

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

June 14, 2013

Ryan 23-25U & 25BU, 14-25U/ Scott 24-25U/ MVS #1 Tank Battery  
SESW Section 25 T5N R68W  
Weld County, API # 05-069-06179

This groundwater monitoring summary has been prepared by Tasman Geosciences, LLC for the Ryan 23-25U & 25BU, 14-25U/ Scott 24-25U/ MVS #1 tank battery. On May 3, 2013, groundwater sampling was conducted at four temporary monitoring well locations. Due to insufficient water in BH02, a groundwater sample was not collected from this location. Groundwater samples were submitted for laboratory analysis of BTEX constituents using USEPA Method 8260B. Analytical results are summarized in Table 1 and are illustrated on Figure 2. The laboratory analytical report is included as Attachment A. Evaluation of second quarter analytical results indicates that BTEX concentrations are below laboratory detection limits at all four monitoring well locations.

EFR/AS activities have been successful in mitigating residual dissolved phase petroleum hydrocarbon concentrations on site, as demonstrated by the annual decrease in benzene concentrations since activities commenced during the second quarter 2012. A summary of the EFR/AS operational data through the first quarter 2013 is provided in Table 2. Consequently, EFR/AS activities were discontinued during the second quarter 2013.

Third quarter 2013 groundwater sampling will be conducted during July 2013.

**TABLE 1**  
**RYAN 23-25U, 25BU, 14-25U/SCOTT 24-25U/MVS 1**  
**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-BH-01	4/13/2012	320	810	44	490	NM
BH01	7/17/2012	<1.0	<1.0	<1.0	<1.0	14.39
BH01	10/1/2012	<1.0	<1.0	<1.0	<1.0	14.67
BH01	1/28/2013	<1.0	<1.0	<1.0	<1.0	14.9
BH01	5/3/2013	<1.0	<1.0	<1.0	<1.0	15.50
GW02-BH02	4/13/2012	7,100	14,000	420	4,400	NM
BH02	7/17/2012	DRY	DRY	DRY	DRY	DRY
BH02	10/1/2012	DRY	DRY	DRY	DRY	DRY
BH02	1/28/2013	DRY	DRY	DRY	DRY	DRY
BH02	5/3/2013	DRY	DRY	DRY	DRY	DRY
GW03-BH03	4/13/2012	11,000	13,000	300	3,500	NM
BH03	7/17/2012	1,400	710	20	250	13.82
BH03	10/1/2012	41	47	3	32	14.20
BH03	1/28/2013	DRY	DRY	DRY	DRY	DRY
BH03	5/3/2013	<1.0	<1.0	<1.0	<1.0	14.81
GW04-BH04	4/13/2012	3,100	3,900	150	1,700	NM
BH04	7/17/2012	1,500	490	<1.0	1,900	13.21
BH04 <sup>(2)</sup>	10/1/2012	2,400	66	53	1,800	13.58
BH04R	1/28/2013	26	<1.0	<1.0	77	14.53
BH04R	5/3/2013	<1.0	<1.0	<1.0	<1.0	15.22

**TABLE 1**  
**RYAN 23-25U, 25BU, 14-25U/SCOTT 24-25U/MVS 1**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

GW05-BH05	4/13/2012	<b>510</b>	<b>3,400</b>	190	<b>2,200</b>	NM
BH05	7/17/2012	<1.0	<1.0	<1.0	<1.0	13.30
BH05	10/1/2012	<1.0	<1.0	<1.0	<1.0	15.60
BH05	1/28/2013	<1.0	<1.0	<1.0	<1.0	15.74
BH05	5/3/2013	<1.0	<1.0	<1.0	<1.0	16.45
<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.

2). Groundwater sample collection at BH04 discontinued following installation of BH04R during the fourth quarter 2012.

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

Sample locations are shown on Figure 2.

ug/L= Micrograms per liter.

