**PDC Energy, Inc.**

Second Quarter 2020 Groundwater Monitoring Summary

June 3, 2020

Former French 5, 41-4, Sitzman 1 Tank Battery
SWNE Section 4 T5N R64W
Remediation # 15008

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the former French 5, 41-4, Sitzman 1 tank battery. On April 28, 2020, eight monitoring wells (BH01 – BH08) were installed to confirm the absence of dissolved-phase hydrocarbon impacts within and adjacent to the former excavation extent. Lithologic descriptions and volatile organic compound (VOC) concentrations measured using a photoionization detector (PID) were recorded for each monitoring well. Based on field measurements and observations encountered in borehole BH07, soil samples were collected from the interval exhibiting the highest VOC concentration, and the terminus of the boring. Two soil samples were submitted to Summit Scientific Laboratories (Summit) for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, total petroleum hydrocarbons (TPH) – gasoline range organics by EPA Method 8260B, and TPH – diesel range organics (DRO) by EPA Method 8015. Boring and well completion logs are provided in Attachment A.

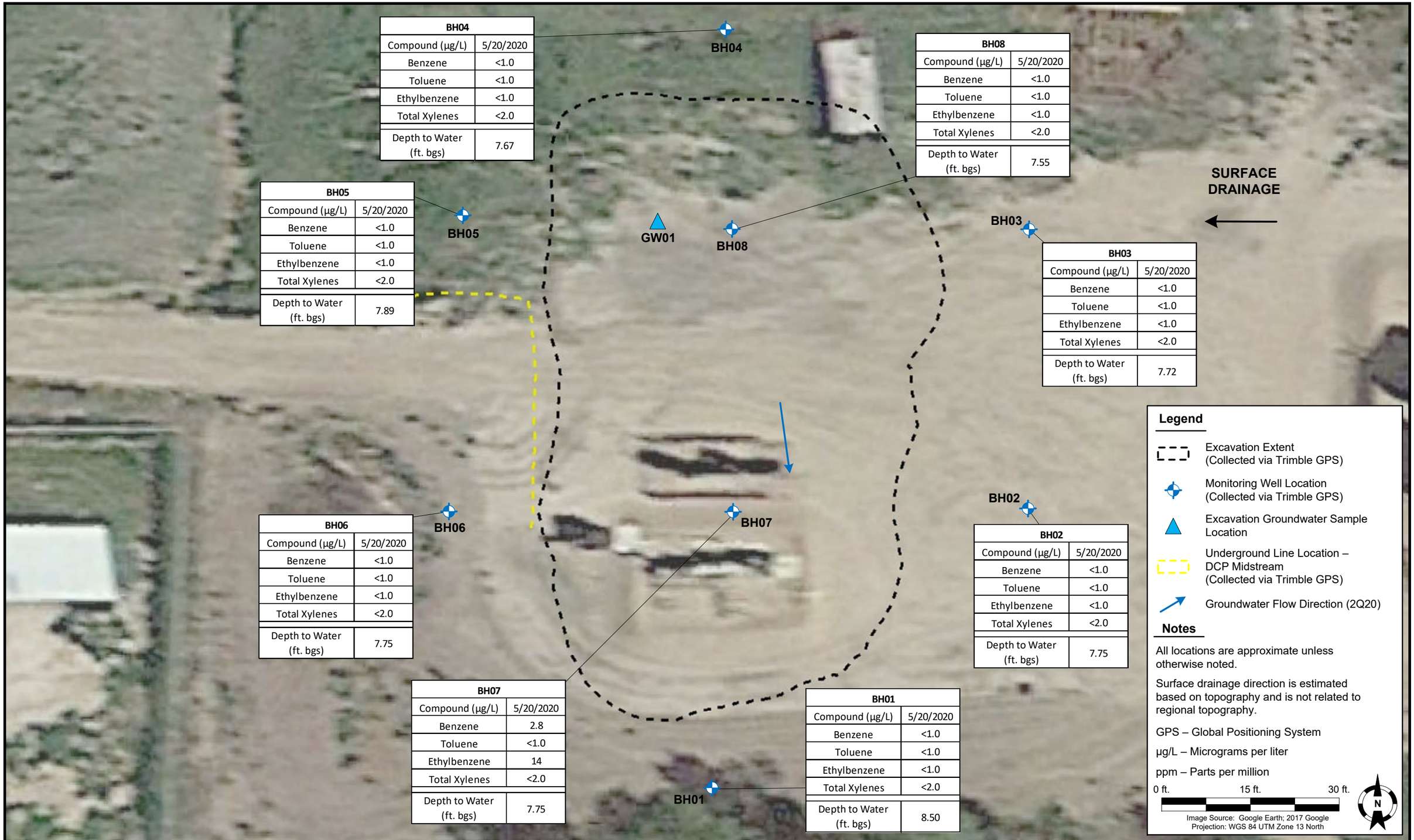
Soil analytical results collected during monitoring well installation activities indicated that organic compound concentrations were below the applicable COGCC Table 910-1 soil standards in all sampled intervals. Soil analytical results are summarized in Table 1 and the laboratory analytical report is included in Attachment B.

