/L)	12/16/2014	3/27/2015
Benzene	<1.0	<1.0
Toluene	<1.0	1.8
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	6.5

Property Fence



Separator 10 bbl

Separator 10 bbl

Buried Irrigation Line

County Road 36

Approximate Scale:
1 inch equals 25 feet

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

DRAWN BY: ESS

DATE: 4/1/2015

Facility Diagram
PDC Energy – DJ Basin
Becker 5-1, 2, 14, 15
SE 1/4 S5 T3N 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

FIGURE 1
**GROUNDWATER
ANALYTICAL RESULTS**

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 01, 2015

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Becker 5-1,2,14,15

Enclosed are the results of analyses for samples received by Summit Scientific on 03/27/15 17:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, flowing script.

Paul Shrewsbury
President



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

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/01/15 11:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1503243-01	Water	03/27/15 09:26	03/27/15 17:15
BH02	1503243-02	Water	03/27/15 09:37	03/27/15 17:15
BH03	1503243-03	Water	03/27/15 10:16	03/27/15 17:15
BH04	1503243-04	Water	03/27/15 10:37	03/27/15 17:15
BH05	1503243-05	Water	03/27/15 09:44	03/27/15 17:15
BH06	1503243-06	Water	03/27/15 10:25	03/27/15 17:15
BH07	1503243-07	Water	03/27/15 09:58	03/27/15 17:15
BH08	1503243-08	Water	03/27/15 10:08	03/27/15 17:15

Summit Scientific

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

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/01/15 11:18

Summit Scientific 1503243

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

Page 1 of 1

Client: PDC Energy
Address:
City/State/Zip:
Phone: Fax:
Sampler Name: Kate Forsmark

Project Manager: Brandon Bruns
E-Mail: brandon.bruns@pdce.com
Project Name: Becker 5-1,2,14,15
Project Number:

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)			
BH01	3/27/15	926	3	X										
BH02		937	↓											
BH03		1016	↓											
BH04		1037	2											
BH05		944	3											
BH06		1025	↓											
BH07		958	↓											
BH08		1008	↓											

Relinquished by: <i>[Signature]</i>	Date/Time: 3/27/15 1330	Received by: <i>[Signature]</i>	Date/Time: 3/27/15 1700	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input checked="" type="checkbox"/> 24 Hours <input type="checkbox"/> Standard 48 Hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: 3.5°C Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes: <i>on ice</i>
Relinquished by: <i>[Signature]</i>	Date/Time: 3/27/15 1715	Received by: <i>[Signature]</i>	Date/Time: 3/27 1715		
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:		

www.s2sci.com



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

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/01/15 11:18

Sample Receipt Checklist

S2 Work Order: 1503243

Client: PDC

Client Project ID: Becker 5-1,2,14,15

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>Client</u>				
Temp (°C)	<u>3.5</u>				

Thermometer ID: T006

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>On Ice</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⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>HCl</u>
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, etc.				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

Joseph J Eary
Custodian Printed Name

[Signature]
Signature or Initials of Custodian

3/30/15
Date/Time



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

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/01/15 11:18

BH01
1503243-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/15 09:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	1.4	1.0	ug/l	1	1503340	03/31/15	03/31/15	EPA 8260B	
Toluene	4.2	1.0	"	"	"	"	"	"	
Ethylbenzene	2.2	1.0	"	"	"	"	"	"	
Xylenes (total)	24	1.0	"	"	"	"	"	"	

Date Sampled: **03/27/15 09:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		97.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.6 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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.



