



PDC Energy, Inc.
Fourth Quarter 2015 Groundwater Monitoring Summary

January 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 October 5, 2015, 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. Fourth quarter 2015 analytical results indicate that benzene concentrations are above applicable COGCC Table 910-1 groundwater standards in well BH04R. BTEX concentrations are below 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 first quarter 2016.

First quarter 2016 groundwater sampling will be conducted during January 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 |
| 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 |
| GW03-BH03 | 4/13/2012 | 11,000 | 13,000 | 300 | 3,500 | NM |
| BH03 | 7/17/2012 | 1,400 | 710 | 20 | 250 | 13.82 |

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 | |
| 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 |
| 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 |
| BH04R | 8/4/2015 | 76 | <1.0 | 3.1 | 46 | 16.07 |
| BH04R | 10/5/2015 | 25 | <1.0 | 15 | 45 | 15.99 |

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 | |
| 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 |

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 | BH03, BH04, BH05 | 5 | 10 | BH03, BH04, BH05 | 10 |
| 3/25/2013 | | 6 | 26 | | 10 |
| Quarterly Totals | | 11 | 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 | | 6 | 22 | | 10 |
| Quarterly Totals | | 18 | 61.5 | | |

Notes:

EFR = Enhanced fluid recovery

AS = Air sparge

psi = Pounds per square inch



| BH03R | | |
|-----------------|-----------|-----------|
| Compound (µg/L) | 7/27/2015 | 10/2/2015 |
| Benzene | <1.0 | <1.0 |
| Toluene | <1.0 | <1.0 |
| Ethylbenzene | <1.0 | <1.0 |
| Total Xylenes | <1.0 | <1.0 |

| BH04R | | |
|-----------------|-----------|-----------|
| Compound (µg/L) | 7/27/2015 | 10/2/2015 |
| Benzene | 130 | 25 |
| Toluene | <1.0 | <1.0 |
| Ethylbenzene | 1.0 | 15 |
| Total Xylenes | 18 | 45 |

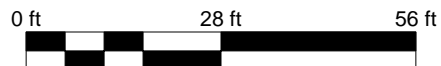
| BH05R | | |
|-----------------|-----------|-----------|
| Compound (µg/L) | 7/27/2015 | 10/2/2015 |
| Benzene | <1.0 | <1.0 |
| Toluene | <1.0 | <1.0 |
| Ethylbenzene | <1.0 | <1.0 |
| Total Xylenes | <1.0 | <1.0 |

| BH01 | | |
|-----------------|-----------|-----------|
| Compound (µg/L) | 7/27/2015 | 10/2/2015 |
| Benzene | <1.0 | <1.0 |
| Toluene | <1.0 | <1.0 |
| Ethylbenzene | <1.0 | <1.0 |
| Total Xylenes | <1.0 | <1.0 |

| BH02R | | |
|-----------------|-----------|-----------|
| Compound (µg/L) | 7/27/2015 | 10/2/2015 |
| Benzene | <1.0 | <1.0 |
| Toluene | <1.0 | <1.0 |
| Ethylbenzene | <1.0 | <1.0 |
| Total Xylenes | <1.0 | <1.0 |

Surface
Drainage

Lease Road



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

DRAWN BY: ESS

DATE: 11/12/2015

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

October 08, 2015

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 10/05/15 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in dark ink, appearing to read "M Clements", with a stylized flourish at the end.

Michelle Clements For 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:
10/08/15 14:24

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|----------------|----------------|
| BH01 | 1510026-01 | Water | 10/05/15 12:45 | 10/05/15 17:00 |
| BH02R | 1510026-02 | Water | 10/05/15 12:51 | 10/05/15 17:00 |
| BH03R | 1510026-03 | Water | 10/05/15 12:56 | 10/05/15 17:00 |
| BH04R | 1510026-04 | Water | 10/05/15 13:02 | 10/05/15 17:00 |
| BH05R | 1510026-05 | Water | 10/05/15 13:06 | 10/05/15 17:00 |

