

PDC Energy, Inc.
Third Quarter 2017 Groundwater Monitoring Summary

October 30, 2017

Former Ursula #2 Tank Battery
NENE Section 28 T2N R66W
Weld County, API # 05-123-09920
Facility # 441395
Remediation # 9281

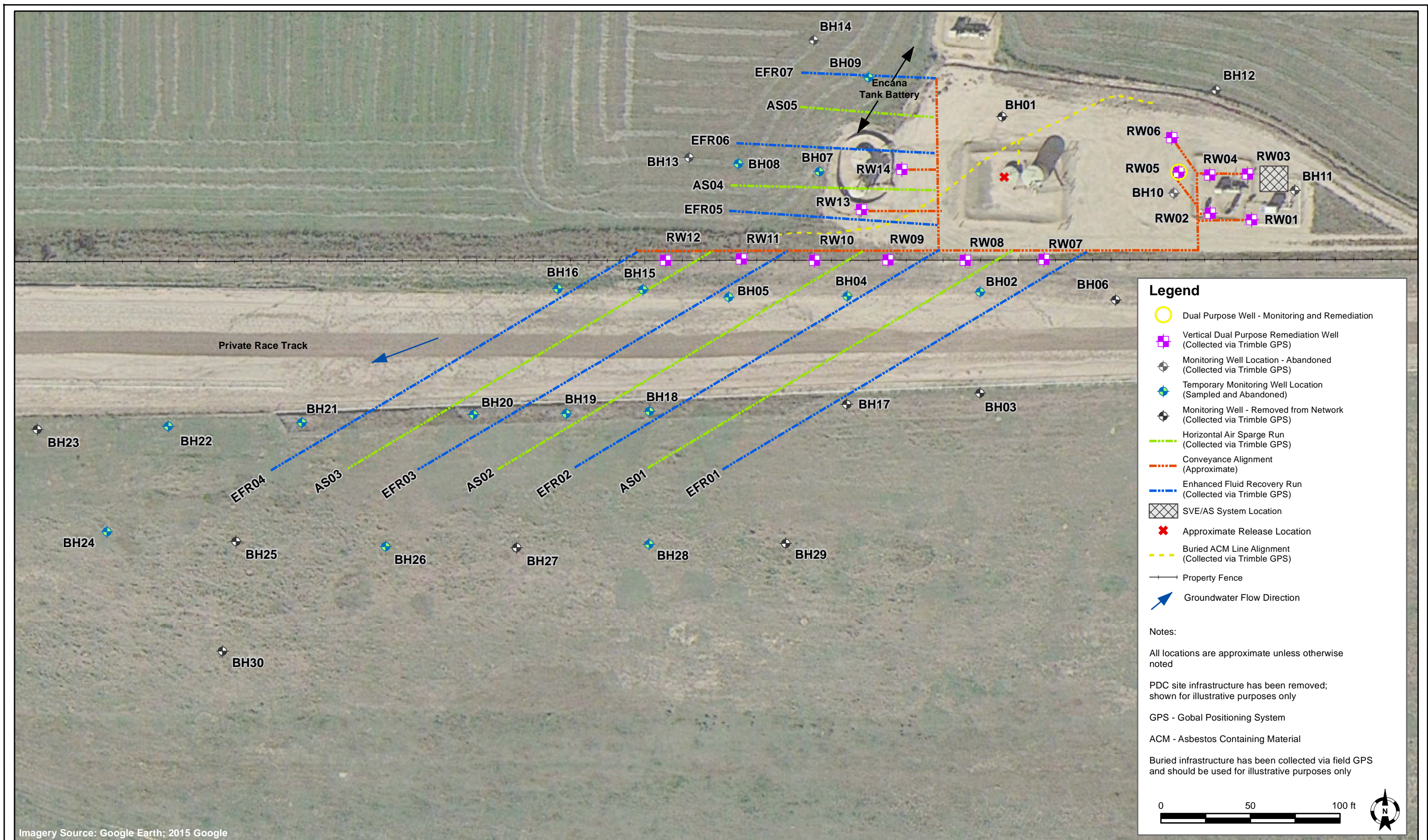
This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the former Ursula #2 tank battery. On September 18, 2017, groundwater monitoring was conducted at seventeen (17) temporary groundwater monitoring locations (BH02, BH04, BH05, BH07 – BH09, BH13, BH15, BH16, BH18 – BH22, BH24, BH26, and BH28) and one remediation well (RW05). All seventeen temporary monitoring wells were installed using a hand-auger, in active ranch or cropland. Temporary well casing was installed at each location and wells were purged, sampled, and subsequently abandoned. GPS points of the temporary wells were collected to ensure groundwater sample locations remain consistent between quarters. Monitoring wells BH01, BH03, BH06, BH10-BH12, BH14, BH17, BH23, BH25, BH27, BH29, and BH30 were previously removed from the monitoring well network and consequently not sampled. Eighteen (18) groundwater samples were submitted to Summit Scientific Laboratory for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by 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. Third quarter 2017 analytical results indicate that BTEX concentrations are above applicable COGCC Table 910-1 groundwater standards in eight temporary monitoring wells (BH04, BH05, BH07, BH15, BH18, BH19, BH20, and BH21). BTEX concentrations are below COGCC regulatory standards in the remaining ten sample locations.

