

Project: 7239
Document #: 2211163
Date: 01/22/2016



PDC Energy, Inc.
Fourth Quarter 2013 Groundwater Monitoring Summary

January 10, 2014

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 October 31, 2013, groundwater sampling was conducted at two temporary monitoring well locations. Due to insufficient water in BH02, BH03, and BH05, groundwater samples were not collected from these locations. 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 1. The laboratory analytical report is included as Attachment A. Evaluation of fourth quarter analytical results indicates that BTEX concentrations are below COGCC regulatory standards at both sampled locations (BH01 and BH04R).

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. EFR/AS events were not performed during the third and fourth quarters 2013 due to low water levels at the site. A summary of the EFR/AS operational data through the second quarter 2013 is provided in Table 2.

First quarter 2014 groundwater sampling will be conducted during January 2014.

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 |
| 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 | 15.9 |
| 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 |
| 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 | 14.2 |
| 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 |
| 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 ⁽²⁾ | 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 | <1.0 | <1.0 | <1.0 | 16.12 |
| BH04R | 10/31/2013 | <1.0 | <1.0 | <1.0 | 4.1 | 15.77 |

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) |
|--|--------------|----------------|----------------|---------------------|----------------------|-----------------------|
| GW05-BH05 | 4/13/2012 | 510 | 3,400 | 190 | 2,200 | NM |
| BH05 | 7/17/2012 | <1.0 | <1.0 | <1.0 | <1.0 | 13.3 |
| BH05 | 10/1/2012 | <1.0 | <1.0 | <1.0 | <1.0 | 15.6 |
| 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 |
| 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.

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.

ug/L= Micrograms per liter

NR - Not Recorded

NM - Not Measured

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

| Second Quarter 2012 | | | | | |
|-------------------------|---------------------------------|-------------------------------|-------------------------------|---------------------------------|--------------------------|
| Date | EFR Wells | Total EFR/AS Duration (hours) | Approximate Gallons Extracted | AS Wells | Injection Pressure (psi) |
| 5/29/2012 | BH01, BH02, BH03, | 6 | 210 | BH01, BH02, BH03, | 8 |
| 6/13/2012 | BH04, BH05 | 6 | 210 | BH04, BH05 | 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 | | - |



Surface
Drainage

| BH03 | | |
|-----------------|-----------|------------|
| Compound (ug/L) | 7/25/2013 | 10/31/2013 |
| Benzene | DRY | DRY |
| Toluene | DRY | DRY |
| Ethylbenzene | DRY | DRY |
| Total Xylenes | DRY | DRY |

BH-03

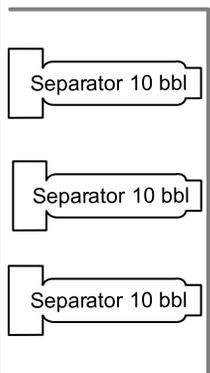
| BH04R | | |
|-----------------|-----------|------------|
| Compound (ug/L) | 7/25/2013 | 10/31/2013 |
| Benzene | 2 | <1.0 |
| Toluene | <1.0 | <1.0 |
| Ethylbenzene | <1.0 | <1.0 |
| Total Xylenes | <1.0 | <1.0 |

BH-04R

BH-04

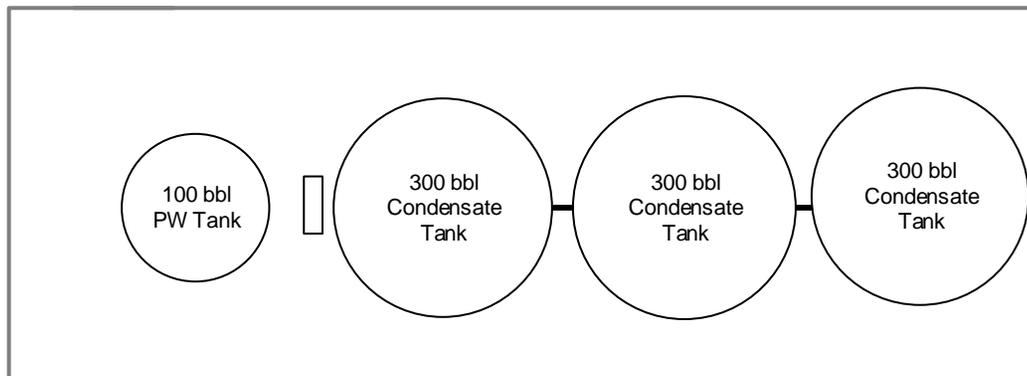
| BH05 | | |
|-----------------|-----------|------------|
| Compound (ug/L) | 7.25/2013 | 10/31/2013 |
| Benzene | DRY | DRY |
| Toluene | DRY | DRY |
| Ethylbenzene | DRY | DRY |
| Total Xylenes | DRY | DRY |