On May 20, 2020, groundwater monitoring was conducted at all eight monitoring wells (BH01 – BH08). Eight groundwater samples were submitted to Summit for analysis of BTEX by EPA Method 8260B.

Second quarter 2020 analytical results indicated that BTEX concentrations were below the applicable COGCC Table 910-1 groundwater standards in all eight monitoring well locations. Sample locations and corresponding analytical results are illustrated on Figure 1. Groundwater elevation data is illustrated on Figure 2. Groundwater analytical results are summarized in Table 2. The laboratory analytical report is included in Attachment B.

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the second quarter 2020 and will remain the selected remediation strategy through the third quarter 2020.

Third quarter 2020 groundwater sampling will be conducted in August 2020.




DATE: June 3, 2020

DESIGNED BY: C. Hamlin

DRAWN BY: M. Dahlgren

TASMAN GEOSCIENCES

**Tasman Geosciences, Inc.**
6855 W. 119th Ave
Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**
**Former French 5, 41-4, Sitzman 1 Tank Battery**
SWNE, Section 4, Township 5 North, Range 64 West
Weld County, Colorado

GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 1


| | | | | |
|---|---|---|---|---|
| DATE: May 22, 2020<br>DESIGNED BY: C. Hamlin<br>DRAWN BY: L. Martin | TASMAN GEOSCIENCES<br>**Tasman Geosciences, Inc.**<br>6855 W. 119th Ave<br>Broomfield, CO 80020 | **PDC Energy, Inc. – DJ Basin**<br>**Former French 5, 41-4, Sitzman 1 Tank Battery**<br>SWNE, Section 4, Township 5 North, Range 64 West<br>Weld County, Colorado | GROUNDWATER ELEVATION CONTOUR MAP (05/20/2020) | FIGURE 2 |

**TABLE 1**
**FORMER FRENCH 5, 41-4, SITZMAN 1 TANK BATTERY**
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

| Sample ID | Date Sampled | Depth (ft. bgs) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | Naphthalene (mg/kg) | TPH [2] (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| **COGCC Table 910-1 Soil Standard (mg/kg) [1]** | | | **0.17** | **85** | **100** | **175** | **23** | **500** |
| S01 @ 9' | 3/2/2020 | 9 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S02 @ 5' | 3/2/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S03 @ 8' | 3/2/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S04 @ 5' | 3/2/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S05 @ 8' | 3/2/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S06 @ 5' | 3/2/2020 | 5 | <0.0020 | 0.074 | 0.77 | 1.0 | 0.44 | **3,060** |
| S07 @ 8' | 3/2/2020 | 8 | <0.0020 | 0.016 | 0.35 | 0.078 | 0.27 | **810** |
| S08 @ 9' | 3/3/2020 | 9 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S09 @ 5' | 3/3/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S10 @ 8' | 3/3/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S11 @ 5' | 3/4/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S12 @ 8' | 3/4/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S13 @ 9.5 | 3/4/2020 | 9.5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S14 @ 9.5' | 3/5/2020 | 9.5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S15 @ 5' | 3/5/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S16 @ 8' | 3/5/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S17 @ 5' | 3/5/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S18 @ 8' | 3/5/2020 | 8 | 0.016 | <0.0050 | 0.0072 | 0.070 | <0.010 | 6.3 |
| S19 @ 5' | 3/6/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | 5.8 |
| S20 @ 8' | 3/6/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | 4.9 |
| S21 @ 10' | 3/6/2020 | 10 | <0.0020 | <0.0050 | 0.0065 | <0.010 | 0.017 | 0.93 |
| S22 @ 9' | 3/10/2020 | 9 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S23 @ 11' | 3/10/2020 | 11 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S24 @ 5' | 3/11/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S25 @ 8' | 3/11/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S26 @ 10.5' | 3/11/2020 | 10.5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | 69 |
| S27 @ 5' | 3/11/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S28 @ 8' | 3/11/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | 97 |
| S29 @ 5' | 3/11/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | 15 |
| S30 @ 8' | 3/11/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S31 @ 10.5' | 3/11/2020 | 10.5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S32 @ 5' | 3/11/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S33 @ 8' | 3/11/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | 3.5 |
| S34 @ 5' | 3/12/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S35 @ 8' | 3/12/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S36 @ 11' | 3/12/2020 | 11 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S37 @ 11' | 3/12/2020 | 11 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |
| S38 @ 5' | 3/12/2020 | 5 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | 13 |
| S39 @ 8' | 3/12/2020 | 8 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | 15 |
| | | | | | | | | |
| BH07 @ 10-11' | 4/28/2020 | 10-11 | <0.0020 | <0.0050 | 0.011 | <0.010 | 0.031 | 43 |
| BH07 @ 12-13' | 4/28/2020 | 12-13 | <0.0020 | <0.0050 | <0.0050 | <0.010 | <0.010 | <50 |