Three mobile enhanced fluid recovery (EFR) and air sparge (AS) events were conducted on site during third quarter 2016. A summary of the mobile EFR/AS operational data is provided in Table 2.

Between June 13 and June 27, 2016, a soil vapor extraction (SVE)/AS remediation system was installed on site to address remaining hydrocarbon impacts in soil and groundwater. The remediation system became operational on September 22, 2016. Operation and maintenance activities are conducted on a monthly basis. The remediation well network is illustrated on Figure 2. Volatile organic compound (VOC) are collected from the system effluent on a monthly basis, in order to monitor performance and calculate the total contaminant mass removed. During the third quarter 2017, 9.51 pounds of hydrocarbon mass were removed. A total of 235.53 pounds of hydrocarbon mass have been removed by the SVE system since system start-up. Operation of

the SVE/AS remediation system will continue as the selected remediation strategy through the fourth quarter 2017.

Fourth quarter 2017 groundwater sampling will be conducted during December 2017.



| | |
|--------------|--------------|
| DATE: | October 2017 |
| DESIGNED BY: | C. Hamlin |
| DRAWN BY: | D. Arnold |



PDC Energy, Inc. - DJ Basin
Ursula #2 Tank Battery
 NENE Section 28, Township 2 North, Range 66 West
 Weld County, Colorado

**REMEDIA-
TION
SYSTEM LAYOUT
AND WELL
LOCATION MAP**

**Figure
2**

TABLE 1
FORMER URSULA #2 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

| Sample Location ID | Date Sampled | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | Depth to Water ⁽²⁾ (feet) |
|---|--|----------------|----------------|---------------------|----------------------|--------------------------------------|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |
| GW01 | 3/23/2015 | 800 | <1.0 | 750 | 420 | ~ 6 |
| GW01 | 10/29/2015 | 1.1 | <1.0 | <1.0 | 27 | ~ 7 |
| GW02 | 10/29/2015 | 3.2 | <1.0 | 16 | 180 | ~ 7 |
| GW03 | 11/13/2015 | 21 | <1.0 | 260 | 3,600 | ~ 7 |
| GW03-R | 11/18/2015 | <1.0 | <1.0 | 11 | 61 | ~ 7 |
| GW04 | 11/18/2015 | <1.0 | <1.0 | <1.0 | 2.6 | ~ 7 |
| GW05 | 11/22/2015 | 3.3 | <1.0 | 55 | 250 | ~ 7 |
| GW06 | 12/1/2015 | <1.0 | <1.0 | 42 | 8.2 | ~ 7 |
| GW07 | 12/9/2015 | <1.0 | <1.0 | 1.3 | 3.2 | ~ 7 |
| GW08 | 12/16/2015 | <1.0 | <1.0 | 10 | 130 | ~ 7 |
| BH01 | 4/6/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.53 |
| BH01 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH02 | 4/6/2015 | 24 | <1.0 | 1,600 | 13,000 | 7.02 |
| BH02 | 9/21/2016 | 11 | <1.0 | 810 | 4,300 | 7.63 |
| BH02 | 12/13/2016 | <1.0 | <1.0 | 30 | 160 | 6.96 |
| BH02 | 3/29/2017 | 5.5 | <1.0 | 10 | 19,000 | 7.41 |
| BH02 | 6/15/2017 | 2.7 | <1.0 | 77 | 11,000 | 7.55 |
| BH02 | 9/18/2017 | 1.4 | <1.0 | 140 | 290 | 9.12 |
| BH03 | 4/6/2015 | <1.0 | <1.0 | <1.0 | 5.0 | 7.78 |
| BH03 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH04 | 4/6/2015 | 1,100 | 6.4 | 920 | 8,900 | 6.99 |
| BH04 | 9/21/2016 | 2,000 | 11 | 1,700 | 18,000 | 7.28 |
| BH04 | 12/13/2016 | 2,600 | 9.3 | 1,400 | 19,000 | 5.76 |
| BH04 | 3/29/2017 | 1,500 | 9.1 | 630 | 18,000 | 6.31 |
| BH04 | 6/15/2017 | 850 | 5.2 | 1,200 | 11,000 | 5.54 |
| BH04 | 9/18/2017 | 1,000 | 7.5 | 1,500 | 5,400 | 6.50 |
| BH05 | 4/6/2015 | 1,100 | 7.0 | 1,200 | 9,400 | 9.23 |
| BH05 | 9/21/2016 | 1,700 | 980 | 1,300 | 18,000 | 7.02 |
| BH05 | 12/13/2016 | 1,200 | 7.4 | 1,200 | 15,000 | 5.44 |
| BH05 | 3/29/2017 | 1,300 | 10 | 890 | 24,000 | 6.37 |

