



PDC Energy, Inc.
First Quarter 2016 Groundwater Monitoring Summary

March 25, 2016

Ryan 23-25U & 25BU, 14-25U / Scott 24-25U / MVS #1 Tank Battery
SESW Section 25 T5N R68W
Larimer County, API # 05-069-06179
Spill Tracking # 2224259
Remediation # 7239

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the Ryan 23-25U & 25BU, 14-25U/ Scott 24-25U/ MVS #1 tank battery. On January 4, 2016, groundwater sampling was conducted at five temporary monitoring well locations. Groundwater samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) using USEPA Method 8260B. Analytical results are summarized in Table 1, and the laboratory report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. First quarter 2016 analytical results indicate that benzene concentrations are above applicable COGCC Table 910-1 groundwater standards in well BH04R. BTEX concentrations are below COGCC regulatory standards at the remaining four monitoring locations.

Tasman conducted enhanced fluid recovery (EFR) and air sparge (AS) events between second quarter 2012 and second quarter 2013. EFR/AS activities were discontinued in the third quarter 2013 due to decreased groundwater levels on site. A summary of EFR/AS operational data is provided in Table 2. Monitored natural attenuation (MNA) was selected as the remediation strategy in third quarter 2013 and will continue through the second quarter 2016.

Second quarter 2016 groundwater sampling will be conducted during April 2016.

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

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (feet)
COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
GW01-BH01	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	14.90
BH01	5/3/2013	<1.0	<1.0	<1.0	<1.0	15.50
BH01	7/25/2013	<1.0	<1.0	<1.0	<1.0	16.29
BH01	10/31/2013	<1.0	<1.0	<1.0	<1.0	15.90
BH01	1/24/2014	<1.0	<1.0	<1.0	<1.0	15.53
BH01	4/28/2014	<1.0	<1.0	<1.0	<1.0	15.26
BH01	7/25/2014	<1.0	<1.0	<1.0	<1.0	15.59
BH01	10/22/2014	<1.0	<1.0	<1.0	<1.0	16.25
BH01	1/13/2015	<1.0	<1.0	<1.0	<1.0	15.00
BH01	4/9/2015	<1.0	<1.0	<1.0	<1.0	15.38
BH01	7/27/2015	<1.0	<1.0	<1.0	<1.0	16.01
BH01	10/5/2015	<1.0	<1.0	<1.0	<1.0	16.53
BH01	1/4/2016	<1.0	<1.0	<1.0	<1.0	16.68
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
BH02	7/25/2013	DRY	DRY	DRY	DRY	DRY
BH02	10/31/2013	DRY	DRY	DRY	DRY	DRY
BH02	1/24/2014	DRY	DRY	DRY	DRY	DRY
BH02R	4/28/2014	1.0	<1.0	<1.0	<1.0	17.06
BH02R	7/25/2014	<1.0	<1.0	<1.0	<1.0	17.38
BH02R	10/22/2014	<1.0	<1.0	<1.0	<1.0	17.01
BH02R	1/13/2015	<1.0	<1.0	<1.0	<1.0	16.74
BH02R	4/9/2015	<1.0	<1.0	<1.0	<1.0	17.13
BH02R	7/27/2015	<1.0	<1.0	<1.0	<1.0	18.05
BH02R	10/5/2015	<1.0	<1.0	<1.0	<1.0	18.66
BH02R	1/4/2016	<1.0	<1.0	<1.0	2.3	18.58

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

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (feet)
COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
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	3.0	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
BH03	7/25/2013	DRY	DRY	DRY	DRY	DRY
BH03	10/31/2013	DRY	DRY	DRY	DRY	DRY
BH03	1/24/2014	<1.0	<1.0	<1.0	<1.0	14.82
BH03R	7/25/2014	3.4	<1.0	<1.0	<1.0	15.43
BH03R	10/22/2014	7.3	<1.0	1.2	<1.0	15.40
BH03R	4/28/2014	<1.0	<1.0	<1.0	<1.0	16.08
BH03R	7/25/2014	3.4	<1.0	<1.0	<1.0	15.43
BH03R	10/22/2014	7.3	<1.0	1.2	<1.0	15.40
BH03R	1/13/2015	<1.0	<1.0	1.3	<1.0	15.15
BH03R	4/9/2015	<1.0	<1.0	<1.0	<1.0	15.47
BH03R	7/27/2015	<1.0	<1.0	<1.0	<1.0	16.21
BH03R	10/5/2015	<1.0	<1.0	<1.0	<1.0	16.41
BH03R	1/4/2016	<1.0	<1.0	<1.0	<1.0	16.71
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	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
BH04R	7/25/2013	2.0	<1.0	<1.0	<1.0	16.12
BH04R	10/31/2013	<1.0	<1.0	4.1	<1.0	15.77
BH04R	1/24/2014	<1.0	<1.0	3.3	<1.0	15.24
BH04R	4/28/2014	<1.0	<1.0	4.1	<1.0	15.03
BH04R	7/25/2014	<1.0	<1.0	1.1	<1.0	15.17
BH04R	10/22/2014	13	<1.0	<1.0	<1.0	15.01
BH04R	1/13/2015	2.4	<1.0	1.5	4.0	14.81
BH04R	4/9/2015	1.7	<1.0	1.5	7.4	15.11
BH04R	7/27/2015	130	<1.0	1.0	18	15.73