**TABLE 1**
**FORMER FRENCH 5, 41-4, SITZMAN 1 TANK BATTERY**
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

| Sample ID | Date Sampled | Depth (ft. bgs) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | Naphthalene (mg/kg) | TPH [2] (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| **COGCC Table 910-1 Soil Standard (mg/kg) [1]** | | | **0.17** | **85** | **100** | **175** | **23** | **500** |

**Notes:**

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.

2. TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

GRO = Total volatile petroleum hydrocarbons - gasoline range organics

DRO = Total extractable petroleum hydrocarbons - diesel range organics

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

**BOLD** = Analytical result is in exceedance of COGCC soil standards.

**TABLE 2**
**FORMER FRENCH 5, 41-4, SITZMAN 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 [2] (ft.) | Groundwater Elevation (ft. AMSL) |
|---|---|---|---|---|---|---|---|
| **COGCC Table 910-1 Groundwater Standard (µg/L) [1]** | | **5** | **560** | **700** | **1,400** | | |
| GW01 | 3/12/2020 | <1.0 | <1.0 | 1.5 | <2.0 | ~8 | NM |
| BH01 | 5/20/2020 | <1.0 | <1.0 | <1.0 | <2.0 | 8.50 | 4614.85 |
| BH02 | 5/20/2020 | <1.0 | <1.0 | <1.0 | <2.0 | 7.75 | 4614.91 |
| BH03 | 5/20/2020 | <1.0 | <1.0 | <1.0 | <2.0 | 7.72 | 4614.96 |
| BH04 | 5/20/2020 | <1.0 | <1.0 | <1.0 | <2.0 | 7.67 | 4615.05 |
| BH05 | 5/20/2020 | <1.0 | <1.0 | <1.0 | <2.0 | 7.89 | 4615.03 |
| BH06 | 5/20/2020 | <1.0 | <1.0 | <1.0 | <2.0 | 7.75 | 4614.94 |
| BH07 | 5/20/2020 | 2.8 | <1.0 | 14 | <2.0 | 7.75 | 4614.86 |
| BH08 | 5/20/2020 | <1.0 | <1.0 | <1.0 | <2.0 | 7.55 | 4614.96 |

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
2. Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

COGCC = Colorado Oil and Gas Conservation Commission
µg/L = Micrograms per liter
(<) = Analytical result is less than the indicated laboratory reporting limit.
ft. = Feet
AMSL = Above Mean Sea Level
NM = Not measured