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| Sample Location ID | Date Sampled | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | Depth to Water ⁽²⁾ (feet) |
|---|--|----------------|----------------|---------------------|----------------------|--------------------------------------|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |
| BH05 | 6/15/2017 | 1,100 | 6.8 | 1,000 | 14,000 | 4.45 |
| BH05 | 9/18/2017 | 250 | 1.7 | 270 | 4,500 | 5.88 |
| BH06 | 4/6/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 7.75 |
| BH06 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH07 | 4/6/2015 | 450 | <1.0 | 12 | 540 | 6.69 |
| BH07 | 9/21/2016 | 1,500 | <1.0 | 260 | 720 | 7.16 |
| BH07 | 12/13/2016 | 670 | <1.0 | 70 | 210 | 5.33 |
| BH07 | 3/29/2017 | 650 | <1.0 | <1.0 | 3,500 | 5.80 |
| BH07 | 6/15/2017 | 170 | <1.0 | 68 | 240 | 5.07 |
| BH07 | 9/18/2017 | 280 | <1.0 | <1.0 | 650 | 5.75 |
| BH08 | 4/6/2015 | 15 | <1.0 | 4.0 | 3.5 | 5.20 |
| BH08 | 9/21/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 7.50 |
| BH08 | 12/13/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 5.29 |
| BH08 | 3/29/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.54 |
| BH08 | 6/15/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 4.90 |
| BH08 | 9/18/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.56 |
| BH09 | 4/6/2015 | 28 | 200 | 130 | 2,700 | 6.00 |
| BH09 | 9/21/2016 | <1.0 | <1.0 | 240 | 3,000 | 7.30 |
| BH09 | 12/13/2016 | <1.0 | 10 | 200 | 3,400 | 5.95 |
| BH09 | 3/29/2017 | <1.0 | <1.0 | <1.0 | 64 | 6.33 |
| BH09 | 6/15/2017 | <1.0 | <1.0 | 55 | 340 | 5.50 |
| BH09 | 9/18/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 6.37 |
| BH10 | 4/6/2015 | 2.5 | 1.6 | 2.5 | 5.0 | 8.81 |
| BH10 | 9/21/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 9.13 |
| BH10 | 12/13/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 7.45 |
| BH10 ⁽³⁾ | 3/29/2017 | Abandoned | | | | |
| BH11 | 4/10/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 8.03 |
| BH11 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH12 | 4/10/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 9.16 |

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|---|--|----------------|----------------|---------------------|----------------------|--------------------------------------|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |
| BH12 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH13 | 4/10/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 4.71 |
| BH13 | 9/21/2016 | <1.0 | <1.0 | 3.3 | 2.2 | 7.91 |
| BH13 | 12/13/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 4.93 |
| BH13 | 3/29/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.17 |
| BH13 | 6/15/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 4.14 |
| BH13 | 9/18/2017 | <1.0 | <1.0 | <1.0 | 2.0 | 5.41 |
| BH14 | 4/10/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 5.53 |
| BH14 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH15 | 2/15/2016 | 520 | <1.0 | 1,200 | 620 | 6.81 |
| BH15 | 9/21/2016 | 1,000 | <1.0 | 1,200 | 12,000 | 7.22 |
| BH15 | 12/13/2016 | 88 | <1.0 | 250 | 1,800 | 5.31 |
| BH15 | 3/29/2017 | 1,800 | <1.0 | 3,700 | 41,000 | 5.97 |
| BH15 | 6/15/2017 | 500 | 1.7 | 1,200 | 9,400 | 5.21 |
| BH15 | 9/18/2017 | 290 | <1.0 | 970 | 4,100 | 6.02 |
| BH16 | 2/15/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 6.76 |
| BH16 | 9/21/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 7.57 |
| BH16 | 12/13/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 5.05 |
| BH16 | 3/29/2017 | <1.0 | <1.0 | <1.0 | 1,200 | 5.51 |
| BH16 | 6/15/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 4.37 |
| BH16 | 9/18/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.28 |
| BH17 | 2/15/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 7.74 |
| BH17 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH18 | 2/15/2016 | 100 | 44 | 140 | 4,200 | 7.29 |
| BH18 | 9/21/2016 | 740 | <1.0 | 840 | 7,200 | 7.34 |
| BH18 | 12/13/2016 | 280 | <1.0 | 480 | 4,100 | 5.18 |
| BH18 | 3/29/2017 | 510 | 2.4 | 890 | 19,000 | 5.67 |
| BH18 | 6/15/2017 | 170 | 1.5 | 280 | 7,200 | 4.78 |
| BH18 | 9/18/2017 | 410 | 2.9 | 1,300 | 7,100 | 5.29 |