NM- Not Measured

**TABLE 2**  
**RYAN 23-25U, 25BU, 14-25U/SCOTT 24-25U/MVS 1**  
**AIR SPARGE / EFR OPERATIONAL SUMMARY TABLE**

Date	EFR Wells	Total EFR / AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Injection Pressure (psi)
SECOND QUARTER 2012					
5/29/2012	BH01, BH02, BH03, BH04, BH05	6	210	BH01, BH02, BH03, BH04, BH05	8
6/13/2012		6	210		8
THIRD QUARTER 2012					
7/2/2012	BH01, BH02, BH03, BH04, BH05	6	252	BH01, BH02, BH03, BH04, BH05	8
7/10/2012		6	210		8
7/25/2012		6	207		8
8/18/2012		7	124.5		7.5
8/21/2012		8	124.5		8
9/4/2012		7	0		8
FOURTH QUARTER 2012					
10/3/2012	BH01, BH02, BH03, BH04, BH05	7	83	BH01, BH02, BH03, BH04, BH05	8
10/30/2012		6	11.5		8
11/13/2012		6	23		8
11/29/2012		6.5	14.6		8
12/6/2012		6.5	7.5		8
FIRST QUARTER 2013					
1/7/2013	BH01, BH02, BH03, BH04, BH05	5	10	BH01, BH02, BH03, BH04, BH05	8
3/25/2013	BH03, BH04, BH05	6	26	BH03, BH04, BH05	10

Notes:

psi = pounds per square inch



Surface  
Drainage

BH03		
Compound (ug/L)	1/28/2013	5/3/2013
Benzene	DRY	<1.0
Toluene	DRY	<1.0
Ethylbenzene	DRY	<1.0
Total Xylenes	DRY	<1.0

BH-03

BH04R		
Compound (ug/L)	1/28/2013	5/3/2013
Benzene	26	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	77	<1.0

BH-04R

BH-04

BH05		
Compound (ug/L)	1/28/2013	5/3/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH-05

M

M

M

BH01

BH01		
Compound (ug/L)	1/28/2013	5/3/2013
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH02

BH02		
Compound (ug/L)	1/28/2013	5/3/2013
Benzene	DRY	DRY
Toluene	DRY	DRY
Ethylbenzene	DRY	DRY
Total Xylenes	DRY	DRY

Separator 10 bbl

Separator 10 bbl

Separator 10 bbl

100 bbl  
PW Tank

300 bbl  
Condensate  
Tank

300 bbl  
Condensate  
Tank

300 bbl  
Condensate  
Tank

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

DRAWN BY: ESS

DATE: 5/17/2103

**Facility Diagram**

PDC Energy – DJ Basin  
Ryan 23-25U & 25BU, 14-25U/ Scott 24-25U/ MVS #1  
SESW T5N R68W S25  
Weld County, CO



6899 Pecos St., Unit C  
Denver CO 80221

**LEGEND**

- Corrugated Steel Berm
- Monitoring Well Location. Soil and Groundwater Samples Collected
- Sampling Discontinued from Monitoring Well Location

M Meter Shed

FIGURE 2  
GROUNDWATER  
ANALYTICAL  
RESULTS

## **ATTACHMENT A**

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 13, 2013

Brandon Bruns

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1

Enclosed are the results of analyses for samples received by Summit Scientific on 05/06/13 19:00. 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.

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: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/13/13 12:49

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	R305054-01	Water	05/03/13 11:15	05/06/13 19:00
BH03	R305054-02	Water	05/03/13 11:30	05/06/13 19:00
BH04R	R305054-03	Water	05/03/13 11:35	05/06/13 19:00
BH05	R305054-04	Water	05/03/13 11:10	05/06/13 19:00

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.*



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

Project: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
05/13/13 12:49

R305054

Summit Scientific

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

Page 1 of 1

Client: PDC / Taban

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Sample Name: Blue / 16

Project Manager. *Brandon Bruns*

E-Mail:

Project Name: Ew-14 73-7511 75811/54474-7511/MVS1

Project Number

Sample Description			Preservative		Matrix		Analyze For:	
Date Sampled	Time Sampled	Number of Containers	HCl	Zone	Other (Specify)	Groundwater	Soil	Air - Canister Serial #
5/2/13	11:5	3	X			X		
5/2/13	11:5	3						Other (Specify)
5/2/13	11:30	2	X			X		
5/2/13	11:35	3				X		
5/2/13	1:00	3				X		
Special Instructions								
No Sample 5/10/2								

  