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

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (feet)
COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
BH04R	8/4/2015	76	<1.0	3.1	46	16.07
BH04R	10/5/2015	25	<1.0	15	45	15.99
BH04R	1/4/2016	13	<1.0	10	56	16.49
GW05-BH05	4/13/2012	510	3,400	190	2,200	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
BH05	7/25/2013	DRY	DRY	DRY	DRY	DRY
BH05	8/31/2013	DRY	DRY	DRY	DRY	DRY
BH05	10/31/2013	DRY	DRY	DRY	DRY	DRY
BH05	1/24/2014	<1.0	<1.0	<1.0	<1.0	16.49
BH05R	4/28/2014	<1.0	<1.0	<1.0	<1.0	15.89
BH05R	7/25/2014	<1.0	<1.0	<1.0	<1.0	16.15
BH05R	10/22/2014	<1.0	<1.0	<1.0	<1.0	15.90
BH05R	1/13/2015	<1.0	<1.0	<1.0	<1.0	15.65
BH05R	4/9/2015	<1.0	<1.0	<1.0	<1.0	15.94
BH05R	7/27/2015	<1.0	<1.0	<1.0	<1.0	16.80
BH05R	10/5/2015	<1.0	<1.0	<1.0	<1.0	17.22
BH05R	1/4/2016	<1.0	<1.0	<1.0	<1.0	17.39

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective January 30, 2015.

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

(<) = Analytical result is less than the indicated laboratory reporting limit.

DRY = Well contained insufficient volume to collect sample.

NM = Not Measured

BOLD = Analytical result is in exceedance of COGCC groundwater standards.

TABLE 2
RYAN 23-25U, 25BU, 14-25U/SCOTT 24-25U/MVS 1 TANK BATTERY
EFR / AS OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air 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
Quarterly Totals		12	420		-
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
Quarterly Totals		40	918		-
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
Quarterly Totals		32	139.6		-
First Quarter 2013					
1/7/2013	BH01, BH03, BH05	4.5	10	BH01, BH03, BH04	10
3/25/2013	BH03, BH04, BH05	6	26	BH03, BH04, BH05	10
Quarterly Totals		10.5	36		
Second Quarter 2013					
4/14/2013	BH03, BH04, BH05	6	23.5	BH03, BH04, BH05	10
4/25/2013		6	16		10
5/10/2013	BH03, BH04R	6	22	BH03, BH04R	10
Quarterly Totals		18	61.5		

Notes:

EFR = Enhanced fluid recovery

AS = Air sparge

psi = Pounds per square inch



BH03R		
Compound (µg/L)	10/5/2015	1/4/2016
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH03R
BH03

BH04R		
Compound (µg/L)	10/5/2015	1/4/2016
Benzene	25	13
Toluene	<1.0	<1.0
Ethylbenzene	15	10
Total Xylenes	45	56

BH04R
BH04

BH05R		
Compound (µg/L)	10/5/2015	1/4/2016
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH05
BH05R

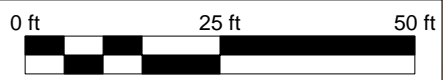
Surface
Drainage

BH01

BH01		
Compound (µg/L)	10/5/2015	1/4/2016
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	<1.0

BH02R
BH02

BH02R		
Compound (µg/L)	10/5/2015	1/4/2016
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<1.0	2.3