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| Sample Location ID | Date Sampled | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | Depth to Water ⁽²⁾ (feet) |
|--|--|----------------|----------------|---------------------|----------------------|--------------------------------------|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |
| BH19 | 2/15/2016 | 320 | 210 | 250 | 3,000 | 6.97 |
| BH19 | 9/21/2016 | 750 | 290 | 700 | 16,000 | 7.62 |
| BH19 | 12/13/2016 | 61 | 450 | 280 | 6,900 | 5.70 |
| BH19 | 3/29/2017 | 45 | <1.0 | 11 | 22,000 | 5.53 |
| BH19 | 6/15/2017 | 170 | 45 | 540 | 9,700 | 4.74 |
| BH19 | 9/18/2017 | 160 | <1.0 | 1.3 | 1,800 | 5.51 |
| | | | | | | |
| BH20 | 2/15/2016 | 1,100 | 45 | 340 | 2,600 | 6.84 |
| BH20 | 9/21/2016 | 1,800 | 130 | 100 | 18,000 | 7.64 |
| BH20 | 12/13/2016 | 250 | <1.0 | 5.6 | 2,100 | 5.54 |
| BH20 | 3/29/2017 | 2,300 | 94 | 1,100 | 26,000 | 5.35 |
| BH20 | 6/15/2017 | 1,100 | 12 | 860 | 13,000 | 4.41 |
| BH20 | 9/18/2017 | 930 | 400 | 1,100 | 20,000 | 5.40 |
| | | | | | | |
| BH21 | 2/15/2016 | 34 | <1.0 | 1.7 | 7.1 | 7.19 |
| BH21 | 9/21/2016 | 12 | <1.0 | 13 | 220 | 7.81 |
| BH21 | 12/13/2016 | 79 | <1.0 | <1.0 | <1.0 | 5.85 |
| BH21 | 3/29/2017 | 150 | <1.0 | <1.0 | 1,000 | 5.72 |
| BH21 | 6/15/2017 | <1.0 | <1.0 | 3.1 | 52 | 4.43 |
| BH21 | 9/18/2017 | 5.5 | <1.0 | 2.4 | 45 | 5.41 |
| | | | | | | |
| BH22 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 3.59 |
| BH22 | 9/21/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 7.49 |
| BH22 | 12/13/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 5.42 |
| BH22 | 3/29/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.85 |
| BH22 | 6/15/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 4.42 |
| BH22 | 9/18/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.62 |
| | | | | | | |
| BH23 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 3.79 |
| BH23 | Removed From Monitoring Well Network - June 2016 | | | | | |
| | | | | | | |
| BH24 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 3.64 |
| BH24 | 9/21/2016 | 2.4 | <1.0 | 3.6 | <1.0 | 7.92 |
| BH24 | 12/13/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 5.36 |

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| Sample Location ID | Date Sampled | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | Depth to Water ⁽²⁾ (feet) |
|---|--|----------------|----------------|---------------------|----------------------|--------------------------------------|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |
| BH24 | 3/29/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.92 |
| BH24 | 6/15/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 4.53 |
| BH24 | 9/18/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.49 |
| BH25 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 3.64 |
| BH25 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH26 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 3.40 |
| BH26 | 9/21/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 8.47 |
| BH26 | 12/13/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 5.23 |
| BH26 | 3/29/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.37 |
| BH26 | 6/15/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 4.37 |
| BH26 | 9/18/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.10 |
| BH27 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 3.55 |
| BH27 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH28 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 3.42 |
| BH28 | 9/21/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 7.66 |
| BH28 | 12/13/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 5.02 |
| BH28 | 3/29/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.07 |
| BH28 | 6/15/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 4.36 |
| BH28 | 9/18/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 4.91 |
| BH29 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 3.48 |
| BH29 | Removed From Monitoring Well Network - June 2016 | | | | | |
| BH30 | 2/18/2016 | <1.0 | <1.0 | <1.0 | <1.0 | 2.55 |
| BH30 | Removed From Monitoring Well Network - June 2016 | | | | | |
| RW05 | 3/30/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 6.60 |
| RW05 | 6/15/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 5.88 |
| RW05 | 9/18/2017 | <1.0 | <1.0 | <1.0 | <2.0 | 6.44 |