# ATTACHMENT A

TASMAN GEOSCIENCES

# Borehole Logging Form

| | | |
|---|---|---|
| BOREHOLE ID: BH01 | SITE NAME: Frost 5, 41-4, Stetson 1 | CLIENT NAME: PDC ENERGY |
| Date Completed: 4/28/20 | Location: S ~~Source~~ POC | |
| Drilling Company: Tasman | Surface Completion: Flush Monument DTW: ~8' TD: 13' | |
| Type of Drill: Push Probe | Geologist: M. Dahlgren | Project Manager: C. Hamlin |
| Bit Size 2 3/8" | Logging Method: Macro liner | |
| Well Const. Material: Diameter: 1" Screen: Sch 40 PVC Slotted 0.10 Riser: Sch 40 PVC blank | | |

| Depth (feet) | Well Completion | Sample Type | % Recovery | PID (ppm) | Laboratory Sample | USCS | Description |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | Hand Auger Cleared to 6' |
| 2 | | | | | | | |
| 3 | | HA | 100% | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | Tan S. Ily Sand, moderately Sorted, fine to medium grain, dry, no odor |
| ▽8 | | Macro | 75% | 0.3 | | SM | |
| 9 | | liner | | | | | Same as above, Saturated |
| 10 | | | | | | | |
| 11 | | | 50% | 0.1 | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | X | | | | | | |
| 15 | | | | | | | |
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# Borehole Logging Form

TASMAN GEOSCIENCES

| | | |
|---|---|---|
| BOREHOLE ID: BH02 | SITE NAME: French 5, 41-4, Stzman 1 | CLIENT NAME: PDC ENERGY |
| Date Completed: 4/28/20 | Location: SE PoC | |
| Drilling Company: Tasman | Surface Completion: Flush Mount DTW: 8' TD: 13 | |
| Type of Drill: Push Probe | Geologist: M. Dahlgren | Project Manager: C. Hamlin |
| Bit Size 2 7/8" | Logging Method: Macro liner | |
| Well Const. Material: Diameter: 1" | Screen: Sch 40 PVC Slotted 0.10 | Riser: Sch 40 PVC Blank |

| Depth (feet) | Well Completion | Sample Type | % Recovery | PID (ppm) | Laboratory Sample | USCS | Description |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | Hand Auger cleared to 6' |
| 2 | | | | | | | |
| 3 | | HA | 100% | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | Tan S. Its Sand, Moderately sorted, fine to medium grain, dry, no odor |
| 8 (▽) | | Macro liner | 50% | 0.7 | | SM | |
| 9 | | | | | | | Same as above, saturated |
| 10 | | | | | | | |
| 11 | | | | 1.4 | | | |
| 12 | | | 75% | | | | |
| 13 | | | | 24.1 | | | Grey W/ black staining, Same as above, no odor |
| 14 | K | | | | | | |
| 15 | | | | | | | |
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TASMAN GEOSCIENCES

# Borehole Logging Form

| | | |
|---|---|---|
| BOREHOLE ID: BH03 | SITE NAME: Frech 5,41-4, Stzman 1 | CLIENT NAME: PDC ENERGY |
| Date Completed: 4/28/20 | Location: NE PoC | |
| Drilling Company: Tasman | Surface Completion: | DTW: 8' TD: 13 |
| Type of Drill: Push Probe | Geologist: M. Dahlgren | Project Manager: C. Hamlin |
| Bit Size 2 3/8" | Logging Method: MacroLiner | |
| Well Const. Material: Diameter: 1" | Screen: Sch 40 PVC Slotted 0.10 | Riser: Sch 40 PVC Blank |

| Depth (feet) | Well Completion | Sample Type | % Recovery | PID (ppm) | Laboratory Sample | USCS | Description |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | Hand Auger Cleared to 6' |
| 2 | | | | | | | |
| 3 | | HA | 100% | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | 1.0 | | SM | Tan Silty Sand, Moderately Sorted, fine to medium grain, dry, no odor |
| 8 ▽ | | Macro | 90% | | | | |
| 9 | | liner | | | | | Same as above, Saturated |
| 10 | | | | | | | |
| 11 | | | | 0.7 | | | Same as above, with gray staining |
| 12 | | | 100% | | | | Same as above, tan |
| 13 | | | | 0.4 | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
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# Borehole Logging Form