Relinquished by:	Date Time:	Received by:	Date Time:	Turn Around Time (Check)	Notes:
<i>[Signature]</i>	5/7/13 1:40	<i>[Signature]</i>	5/16/13 1:00	<input type="checkbox"/> Same Day <input type="checkbox"/> 24 Hours <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> Standard	
Relinquished by:	Date Time:	Received by:	Date Time:		
<i>[Signature]</i>	5/13/13 1:40	<i>[Signature]</i>	5/16/13 1:00		
Relinquished by:	Date Time:	Received in Lab by:	Date Time:	Sample Integrity:	Temperature Upon Receipt:
<i>[Signature]</i>	5/13/13 1:40	<i>[Signature]</i>	5/16/13 1:00	Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.3

[www.s2scientific.com](http://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.*

*Legal Eagle IV*



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

Project: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/13/13 12:49

**BH01**  
**R305054-01 (Water)**

**Summit Scientific**

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

Date Sampled: **05/03/13 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3051108	05/11/13	05/11/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/03/13 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		86.7 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		94.7 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.1 %		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: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
05/13/13 12:49

**BH03**  
**R305054-02 (Water)**

**Summit Scientific**

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

Date Sampled: **05/03/13 11:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3051108	05/11/13	05/11/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/03/13 11:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		88.3 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		96.4 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.6 %		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: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
05/13/13 12:49

**BH04R**  
**R305054-03 (Water)**

**Summit Scientific**

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

Date Sampled: **05/03/13 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3051108	05/11/13	05/12/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/03/13 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		82.3 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		94.1 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.7 %		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: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
05/13/13 12:49

**BH05**  
**R305054-04 (Water)**

**Summit Scientific**

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

Date Sampled: **05/03/13 11:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	3051108	05/11/13	05/12/13	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/03/13 11:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		87.7 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		96.0 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.6 %		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: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
05/13/13 12:49

**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 3051108 - EPA 5030 Water MS**

**Blank (3051108-BLK1)**

Prepared & Analyzed: 05/12/13

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>10.9</i>		<i>"</i>	<i>13.2</i>		<i>82.1</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.0</i>		<i>"</i>	<i>13.3</i>		<i>97.5</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.2</i>		<i>"</i>	<i>13.3</i>		<i>91.5</i>	<i>45-146</i>			

**Blank (3051108-BLK2)**

Prepared & Analyzed: 05/12/13

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>10.7</i>		<i>"</i>	<i>13.2</i>		<i>80.7</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.5</i>		<i>"</i>	<i>13.3</i>		<i>94.0</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.5</i>		<i>"</i>	<i>13.3</i>		<i>93.9</i>	<i>45-146</i>			

**LCS (3051108-BS1)**

Prepared & Analyzed: 05/12/13

Benzene	23.0	1.0	ug/l	26.7		86.4	51-132			
Toluene	28.3	1.0	"	26.7		106	51-138			
Ethylbenzene	27.7	1.0	"	26.7		104	58-146			
m,p-Xylene	56.3	2.0	"	53.3		106	57-144			
o-Xylene	26.9	1.0	"	26.7		101	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>11.0</i>		<i>"</i>	<i>13.2</i>		<i>83.4</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.4</i>		<i>"</i>	<i>13.3</i>		<i>93.3</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>11.9</i>		<i>"</i>	<i>13.3</i>		<i>89.3</i>	<i>45-146</i>			

**LCS (3051108-BS2)**

Prepared & Analyzed: 05/12/13

Benzene	24.7	1.0	ug/l	26.7		92.6	51-132			
Toluene	30.1	1.0	"	26.7		113	51-138			
Ethylbenzene	29.4	1.0	"	26.7		110	58-146			
m,p-Xylene	60.1	2.0	"	53.3		113	57-144			
o-Xylene	28.3	1.0	"	26.7		106	53-146			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>10.9</i>		<i>"</i>	<i>13.2</i>		<i>82.2</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.4</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.2</i>		<i>"</i>	<i>13.3</i>		<i>91.3</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.



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

Project: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
05/13/13 12:49

**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 3051108 - EPA 5030 Water MS**

**LCS Dup (3051108-BSD1)**

Prepared & Analyzed: 05/12/13

Benzene	25.6	1.0	ug/l	26.7	96.1	51-132	10.7	17	
Toluene	26.5	1.0	"	26.7	99.3	51-138	6.57	17	
Ethylbenzene	26.6	1.0	"	26.7	99.9	58-146	3.90	16	
m,p-Xylene	53.8	2.0	"	53.3	101	57-144	4.58	16	
o-Xylene	26.4	1.0	"	26.7	99.0	53-146	1.80	15	
Surrogate: 1,2-Dichloroethane-d4	16.1		"	13.2	122	37-154			
Surrogate: Toluene-d8	13.2		"	13.3	99.4	45-149			
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3	101	45-146			