TABLE 1
FORMER URSULA #2 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

| Sample Location ID | Date Sampled | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | Depth to Water ⁽²⁾ (feet) |
|--|--------------|----------------|----------------|---------------------|----------------------|--------------------------------------|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective January 30, 2015.
2. Depth to water measurements collected prior to fourth quarter 2016 were measured from top of casing or ground surface for monitoring well samples and excavation samples respectively. Subsequent monitoring well measurements and stick-ups were collected from top of casing and used to adjust water levels to reflect depth of water from ground surface.
3. Temporary well not installed due to hand auger refusal; RW05 installed adjacent as replacement well.

COGCC = Colorado Oil and Gas Conservation Commission

µg/L= Micrograms per liter

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

TABLE 2
FORMER URSULA 2 TANK BATTERY
EFR / AS OPERATIONAL SUMMARY TABLE

| Date | EFR Wells | Total EFR/AS Duration (hours) | Approximate Gallons Extracted | Air Sparge Wells | Air Injection Pressure (psi) | Average Air Flow Rate (cfm) |
|--------------------------------|--|-------------------------------|-------------------------------|------------------------------|------------------------------|-----------------------------|
| Third Quarter 2016 Data | | | | | | |
| 7/15/2016 | RW03, RW08, RW10, RW12, RW14 | 6 | 1260 | RW04, RW07, RW09, RW11, RW13 | 20 | 21 |
| 7/29/2016 | EFR01, EFR02, EFR03, EFR04, EFR06, EFR07 | 6 | 210 | AS02, AS03, AS04, AS05 | 20 | 10 |
| 8/11/2016 | RW06, RW09, RW10, RW12, RW14 | 6 | 1470 | RW04, RW05, RW08, RW11, RW13 | 20 | 14 |
| Totals | | 18 | 2940 | | - | - |

Notes:

EFR = Enhanced fluid recovery

AS = Air sparge

psi = Pounds per square inch

cfm = Cubic feet per minute

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 22, 2017

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Ursula 2

Enclosed are the results of analyses for samples received by Summit Scientific on 09/18/17 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 'Ben Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
Laboratory Manager



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

Project: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|----------------|----------------|
| BH02 | 1709158-01 | Water | 09/18/17 12:04 | 09/18/17 17:00 |
| BH04 | 1709158-02 | Water | 09/18/17 12:00 | 09/18/17 17:00 |
| BH05 | 1709158-03 | Water | 09/18/17 11:55 | 09/18/17 17:00 |
| BH07 | 1709158-04 | Water | 09/18/17 12:40 | 09/18/17 17:00 |
| BH08 | 1709158-05 | Water | 09/18/17 13:00 | 09/18/17 17:00 |
| BH09 | 1709158-06 | Water | 09/18/17 13:05 | 09/18/17 17:00 |
| BH13 | 1709158-07 | Water | 09/18/17 12:51 | 09/18/17 17:00 |
| BH15 | 1709158-08 | Water | 09/18/17 11:45 | 09/18/17 17:00 |
| BH16 | 1709158-09 | Water | 09/18/17 11:41 | 09/18/17 17:00 |
| BH18 | 1709158-10 | Water | 09/18/17 10:50 | 09/18/17 17:00 |
| BH19 | 1709158-11 | Water | 09/18/17 11:04 | 09/18/17 17:00 |
| BH20 | 1709158-12 | Water | 09/18/17 11:01 | 09/18/17 17:00 |
| BH21 | 1709158-13 | Water | 09/18/17 11:09 | 09/18/17 17:00 |
| BH22 | 1709158-14 | Water | 09/18/17 11:15 | 09/18/17 17:00 |
| BH24 | 1709158-15 | Water | 09/18/17 10:29 | 09/18/17 17:00 |
| BH26 | 1709158-16 | Water | 09/18/17 10:40 | 09/18/17 17:00 |
| BH28 | 1709158-17 | Water | 09/18/17 10:40 | 09/18/17 17:00 |
| RW05 | 1709158-18 | Water | 09/18/17 12:37 | 09/18/17 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.