TASMAN GEOSCIENCES

| | | |
|---|---|---|
| BOREHOLE ID: BH04 | SITE NAME: French 5, 41-4, Stzman 1 | CLIENT NAME: PDC ENERGY |
| Date Completed: 4/28/20 | Location: N POC | |
| Drilling Company: Tasman | Surface Completion: | DTW: 8' TD: 13' |
| Type of Drill: Posh Probe | Geologist: M. Dahlgren | Project Manager: C. Hamlin |
| Bit Size 2 3/8" | Logging Method: Macro Liner | |
| Well Const. Material: Diameter: 1" | Screen: Sch 40 PVC Slotted 0.10 | Riser: Sch 40 PVC Blank |

| Depth (feet) | Well Completion | Sample Type | % Recovery | PID (ppm) | Laboratory Sample | USCS | Description |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | Hand Auger cleared to 6' |
| 2 | | | | | | | |
| 3 | | HA | 100% | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | macro liner | 100% | 0.4 | | SM | Tan Silty Sand, moderately sorted, fine to medium grain, dry, no odor |
| ▽8 | | | | | | | |
| 9 | | | | | | | Same as above, Saturated |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | 100% | 0.5 | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
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TASMAN GEOSCIENCES

# Borehole Logging Form

| | | |
|---|---|---|
| BOREHOLE ID: BH05 | SITE NAME: French 5, 41-4, Sitzman 1 | CLIENT NAME: PDC ENERGY |
| Date Completed: 4/28/20 | Location: NW PoC | |
| Drilling Company: Tasman | Surface Completion: | DTW: 8' TD: 13' |
| Type of Drill: Push Probe | Geologist: M. Dahlgren | Project Manager: C. Hamlin |
| Bit Size 2 3/8" | Logging Method: Macro liner | |
| Well Const. Material: Diameter: 1 | Screen: Sch 40 PVC Slotted 0.10 | Riser: Sch 40 PVC Blank |

| Depth (feet) | Well Completion | Sample Type | % Recovery | PID (ppm) | Laboratory Sample | USCS | Description |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | Hand Auger cleared to 6' |
| 2 | | | | | | | |
| 3 | | HA | 100% | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | SM | Tan Silty Sand, moderately Sorted, fine to medium grain, Dry, no odor |
| 8 | | Macro Liner | 90% | 0.5 | | | |
| 9 | | | | | | | Same as above, Saturated |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | 90% | 0.6 | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
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TASMAN GEOSCIENCES

# Borehole Logging Form

| | | |
|---|---|---|
| BOREHOLE ID: BH06 | SITE NAME: French 5, 41-4, S. tzma 1 | CLIENT NAME: PDC ENERGY |
| Date Completed: 4/28/20 | Location: SW PoC | |
| Drilling Company: Tasman | Surface Completion: | DTW: ~~8~~ TD: ~~13~~ 13 |
| Type of Drill: Push Probe | Geologist: M. Dahlgren | Project Manager: C. Hamlin |
| Bit Size 2 3/8" | Logging Method: | |
| Well Const. Material: Diameter: 1" | Screen: Sch 40 PVC Slotted 0.10 | Riser: Sch 40 PVC Blank |

| Depth (feet) | Well Completion | Sample Type | % Recovery | PID (ppm) | Laboratory Sample | USCS | Description |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | Hand Auger cleared to 6' |
| 2 | | | | | | | |
| 3 | | HA | 100% | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | Tan Silty Sand, moderately Sorted, fine to medium grain, dry, no odor |
| 8 ▽ | | MACRO liner | 80% | 0.8 | | SM | |
| 9 | | | | | | | Same as above, Saturated |
| 10 | | | | | | | |
| 11 | | | | | | | Same as above w/ slight staining |
| 12 | | | | 0.9 | | | |
| 13 | | | 80% | | | | ~~Tan~~ ND, Same as above, Tan |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
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TASMAN GEOSCIENCES

# Borehole Logging Form

| | | |
|---|---|---|
| BOREHOLE ID: B107 | SITE NAME: French 5, 41-4 S Itzman 1 | CLIENT NAME: PDC ENERGY |
| Date Completed: 4/28/20 | Location: S Source | |
| Drilling Company: Tasman | Surface Completion: Flush Monument | DTW: ~8.5' TD: 13' |
| Type of Drill: Push Probe | Geologist: M. Dahlgren | Project Manager: C. Hamlin |
| Bit Size 2 3/8" | Logging Method: Macro Liner | |
| Well Const. Material: Diameter: 1" | Screen: Sch 40 PVC Slotted 0.10 | Riser: Sch 40 PVC Blank |