BH-05



BH01

| BH01 | | |
|-----------------|-----------|------------|
| Compound (ug/L) | 7/25/2013 | 10/31/2013 |
| 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) | 7/25/2013 | 10/31/2013 |
| Benzene | DRY | DRY |
| Toluene | DRY | DRY |
| Ethylbenzene | DRY | DRY |
| Total Xylenes | DRY | DRY |

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

DRAWN BY: BAM

DATE: 11/20/2013

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



FIGURE 1
GROUNDWATER
ANALYTICAL RESULTS
MAP
Not to Scale

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 07, 2013

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 10/31/13 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'BS', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury

President / Laboratory Manager



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:
11/07/13 18:17

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|----------------|----------------|
| BH01 | R310333-01 | Water | 10/31/13 14:30 | 10/31/13 17:00 |
| BH04R | R310333-02 | Water | 10/31/13 14:35 | 10/31/13 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:
 11/07/13 18:17

BH01
R310333-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/31/13 14:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 3110508 | 11/06/13 | 11/06/13 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 1.0 | " | " | " | " | " | " | |

Date Sampled: **10/31/13 14:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 105 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 98.9 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 100 % | 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:
 11/07/13 18:17

BH04R
R310333-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/31/13 14:35**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---------------------|------------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 3110508 | 11/06/13 | 11/06/13 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 4.1 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 1.0 | " | " | " | " | " | " | |

Date Sampled: **10/31/13 14:35**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | 104 % | 37-154 | | " | " | " | " | |
| <i>Surrogate: Toluene-d8</i> | | 99.9 % | 45-149 | | " | " | " | " | |
| <i>Surrogate: 4-Bromofluorobenzene</i> | | 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:
11/07/13 18:17

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 3110508 - EPA 5030 Water MS

Blank (3110508-BLK1)

Prepared & Analyzed: 11/05/13

| | | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|--------|--|--|--|--|--|
| Benzene | ND | 1.0 | ug/l | | | | | | | | |
| Toluene | ND | 1.0 | " | | | | | | | | |
| Ethylbenzene | ND | 1.0 | " | | | | | | | | |
| Xylenes (total) | ND | 1.0 | " | | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.6 | | " | 13.2 | 102 | 37-154 | | | | | |
| Surrogate: Toluene-d8 | 13.0 | | " | 13.3 | 97.7 | 45-149 | | | | | |
| Surrogate: 4-Bromofluorobenzene | 13.3 | | " | 13.3 | 100 | 45-146 | | | | | |

LCS (3110508-BS1)

Prepared & Analyzed: 11/05/13

| | | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|--------|--|--|--|--|--|
| Benzene | 32.9 | 1.0 | ug/l | 33.3 | 98.7 | 51-132 | | | | | |
| Toluene | 33.6 | 1.0 | " | 33.3 | 101 | 51-138 | | | | | |
| Ethylbenzene | 34.7 | 1.0 | " | 33.3 | 104 | 58-146 | | | | | |
| m,p-Xylene | 67.7 | 2.0 | " | 66.7 | 102 | 57-144 | | | | | |
| o-Xylene | 33.1 | 1.0 | " | 33.3 | 99.2 | 53-146 | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.6 | | " | 13.2 | 102 | 37-154 | | | | | |
| Surrogate: Toluene-d8 | 13.4 | | " | 13.3 | 100 | 45-149 | | | | | |
| Surrogate: 4-Bromofluorobenzene | 13.1 | | " | 13.3 | 98.0 | 45-146 | | | | | |