Summit Scientific

1709158.1

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

Page 4 of 2

Client: PDC / Tasman Geosciences
Address: 6899 Pecos St, Unit C
City/State/Zip: Denver, CO 80221
Phone: 303-487-1228 Fax:
Sampler Name: Max Gatta, Tyler Blessing

Project Manager: Mark Longhurst
E-Mail: mark.longhurst@pdce.com
Project Name: Ursala #2
Project Number: N/A

| 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) | BTEX - 8260 | | | | | | | | | | | |
| BH02 | 9/18/17 | 12:04 | 3 | | | X | | X | | | | X | | | | | | | | | | | |
| BH04 | | 12:00 | | | | | | | | | | | | | | | | | | | | | |
| BH05 | | 11:55 | | | | | | | | | | | | | | | | | | | | | |
| BH07 | | 12:40 | | | | | | | | | | | | | | | | | | | | | |
| BH08 | | 13:00 | | | | | | | | | | | | | | | | | | | | | |
| BH09 | | 13:05 | | | | | | | | | | | | | | | | | | | | | |
| BH13 | | 12:51 | | | | | | | | | | | | | | | | | | | | | |
| BH15 | | 11:45 | | | | | | | | | | | | | | | | | | | | | |
| BH16 | | 11:41 | | | | | | | | | | | | | | | | | | | | | |
| BH18 | | 10:50 | | | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|-----------------------------------|--------------------------------|------------------------|--------------------------------|--|-----------------------------|
| Relinquished by: <u>Max Gatta</u> | Date/Time: <u>9/18/17 1700</u> | Received by: <u>MB</u> | Date/Time: <u>9/18/17 1700</u> | Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/> | Notes: <u>on ice</u> |
| Relinquished by: | Date/Time: | Received by: | Date/Time: | Sample Integrity: Temperature Upon Receipt: <u>7.1°C</u> Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| Relinquished by: | Date/Time: | Received in Lab by: | Date/Time: | | |

Summit Scientific

1709158.2

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

Page 2 of 2

Client: PDC / Tasman Geosciences
Address: 6899 Pecos St, Unit C
City/State/Zip: Denver, CO 80221
Phone: 303-487-1228 Fax:
Sampler Name: *Max Garcia, Tyler Blessing*

Project Manager: Mark Longhurst
E-Mail: mark.longhurst@pdce.com
Project Name: *Ulysses #2*
Project Number: N/A

| 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) | BTEX - 8260 | | | | | | | | | | | | |
| BH19 | 9/18/17 | 11:04 | 3 | | | X | | X | | | | X | | | | | | | | | | | | |
| BH20 | | 11:07 | | | | X | | X | | | | X | | | | | | | | | | | | |
| BH21 | | 11:09 | | | | X | | X | | | | X | | | | | | | | | | | | |
| BH22 | | 11:15 | | | | X | | X | | | | X | | | | | | | | | | | | |
| BH24 | | 10:29 | | | | X | | X | | | | X | | | | | | | | | | | | |
| BH26 | | 10:40 | | | | X | | X | | | | X | | | | | | | | | | | | |
| BH28 | | 10:40 | | | | X | | X | | | | X | | | | | | | | | | | | |
| RW05 | | 12:37 | | | | X | | X | | | | X | | | | | | | | | | | | |

| | | | | | | |
|------------------------------------|-------------------------|---------------------------------|-------------------------|--|---|-----------------------------|
| Relinquished by: <i>Max Garcia</i> | Date/Time: 9/18/17 1700 | Received by: <i>[Signature]</i> | Date/Time: 9/18/17 1700 | Turn Around Time (Check) Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> | 72 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> | Notes: <i>on ice</i> |
| Relinquished by: | Date/Time: | Received by: | Date/Time: | Sample Integrity: Temperature Upon Receipt: <i>7.1°C</i> Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Relinquished by: | Date/Time: | Received in Lab by: | Date/Time: | | | |

1709158

Sample Receipt Checklist

S2 Work Order: _____

Client: PDC/TasmanClient Project ID: Ursula #2Shipped Via: R/V
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

Matrix (check all that apply): ☐ Air ☐ Soil/Solid ☒ Water ☐ Other: _____
(Describe)

| | | | | | |
|-----------|-----|--|--|--|--|
| Cooler ID | | | | | |
| Temp (°C) | 7.1 | | | | |

Thermometer ID: 61857155-K

| | Yes | No | N/A | Comments (if any) |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------|
| If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 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 type="checkbox"/> | <input checked="" 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⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 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. | | | | |

Nakita
Custodian Printed Name[Signature]
Signature or Initials of Custodian9/18/17 1740
Date/Time



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

Project: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH02
1709158-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 12:04**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 1.4 | 1.0 | ug/l | 1 | 1709188 | 09/19/17 | 09/22/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 140 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 290 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 12:04**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 109 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 98.0 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 123 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH04
1709158-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 12:00**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 1000 | 100 | ug/l | 100 | 1709188 | 09/19/17 | 09/21/17 | EPA 8260B | |
| Toluene | 7.5 | 1.0 | " | 1 | " | " | 09/22/17 | " | |
| Ethylbenzene | 1500 | 100 | " | 100 | " | " | 09/21/17 | " | |
| Xylenes (total) | 5400 | 2.0 | " | 1 | " | " | 09/22/17 | " | |