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

Reported:
10/08/15 14:24

BH01
1510026-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/15 12:45**

| Analyte | Result | Reporting | | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|-----------|--|-------|----------|---------|----------|----------|-----------|-------|
| | | Limit | | | | | | | | |
| Benzene | ND | 1.0 | | ug/l | 1 | 1510044 | 10/06/15 | 10/06/15 | EPA 8260B | |
| Toluene | ND | 1.0 | | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | | " | " | " | " | " | " | |
| Xylenes (total) | ND | 1.0 | | " | " | " | " | " | " | |

Date Sampled: **10/05/15 12:45**

| Analyte | Result | Reporting | | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------|--|--------|----------|-------|----------|----------|--------|-------|
| | | Limit | | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | | 122 % | | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 99.6 % | | 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: Ryan 23-25U & 25BU,14-25U/Scott 24-25U/MVS #1
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/08/15 14:24

BH02R
1510026-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/15 12:51**

| Analyte | Result | Reporting | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|-----------|-------|----------|---------|----------|----------|-----------|-------|
| | | Limit | Units | | | | | | |
| Benzene | ND | 1.0 | ug/l | 1 | 1510044 | 10/06/15 | 10/06/15 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 1.0 | " | " | " | " | " | " | |

Date Sampled: **10/05/15 12:51**

| Analyte | Result | Reporting | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------|--------|----------|-------|----------|----------|--------|-------|
| | | Limit | Units | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | | 127 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 105 % | 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:
10/08/15 14:24

BH03R
1510026-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/15 12:56**

| Analyte | Result | Reporting | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|-----------|-------|----------|---------|----------|----------|-----------|-------|
| | | Limit | Units | | | | | | |
| Benzene | ND | 1.0 | ug/l | 1 | 1510044 | 10/06/15 | 10/06/15 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 1.0 | " | " | " | " | " | " | |

Date Sampled: **10/05/15 12:56**

| Analyte | Result | Reporting | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------|--------|----------|-------|----------|----------|--------|-------|
| | | Limit | Units | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | | 128 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 107 % | 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:
10/08/15 14:24

BH04R
1510026-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/15 13:02**

| Analyte | Result | Reporting | | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|-----------|-----------|--|-------|----------|---------|----------|----------|-----------|-------|
| | | Limit | | | | | | | | |
| Benzene | 25 | 1.0 | | ug/l | 1 | 1510044 | 10/06/15 | 10/06/15 | EPA 8260B | |
| Toluene | ND | 1.0 | | " | " | " | " | " | " | |
| Ethylbenzene | 15 | 1.0 | | " | " | " | " | " | " | |
| Xylenes (total) | 45 | 1.0 | | " | " | " | " | " | " | |

Date Sampled: **10/05/15 13:02**

| Analyte | Result | Reporting | | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------|--|--------|----------|-------|----------|----------|--------|-------|
| | | Limit | | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | | 124 % | | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 101 % | | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 108 % | | 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 23-25U & 25BU,14-25U/Scott 24-25U/MVS #1
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/08/15 14:24

BH05R
1510026-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/05/15 13:06**

| Analyte | Result | Reporting | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|-----------|-------|----------|---------|----------|----------|-----------|-------|
| | | Limit | Units | | | | | | |
| Benzene | ND | 1.0 | ug/l | 1 | 1510044 | 10/06/15 | 10/06/15 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 1.0 | " | " | " | " | " | " | |

Date Sampled: **10/05/15 13:06**

| Analyte | Result | Reporting | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------|--------|----------|-------|----------|----------|--------|-------|
| | | Limit | Units | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | | 129 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 97.9 % | 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: Ryan 23-25U & 25BU,14-25U/Scott 24-25U/MVS #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/08/15 14:24

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 1510044 - EPA 5030 Water MS

Blank (1510044-BLK1)