LCS (3110508-BS2)

Prepared & Analyzed: 11/05/13

| | | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|--------|--|--|--|--|--|
| Benzene | 32.9 | 1.0 | ug/l | 33.3 | 98.8 | 51-132 | | | | | |
| Toluene | 33.6 | 1.0 | " | 33.3 | 101 | 51-138 | | | | | |
| Ethylbenzene | 35.3 | 1.0 | " | 33.3 | 106 | 58-146 | | | | | |
| m,p-Xylene | 69.1 | 2.0 | " | 66.7 | 104 | 57-144 | | | | | |
| o-Xylene | 34.0 | 1.0 | " | 33.3 | 102 | 53-146 | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.5 | | " | 13.2 | 102 | 37-154 | | | | | |
| Surrogate: Toluene-d8 | 13.4 | | " | 13.3 | 101 | 45-149 | | | | | |
| Surrogate: 4-Bromofluorobenzene | 13.2 | | " | 13.3 | 98.9 | 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:
11/07/13 18:17

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 3110508 - EPA 5030 Water MS

LCS Dup (3110508-BSD1)

Prepared & Analyzed: 11/05/13

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|--|------|--------|--------|----|--|
| Benzene | 33.1 | 1.0 | ug/l | 33.3 | | 99.3 | 51-132 | 0.606 | 17 | |
| Toluene | 33.6 | 1.0 | " | 33.3 | | 101 | 51-138 | 0.0298 | 17 | |
| Ethylbenzene | 34.9 | 1.0 | " | 33.3 | | 105 | 58-146 | 0.575 | 16 | |
| m,p-Xylene | 68.2 | 2.0 | " | 66.7 | | 102 | 57-144 | 0.721 | 16 | |
| o-Xylene | 33.2 | 1.0 | " | 33.3 | | 99.7 | 53-146 | 0.452 | 15 | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.4 | | " | 13.2 | | 101 | 37-154 | | | |
| Surrogate: Toluene-d8 | 13.5 | | " | 13.3 | | 101 | 45-149 | | | |
| Surrogate: 4-Bromofluorobenzene | 13.0 | | " | 13.3 | | 97.5 | 45-146 | | | |

LCS Dup (3110508-BSD2)

Prepared & Analyzed: 11/05/13

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|--|------|--------|--------|----|--|
| Benzene | 32.9 | 1.0 | ug/l | 33.3 | | 98.7 | 51-132 | 0.152 | 17 | |
| Toluene | 33.6 | 1.0 | " | 33.3 | | 101 | 51-138 | 0.0298 | 17 | |
| Ethylbenzene | 35.6 | 1.0 | " | 33.3 | | 107 | 58-146 | 0.902 | 16 | |
| m,p-Xylene | 69.5 | 2.0 | " | 66.7 | | 104 | 57-144 | 0.649 | 16 | |
| o-Xylene | 34.0 | 1.0 | " | 33.3 | | 102 | 53-146 | 0.0294 | 15 | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.6 | | " | 13.2 | | 103 | 37-154 | | | |
| Surrogate: Toluene-d8 | 13.4 | | " | 13.3 | | 100 | 45-149 | | | |
| Surrogate: 4-Bromofluorobenzene | 13.2 | | " | 13.3 | | 99.2 | 45-146 | | | |

Matrix Spike (3110508-MS1)

Source: R310336-03

Prepared & Analyzed: 11/05/13

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|----|------|--------|--|--|--|
| Benzene | 32.8 | 1.0 | ug/l | 33.3 | ND | 98.6 | 34-141 | | | |
| Toluene | 33.6 | 1.0 | " | 33.3 | ND | 101 | 27-151 | | | |
| Ethylbenzene | 35.3 | 1.0 | " | 33.3 | ND | 106 | 29-160 | | | |
| m,p-Xylene | 68.8 | 2.0 | " | 66.7 | ND | 103 | 20-166 | | | |
| o-Xylene | 33.6 | 1.0 | " | 33.3 | ND | 101 | 33-159 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.6 | | " | 13.2 | | 103 | 37-154 | | | |
| Surrogate: Toluene-d8 | 13.3 | | " | 13.3 | | 100 | 45-149 | | | |
| Surrogate: 4-Bromofluorobenzene | 13.1 | | " | 13.3 | | 98.1 | 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 23-25U & 25BU,14-25U/Scott 24-25U/MVS #1