Date Sampled: **09/18/17 12:00**

| 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> | | 97.9 % | 45-149 | | " | " | " | " | |
| <i>Surrogate: 4-Bromofluorobenzene</i> | | 116 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH05
1709158-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 11:55**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 250 | 1.0 | ug/l | 1 | 1709188 | 09/19/17 | 09/22/17 | EPA 8260B | |
| Toluene | 1.7 | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 270 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 4500 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 11:55**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | 102 % | 37-154 | | " | " | " | " | |
| <i>Surrogate: Toluene-d8</i> | | 102 % | 45-149 | | " | " | " | " | |
| <i>Surrogate: 4-Bromofluorobenzene</i> | | 104 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH07
1709158-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 12:40**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 280 | 1.0 | ug/l | 1 | 1709188 | 09/19/17 | 09/22/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 650 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 12:40**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 97.3 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 100 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 117 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH08
1709158-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 13:00**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 13:00**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 99.5 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 97.3 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 97.2 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH09
1709158-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 13:05**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/19/17 | 09/22/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 13:05**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 105 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 96.9 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 94.9 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH13
1709158-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 12:51**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 2.0 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 12:51**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 101 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 98.0 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 94.5 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH15
1709158-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 11:45**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 290 | 1.0 | ug/l | 1 | 1709188 | 09/19/17 | 09/22/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 970 | 100 | " | 100 | " | " | 09/21/17 | " | |
| Xylenes (total) | 4100 | 2.0 | " | 1 | " | " | 09/22/17 | " | |

Date Sampled: **09/18/17 11:45**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 103 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 97.7 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 140 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH16
1709158-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 11:41**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 11:41**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 101 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 95.3 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 99.0 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH18
1709158-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 10:50**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 410 | 100 | ug/l | 100 | 1709188 | 09/19/17 | 09/21/17 | EPA 8260B | |
| Toluene | 2.9 | 1.0 | " | 1 | " | " | 09/22/17 | " | |
| Ethylbenzene | 1300 | 100 | " | 100 | " | " | 09/21/17 | " | |
| Xylenes (total) | 7100 | 2.0 | " | 1 | " | " | 09/22/17 | " | |

Date Sampled: **09/18/17 10:50**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | 101 % | 37-154 | | " | " | " | " | |
| <i>Surrogate: Toluene-d8</i> | | 93.9 % | 45-149 | | " | " | " | " | |
| <i>Surrogate: 4-Bromofluorobenzene</i> | | 153 % | 45-146 | | " | " | " | " | S-02 |

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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH19
1709158-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 11:04**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|-------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 160 | 1.0 | ug/l | 1 | 1709188 | 09/19/17 | 09/22/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 1.3 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 1800 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 11:04**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 100 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 99.4 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 118 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH20
1709158-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 11:01**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|--------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 930 | 100 | ug/l | 100 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | 400 | 100 | " | " | " | " | " | " | |
| Ethylbenzene | 1100 | 100 | " | " | " | " | " | " | |
| Xylenes (total) | 20000 | 200 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 11:01**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | 103 % | 37-154 | | " | " | " | " | |
| <i>Surrogate: Toluene-d8</i> | | 101 % | 45-149 | | " | " | " | " | |
| <i>Surrogate: 4-Bromofluorobenzene</i> | | 99.2 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH21
1709158-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 11:09**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------|------------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | 5.5 | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | 2.4 | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | 45 | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 11:09**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 99.8 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 99.4 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH22
1709158-14 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 11:15**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 11:15**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 100 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 97.7 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 96.5 % | 45-146 | | " | " | " | " | |

Summit Scientific

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

Project: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH24
1709158-15 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 10:29**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 10:29**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 102 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 96.4 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 95.7 % | 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: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH26
1709158-16 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 10:40**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 10:40**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 98.7 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 96.6 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 95.1 % | 45-146 | | " | " | " | " | |

Summit Scientific

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

Project: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

BH28
1709158-17 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 10:40**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 10:40**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 98.9 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 96.7 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 94.8 % | 45-146 | | " | " | " | " | |

Summit Scientific

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

Project: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

RW05
1709158-18 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/18/17 12:37**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------|--------|--------------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 1.0 | ug/l | 1 | 1709188 | 09/21/17 | 09/21/17 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **09/18/17 12:37**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|--------------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 102 % | 37-154 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 96.9 % | 45-149 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 93.0 % | 45-146 | | " | " | " | " | |