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

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/01/15 11:18

BH02
1503243-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/15 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1503340	03/31/15	03/31/15	EPA 8260B	
Toluene	1.8	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	6.5	1.0	"	"	"	"	"	"	

Date Sampled: **03/27/15 09:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		95.6 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.3 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		109 %	45-146		"	"	"	"	

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

Project: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/01/15 11:18

BH03
1503243-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/15 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1503340	03/31/15	03/31/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/27/15 10:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.2 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/01/15 11:18

BH04
1503243-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/15 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1503340	03/31/15	03/31/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	20	1.0	"	"	"	"	"	"	

Date Sampled: **03/27/15 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		101 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/01/15 11:18

BH05
1503243-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/15 09:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1503340	03/31/15	03/31/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/27/15 09:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		94.7 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/01/15 11:18

BH06
1503243-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/15 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1503340	03/31/15	03/31/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/27/15 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		93.0 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.0 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/01/15 11:18

BH07
1503243-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/15 09:58**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1503340	03/31/15	03/31/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/27/15 09:58**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		96.9 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/01/15 11:18

BH08
1503243-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/15 10:08**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1503340	03/31/15	03/31/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/27/15 10:08**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		95.2 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %	45-146		"	"	"	"	

Summit Scientific

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Denver CO, 80203

Project: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/01/15 11:18

Volatile Organic Compounds by EPA Method 8260B - Quality Control

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Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1503340 - EPA 5030 Water MS

Blank (1503340-BLK1)

Prepared & Analyzed: 03/31/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.6		"	13.2		95.8	37-154			
Surrogate: Toluene-d8	12.8		"	13.3		96.1	45-149			
Surrogate: 4-Bromofluorobenzene	14.8		"	13.3		111	45-146			

LCS (1503340-BS1)

Prepared & Analyzed: 03/31/15

Benzene	29.5	1.0	ug/l	33.3		88.5	51-132			
Toluene	28.2	1.0	"	33.3		84.7	51-138			
Ethylbenzene	30.7	1.0	"	33.1		92.8	58-146			
m,p-Xylene	62.3	2.0	"	66.5		93.7	57-144			
o-Xylene	30.2	1.0	"	32.8		92.0	53-146			
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.2		97.7	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.6	45-149			
Surrogate: 4-Bromofluorobenzene	14.5		"	13.3		109	45-146			

Matrix Spike (1503340-MS1)

Source: 1503237-03

Prepared & Analyzed: 03/31/15

Benzene	42.6	1.0	ug/l	33.3	12.5	90.3	34-141			
Toluene	28.6	1.0	"	33.3	ND	85.7	27-151			
Ethylbenzene	36.7	1.0	"	33.1	5.59	94.2	29-160			
m,p-Xylene	63.6	2.0	"	66.5	ND	95.6	20-166			
o-Xylene	30.1	1.0	"	32.8	ND	91.9	33-159			
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.2		97.5	37-154			
Surrogate: Toluene-d8	12.8		"	13.3		95.7	45-149			
Surrogate: 4-Bromofluorobenzene	14.3		"	13.3		107	45-146			

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Denver CO, 80203

Project: Becker 5-1,2,14,15
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/01/15 11:18

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 1503340 - EPA 5030 Water MS

Matrix Spike Dup (1503340-MSD1)	Source: 1503237-03			Prepared & Analyzed: 03/31/15						
Benzene	40.2	1.0	ug/l	33.3	12.5	83.3	34-141	5.60	32	
Toluene	28.9	1.0	"	33.3	ND	86.8	27-151	1.29	25	
Ethylbenzene	36.7	1.0	"	33.1	5.59	94.0	29-160	0.163	50	
m,p-Xylene	64.9	2.0	"	66.5	ND	97.5	20-166	1.96	36	
o-Xylene	31.2	1.0	"	32.8	ND	95.1	33-159	3.49	26	
Surrogate: 1,2-Dichloroethane-d4	14.2		"	13.2		108	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		96.8	45-149			
Surrogate: 4-Bromofluorobenzene	14.7		"	13.3		110	45-146			

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Denver CO, 80203

Project: Becker 5-1,2,14,15

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/01/15 11:18

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

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A handwritten signature in black ink, appearing to be 'MSM'.