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
11/07/13 18:17

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 3110508 - EPA 5030 Water MS

| Matrix Spike (3110508-MS2) | | Source: R310336-04 | | | Prepared & Analyzed: 11/05/13 | | | | | | |
|-----------------------------------|------|---------------------------|------|------|--|------|--------|--|--|--|--|
| Benzene | 33.2 | 1.0 | ug/l | 33.3 | ND | 99.7 | 34-141 | | | | |
| Toluene | 33.8 | 1.0 | " | 33.3 | ND | 101 | 27-151 | | | | |
| Ethylbenzene | 35.3 | 1.0 | " | 33.3 | ND | 106 | 29-160 | | | | |
| m,p-Xylene | 69.0 | 2.0 | " | 66.7 | ND | 104 | 20-166 | | | | |
| o-Xylene | 33.2 | 1.0 | " | 33.3 | ND | 99.6 | 33-159 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.6 | | " | 13.2 | | 102 | 37-154 | | | | |
| Surrogate: Toluene-d8 | 13.4 | | " | 13.3 | | 100 | 45-149 | | | | |
| Surrogate: 4-Bromofluorobenzene | 13.1 | | " | 13.3 | | 98.3 | 45-146 | | | | |

| Matrix Spike Dup (3110508-MSD1) | | Source: R310336-03 | | | Prepared & Analyzed: 11/05/13 | | | | | | |
|--|------|---------------------------|------|------|--|------|--------|-------|----|--|--|
| Benzene | 32.6 | 1.0 | ug/l | 33.3 | ND | 97.9 | 34-141 | 0.641 | 32 | | |
| Toluene | 33.4 | 1.0 | " | 33.3 | ND | 100 | 27-151 | 0.626 | 25 | | |
| Ethylbenzene | 35.1 | 1.0 | " | 33.3 | ND | 105 | 29-160 | 0.569 | 50 | | |
| m,p-Xylene | 69.0 | 2.0 | " | 66.7 | ND | 103 | 20-166 | 0.232 | 36 | | |
| o-Xylene | 33.3 | 1.0 | " | 33.3 | ND | 100 | 33-159 | 0.896 | 26 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.9 | | " | 13.2 | | 105 | 37-154 | | | | |
| Surrogate: Toluene-d8 | 13.4 | | " | 13.3 | | 101 | 45-149 | | | | |
| Surrogate: 4-Bromofluorobenzene | 13.1 | | " | 13.3 | | 98.4 | 45-146 | | | | |

| Matrix Spike Dup (3110508-MSD2) | | Source: R310336-04 | | | Prepared & Analyzed: 11/05/13 | | | | | | |
|--|------|---------------------------|------|------|--|------|--------|--------|----|--|--|
| Benzene | 32.9 | 1.0 | ug/l | 33.3 | ND | 98.8 | 34-141 | 0.937 | 32 | | |
| Toluene | 33.8 | 1.0 | " | 33.3 | ND | 101 | 27-151 | 0.0296 | 25 | | |
| Ethylbenzene | 35.6 | 1.0 | " | 33.3 | ND | 107 | 29-160 | 1.04 | 50 | | |
| m,p-Xylene | 69.8 | 2.0 | " | 66.7 | ND | 105 | 20-166 | 1.04 | 36 | | |
| o-Xylene | 34.0 | 1.0 | " | 33.3 | ND | 102 | 33-159 | 2.29 | 26 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.4 | | " | 13.2 | | 101 | 37-154 | | | | |
| Surrogate: Toluene-d8 | 13.4 | | " | 13.3 | | 100 | 45-149 | | | | |
| Surrogate: 4-Bromofluorobenzene | 13.2 | | " | 13.3 | | 99.2 | 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:
11/07/13 18:17

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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