Summit Scientific

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

Project: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

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 1709188 - EPA 5030 Water MS

Blank (1709188-BLK1)

Prepared & Analyzed: 09/20/17

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|--------|--|--|--|--|
| Benzene | ND | 1.0 | ug/l | | | | | | | |
| Toluene | ND | 1.0 | " | | | | | | | |
| Ethylbenzene | ND | 1.0 | " | | | | | | | |
| Xylenes (total) | ND | 2.0 | " | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.8 | | " | 13.3 | 103 | 37-154 | | | | |
| Surrogate: Toluene-d8 | 12.4 | | " | 13.3 | 93.2 | 45-149 | | | | |
| Surrogate: 4-Bromofluorobenzene | 12.2 | | " | 13.3 | 91.9 | 45-146 | | | | |

LCS (1709188-BS1)

Prepared & Analyzed: 09/20/17

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|--------|--|--|--|--|
| Benzene | 26.7 | 1.0 | ug/l | 33.3 | 80.1 | 51-132 | | | | |
| Toluene | 31.4 | 1.0 | " | 33.3 | 94.2 | 51-138 | | | | |
| Ethylbenzene | 33.4 | 1.0 | " | 33.1 | 101 | 58-146 | | | | |
| m,p-Xylene | 65.8 | 2.0 | " | 66.5 | 99.0 | 57-144 | | | | |
| o-Xylene | 32.2 | 1.0 | " | 32.7 | 98.4 | 53-146 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 14.2 | | " | 13.3 | 107 | 37-154 | | | | |
| Surrogate: Toluene-d8 | 13.2 | | " | 13.3 | 99.2 | 45-149 | | | | |
| Surrogate: 4-Bromofluorobenzene | 12.9 | | " | 13.3 | 97.0 | 45-146 | | | | |

Matrix Spike (1709188-MS1)

Source: 1709155-01

Prepared & Analyzed: 09/21/17

| | | | | | | | | | | |
|----------------------------------|------|-----|------|------|------|--------|--------|--|--|--|
| Benzene | 27.1 | 1.0 | ug/l | 33.3 | ND | 81.2 | 34-141 | | | |
| Toluene | 32.6 | 1.0 | " | 33.3 | ND | 97.8 | 27-151 | | | |
| Ethylbenzene | 34.8 | 1.0 | " | 33.1 | ND | 105 | 29-160 | | | |
| m,p-Xylene | 68.7 | 2.0 | " | 66.5 | ND | 103 | 20-166 | | | |
| o-Xylene | 33.5 | 1.0 | " | 32.7 | ND | 103 | 33-159 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 12.7 | | " | 13.3 | 95.3 | 37-154 | | | | |
| Surrogate: Toluene-d8 | 13.5 | | " | 13.3 | 101 | 45-149 | | | | |
| Surrogate: 4-Bromofluorobenzene | 13.1 | | " | 13.3 | 98.6 | 45-146 | | | | |

Summit Scientific

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

Project: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

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 1709188 - EPA 5030 Water MS

| Matrix Spike Dup (1709188-MSD1) | Source: 1709155-01 | | | Prepared & Analyzed: 09/21/17 | | | | | | |
|----------------------------------|--------------------|-----|------|-------------------------------|----|------|--------|------|----|-------|
| Benzene | 6.31 | 1.0 | ug/l | 33.3 | ND | 18.9 | 34-141 | 124 | 32 | QM-07 |
| Toluene | 10.9 | 1.0 | " | 33.3 | ND | 32.8 | 27-151 | 99.5 | 25 | QM-07 |
| Ethylbenzene | 31.1 | 1.0 | " | 33.1 | ND | 94.0 | 29-160 | 11.3 | 50 | |
| m,p-Xylene | 61.4 | 2.0 | " | 66.5 | ND | 92.3 | 20-166 | 11.2 | 36 | |
| o-Xylene | 30.2 | 1.0 | " | 32.7 | ND | 92.4 | 33-159 | 10.5 | 26 | |
| Surrogate: 1,2-Dichloroethane-d4 | 13.5 | | " | 13.3 | | 101 | 37-154 | | | |
| Surrogate: Toluene-d8 | 13.1 | | " | 13.3 | | 98.0 | 45-149 | | | |
| Surrogate: 4-Bromofluorobenzene | 13.1 | | " | 13.3 | | 98.4 | 45-146 | | | |

Summit Scientific

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

Project: Ursula 2
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/17 17:09

Notes and Definitions

| | |
|-------|--|
| S-02 | The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract. |
| QM-07 | The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery. |
| 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 |