**LCS Dup (3051108-BSD2)**

Prepared & Analyzed: 05/12/13

Benzene	27.2	1.0	ug/l	26.7	102	51-132	9.63	17	
Toluene	28.2	1.0	"	26.7	106	51-138	6.52	17	
Ethylbenzene	28.0	1.0	"	26.7	105	58-146	4.87	16	
m,p-Xylene	56.9	2.0	"	53.3	107	57-144	5.54	16	
o-Xylene	28.0	1.0	"	26.7	105	53-146	1.24	15	
Surrogate: 1,2-Dichloroethane-d4	16.0		"	13.2	121	37-154			
Surrogate: Toluene-d8	13.5		"	13.3	101	45-149			
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3	101	45-146			

**Matrix Spike (3051108-MS1)**

Source: R305053-01

Prepared & Analyzed: 05/12/13

Benzene	18.9	1.0	ug/l	26.7	1.23	66.3	34-141		
Toluene	23.0	1.0	"	26.7	ND	86.2	27-151		
Ethylbenzene	23.3	1.0	"	26.7	ND	87.2	29-160		
m,p-Xylene	47.7	2.0	"	53.3	ND	89.4	20-166		
o-Xylene	22.6	1.0	"	26.7	ND	84.6	33-159		
Surrogate: 1,2-Dichloroethane-d4	8.80		"	13.2	66.5	37-154			
Surrogate: Toluene-d8	12.4		"	13.3	92.8	45-149			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3	91.8	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: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
05/13/13 12:49

**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 3051108 - EPA 5030 Water MS**

Matrix Spike (3051108-MS2)		Source: R305053-01			Prepared & Analyzed: 05/12/13					
Benzene	18.5	1.0	ug/l	26.7	1.23	64.7	34-141			
Toluene	22.5	1.0	"	26.7	ND	84.3	27-151			
Ethylbenzene	22.4	1.0	"	26.7	ND	84.0	29-160			
m,p-Xylene	46.1	2.0	"	53.3	ND	86.5	20-166			
o-Xylene	21.9	1.0	"	26.7	ND	82.0	33-159			
Surrogate: 1,2-Dichloroethane-d4	8.91		"	13.2		67.3	37-154			
Surrogate: Toluene-d8	12.3		"	13.3		92.6	45-149			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.9	45-146			

Matrix Spike Dup (3051108-MSD1)		Source: R305053-01			Prepared & Analyzed: 05/12/13					
Benzene	18.9	1.0	ug/l	26.7	1.23	66.2	34-141	0.106	32	
Toluene	23.0	1.0	"	26.7	ND	86.2	27-151	0.0435	25	
Ethylbenzene	22.9	1.0	"	26.7	ND	86.0	29-160	1.43	50	
m,p-Xylene	47.1	2.0	"	53.3	ND	88.2	20-166	1.29	36	
o-Xylene	22.2	1.0	"	26.7	ND	83.4	33-159	1.47	26	
Surrogate: 1,2-Dichloroethane-d4	8.97		"	13.2		67.8	37-154			
Surrogate: Toluene-d8	12.7		"	13.3		95.1	45-149			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.1	45-146			

Matrix Spike Dup (3051108-MSD2)		Source: R305053-01			Prepared & Analyzed: 05/12/13					
Benzene	19.0	1.0	ug/l	26.7	1.23	66.7	34-141	2.93	32	
Toluene	23.0	1.0	"	26.7	ND	86.4	27-151	2.42	25	
Ethylbenzene	23.3	1.0	"	26.7	ND	87.3	29-160	3.85	50	
m,p-Xylene	47.5	2.0	"	53.3	ND	89.0	20-166	2.89	36	
o-Xylene	22.5	1.0	"	26.7	ND	84.3	33-159	2.80	26	
Surrogate: 1,2-Dichloroethane-d4	8.93		"	13.2		67.5	37-154			
Surrogate: Toluene-d8	12.4		"	13.3		93.3	45-149			
Surrogate: 4-Bromofluorobenzene	12.3		"	13.3		92.2	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: Ryan 14, 23-25U, 25BU/Scott 24-25U/MVS 1

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
05/13/13 12:49

### 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'.