| Depth (feet) | Well Completion | Sample Type | % Recovery | PID (ppm) | Laboratory Sample | USCS | Description |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | Hand Auger cleared to 6' |
| 2 | | | | | | | |
| 3 | | HA | 100% | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | Tan Silty Sand, well sorted, fine grain, dry no odor |
| 8 | | macro liner | 50% | 3.3 | | SM | |
| 9 | | | | | | | Tan Silty Sand, moderately sorted, fine to medium grain, Saturated, no odor |
| 10 | | | | | | | |
| 11 | | | | 854.1 | B107@10-11' 1015 | | Gray w/ black Staining, Silty Sand, moderately Sorted, fine to medium grain, Saturated, Slight odor |
| 12 | | | 75% | | | | Tan Moderately Sorted Sand, fine to medium grain, Saturated, no odor |
| 13 | | | | 12.1 | B107@12-13' 1020 | SW | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |
| 23 | | | | | | | |
| 24 | | | | | | | |
| 25 | | | | | | | |

TASMAN GEOSCIENCES

# Borehole Logging Form

| | | |
|---|---|---|
| BOREHOLE ID: BH08 | SITE NAME: Frach 5, 41-4, Stemen 1 | CLIENT NAME: PDC ENERGY |
| Date Completed: 4/28/20 | Location: N of Source | |
| Drilling Company: Tasman | Surface Completion: Flush Monument DTW: ~8' TD: 13' | |
| Type of Drill: Push probe | Geologist: M. Dahlgren | Project Manager: C. Hamlin |
| Bit Size 2 3/8" | Logging Method: Macro Liner | |
| Well Const. Material: Diameter: 1" | Screen: Sch 40 PVC Slotted 0.10 | Riser: Sch 40 PVC Blank |

| Depth (feet) | Well Completion | Sample Type | % Recovery | PID (ppm) | Laboratory Sample | USCS | Description |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | Hand Auger cleared to 6' |
| 2 | | | | | | | |
| 3 | | HA | 100% | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | SM | Brn Silty Sand w/ gravel, poorly sorted, fine to coarse grain, dry, no odor |
| ▽8 | | Macro Liner | 25% | 0.6 | | | |
| 9 | | | | | | | Brn Silty Sand, Moderately sorted, fine to medium grain, Saturated, no odor |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | 25% | 1.4 | | | Same as above, Tan |
| 13 | | | | | | | |
| 14 | X | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |
| 23 | | | | | | | |
| 24 | | | | | 1 | | |
| 25 | | | | | | | |

# ATTACHMENT B

# Summit Scientific

4653 Table Mountain Drive,  Golden, Colorado  80403

303.277.9310

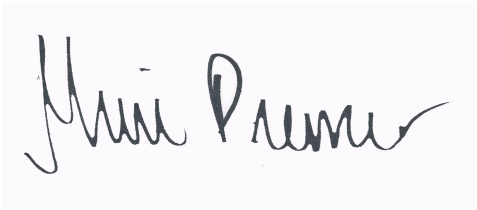
May 01, 2020

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

RE: French 5,41-4, Sitzman 1
Work Order #2004375

Enclosed are the results of analyses for samples received by Summit Scientific on 04/28/20 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Muri Premer For Paul Shrewsbury
President

S2

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/01/20 13:46 |

**ANALYTICAL REPORT FOR SAMPLES**

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| BH07@10-11' | 2004375-01 | Soil | 04/28/20 10:15 | 04/28/20 16:45 |
| BH07@12-13' | 2004375-02 | Soil | 04/28/20 10:20 | 04/28/20 16:45 |

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

$S_2$

2004375

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310



| | | | |
|---|---|---|---|
| Client: | PDC / Tasman | Project Manager: | Mark Longhurst |
| Address: | 6855 W 119th Ave | E-Mail: | mark.longhurst@PDCE.com |
| City/State/Zip: | Broomfield/ CO/ 80020 | | |
| Phone: | 303-487-1228 | Project Name: | French 5, 41-4, Stzman 1 |
| Sampler Name: | Max Dahlgren | Project Number: | |