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

DRAWN BY: ESS

DATE: 2/29/2016

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



6899 Pecos St., Unit C
Denver CO 80221

LEGEND



Excavation Extent



Monitoring Well Location



Monitoring Well Location –
Well Destroyed



Point of Release



Groundwater
Flow Direction

All locations are
approximate unless
otherwise noted

FIGURE 1
GROUNDWATER
ANALYTICAL
RESULTS MAP

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 11, 2016

Brandon Bruns

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

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

Enclosed are the results of analyses for samples received by Summit Scientific on 01/04/16 17:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



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

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/11/16 16:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1601003-01	Water	01/04/16 09:30	01/04/16 17:15
BH02R	1601003-02	Water	01/04/16 09:36	01/04/16 17:15
BH03R	1601003-03	Water	01/04/16 09:42	01/04/16 17:15
BH04R	1601003-04	Water	01/04/16 09:50	01/04/16 17:15
BH05R	1601003-05	Water	01/04/16 09:56	01/04/16 17:15

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

Reported:
01/11/16 16:10

BH01
1601003-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/04/16 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1601020	01/06/16	01/06/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/04/16 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		101 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	45-146		"	"	"	"	

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

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

Reported:
01/11/16 16:10

BH02R
1601003-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/04/16 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1601020	01/07/16	01/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	2.3	1.0	"	"	"	"	"	"	

Date Sampled: **01/04/16 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.1 %	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: Ryan 23-25U & 25BU,14-25U/Scott 24-25U/MVS #1
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
01/11/16 16:10

BH03R
1601003-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/04/16 09:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1601020	01/07/16	01/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/04/16 09:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	45-146		"	"	"	"	

Summit Scientific

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

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

Reported:
01/11/16 16:10

BH04R
1601003-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/04/16 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	13	1.0	ug/l	1	1601020	01/07/16	01/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	10	1.0	"	"	"	"	"	"	
Xylenes (total)	56	1.0	"	"	"	"	"	"	

Date Sampled: **01/04/16 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.6 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.0 %	45-146		"	"	"	"	

Summit Scientific

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

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

Reported:
01/11/16 16:10

BH05R
1601003-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/04/16 09:56**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1601020	01/07/16	01/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/04/16 09:56**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	45-146		"	"	"	"	

Summit Scientific

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

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

Reported:
01/11/16 16:10

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 1601020 - EPA 5030 Water MS

Blank (1601020-BLK1)

Prepared & Analyzed: 01/06/16

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.3	107	37-154				
Surrogate: Toluene-d8	13.7		"	13.3	103	45-149				
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3	99.8	45-146				

LCS (1601020-BS1)

Prepared & Analyzed: 01/06/16

Benzene	29.3	1.0	ug/l	33.3	88.0	51-132				
Toluene	32.1	1.0	"	33.3	96.2	51-138				
Ethylbenzene	37.8	1.0	"	33.1	114	58-146				
m,p-Xylene	72.4	2.0	"	66.5	109	57-144				
o-Xylene	32.8	1.0	"	32.8	100	53-146				
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.3	104	37-154				
Surrogate: Toluene-d8	13.3		"	13.3	100	45-149				
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3	96.0	45-146				

Matrix Spike (1601020-MS1)

Source: 1601003-01

Prepared & Analyzed: 01/06/16

Benzene	29.8	1.0	ug/l	33.3	ND	89.3	34-141			
Toluene	32.1	1.0	"	33.3	ND	96.3	27-151			
Ethylbenzene	37.7	1.0	"	33.1	ND	114	29-160			
m,p-Xylene	72.3	2.0	"	66.5	ND	109	20-166			
o-Xylene	33.1	1.0	"	32.8	ND	101	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.6		"	13.3	110	37-154				
Surrogate: Toluene-d8	13.5		"	13.3	101	45-149				
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3	96.2	45-146				

Summit Scientific

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

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

Reported:
01/11/16 16:10

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 1601020 - EPA 5030 Water MS

Matrix Spike Dup (1601020-MSD1)	Source: 1601003-01			Prepared & Analyzed: 01/06/16						
Benzene	30.2	1.0	ug/l	33.3	ND	90.8	34-141	1.63	32	
Toluene	32.8	1.0	"	33.3	ND	98.3	27-151	2.10	25	
Ethylbenzene	38.5	1.0	"	33.1	ND	116	29-160	2.13	50	
m,p-Xylene	73.9	2.0	"	66.5	ND	111	20-166	2.24	36	
o-Xylene	33.4	1.0	"	32.8	ND	102	33-159	1.14	26	
Surrogate: 1,2-Dichloroethane-d4	15.8		"	13.3		118	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		99.7	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.2	45-146			

Summit Scientific

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

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/11/16 16:10

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

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