Prepared & Analyzed: 10/07/15

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|--|------|--------|--|--|--|
| Benzene | ND | 1.0 | ug/l | | | | | | | |
| Toluene | ND | 1.0 | " | | | | | | | |
| Ethylbenzene | ND | 1.0 | " | | | | | | | |
| Xylenes (total) | ND | 1.0 | " | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.5 | | " | 13.2 | | 102 | 37-154 | | | |
| Surrogate: Toluene-d8 | 12.4 | | " | 13.3 | | 92.6 | 45-149 | | | |
| Surrogate: 4-Bromofluorobenzene | 12.3 | | " | 13.3 | | 92.6 | 45-146 | | | |

LCS (1510044-BS1)

Prepared & Analyzed: 10/07/15

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|--|------|--------|--|--|--|
| Benzene | 30.6 | 1.0 | ug/l | 33.3 | | 91.9 | 51-132 | | | |
| Toluene | 31.9 | 1.0 | " | 33.3 | | 95.6 | 51-138 | | | |
| Ethylbenzene | 32.7 | 1.0 | " | 33.1 | | 98.8 | 58-146 | | | |
| m,p-Xylene | 64.0 | 2.0 | " | 66.5 | | 96.2 | 57-144 | | | |
| o-Xylene | 29.8 | 1.0 | " | 32.8 | | 90.7 | 53-146 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.8 | | " | 13.2 | | 105 | 37-154 | | | |
| Surrogate: Toluene-d8 | 12.7 | | " | 13.3 | | 95.1 | 45-149 | | | |
| Surrogate: 4-Bromofluorobenzene | 12.6 | | " | 13.3 | | 94.2 | 45-146 | | | |

Matrix Spike (1510044-MS1)

Source: 1510014-01

Prepared & Analyzed: 10/07/15

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|------|--------|--|--|--|
| Benzene | 29.8 | 1.0 | ug/l | 33.3 | 2.53 | 81.8 | 34-141 | | | |
| Toluene | 30.2 | 1.0 | " | 33.3 | ND | 90.6 | 27-151 | | | |
| Ethylbenzene | 32.8 | 1.0 | " | 33.1 | ND | 99.2 | 29-160 | | | |
| m,p-Xylene | 62.6 | 2.0 | " | 66.5 | ND | 94.0 | 20-166 | | | |
| o-Xylene | 29.9 | 1.0 | " | 32.8 | ND | 91.3 | 33-159 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.7 | | " | 13.2 | | 104 | 37-154 | | | |
| Surrogate: Toluene-d8 | 12.6 | | " | 13.3 | | 94.6 | 45-149 | | | |
| Surrogate: 4-Bromofluorobenzene | 12.7 | | " | 13.3 | | 95.5 | 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 Bruns

Reported:
10/08/15 14:24

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 1510044 - EPA 5030 Water MS

| Matrix Spike Dup (1510044-MSD1) | Source: 1510014-01 | | | Prepared & Analyzed: 10/07/15 | | | | | | |
|----------------------------------|--------------------|-----|------|-------------------------------|------|------|--------|-------|----|--|
| Benzene | 29.6 | 1.0 | ug/l | 33.3 | 2.53 | 81.4 | 34-141 | 0.437 | 32 | |
| Toluene | 30.1 | 1.0 | " | 33.3 | ND | 90.2 | 27-151 | 0.432 | 25 | |
| Ethylbenzene | 33.1 | 1.0 | " | 33.1 | ND | 100 | 29-160 | 0.881 | 50 | |
| m,p-Xylene | 61.8 | 2.0 | " | 66.5 | ND | 92.9 | 20-166 | 1.19 | 36 | |
| o-Xylene | 29.6 | 1.0 | " | 32.8 | ND | 90.4 | 33-159 | 1.01 | 26 | |
| Surrogate: 1,2-Dichloroethane-d4 | 15.1 | | " | 13.2 | | 114 | 37-154 | | | |
| Surrogate: Toluene-d8 | 12.8 | | " | 13.3 | | 95.6 | 45-149 | | | |
| Surrogate: 4-Bromofluorobenzene | 12.4 | | " | 13.3 | | 93.1 | 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 Bruns

Reported:
10/08/15 14:24

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

A handwritten signature in black ink, appearing to read 'M. Clement'.

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