| | | | | | Preservative | | | | Matrix | | | | Analysis Requested | | | | | | | | Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Sample Description | Date Sampled | Time Sampled | # of containers | HCl | HNO3 | None | Other ___ | Water | Soil | Air-Canister # | Other ___ | 8260 BTEX | 8260B GBTEXN | 8015 DRO | pH / EC | | | | | |
| 1 | BH07 @ 10-11' | 4/28/20 | 1015 | 1 | | | X | | | X | | | | X | X | | | | | | |
| 2 | BH07 @ 12-13' | 4/28/20 | 1020 | 1 | | | X | | | X | | | | X | X | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |

| | | | | |
|---|---|---|---|---|
| Relinquished by: | Date/Time: 4/28/20 1445 1645 | Received by: ~~Tasman's Lock Box~~ | Date/Time: 04/28/2020 1645 | **Turn Around Time** (Check): Same Day ___ 24 hours ___ 48 hours ___ 72 hours ___ Standard X |
| Relinquished by: **Tasman's Lock Box** | Date/Time: | Received by: | Date/Time: | **Sample Integrity:** Temperature Upon Receipt: 3.8 |
| Relinquished by: | Date/Time: | Received by: | Date/Time: | Samples Intact: (Yes) No |

**Notes:**

**Sample Receipt Checklist**

S2 Work Order 2004375

Client: PDC/TASMAN Client Project ID: French 5, 41-4, Sitemap 1

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other_____ Airbill #: _____

Matrix (check all that apply): _____Air _____Soil/Solid __X__Water ____Other:_____ (Describe)

| Temp (°C) | 3.8 |
|---|---|

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. | X | | | |
| Were all samples received intact [(1)]? | X | | | |
| Was adequate sample volume provided [(1)]? | X | | | |
| If custody seals are present, are they intact [(1)]? | | | X | |
| Are samples with holding times due within 48 hours sample due within 48 hours present? | | X | | |
| Is a chain-of-custody (COC) form present and filled out completely [(1)]? | X | | | |
| Does the COC agree with the number and type of sample bottles received [(1)]? | X | | | |
| Do the sample IDs on the bottle labels match the COC [(1)]? | X | | | |
| Is the COC properly relinquished by the client w/ date and time recorded [(1)]? | X | | | |
| For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.** | | X | | |
| Are samples preserved that require preservation **(excluding cooling)** [(1)]? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect | X | | | HCL |
| If samples are acid preserved for metals, is the pH ≤ 2[(1)]? Record the pH in Comments. | | | X | |
| If dissolved metals are requested, were samples field filtered? | | | X | |
| Additional Comments (if any): | | | | |

[(1)] **If NO, then contact the client before proceeding with analysis and note in case narrative.**

**Custodian Printed Name or Initials** | **Signature of Custodian** | 04/28/2020 **Date/Time**

S2

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/01/20 13:46 |

**BH07@10-11'**

**2004375-01 (Soil)**

**Summit Scientific**

## Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/28/20 10:15**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.0020 | mg/kg | 1 | 2004373 | 04/30/20 | 04/30/20 | EPA 8260B | |
| Toluene | ND | 0.0050 | " | " | " | " | " | " | |
| **Ethylbenzene** | **0.011** | 0.0050 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.010 | " | " | " | " | " | " | |
| **Naphthalene** | **0.031** | 0.010 | " | " | " | " | " | " | |
| **Gasoline Range Hydrocarbons** | **43** | 0.50 | " | " | " | " | " | " | |

Date Sampled: **04/28/20 10:15**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *90.4 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *95.3 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *110 %* | *21-167* | | " | " | " | " | |

## Extractable Petroleum Hydrocarbons by 8015

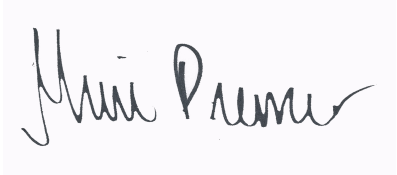
Date Sampled: **04/28/20 10:15**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 (DRO) | ND | 50 | mg/kg | 1 | 2004374 | 04/30/20 | 04/30/20 | EPA 8015M | |

Date Sampled: **04/28/20 10:15**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: o-Terphenyl* | | *80.0 %* | *30-150* | | " | " | " | " | |

Summit Scientific



S2

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/01/20 13:46 |

**BH07@12-13'**

**2004375-02 (Soil)**

**Summit Scientific**

## Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/28/20 10:20**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.0020 | mg/kg | 1 | 2004373 | 04/30/20 | 04/30/20 | EPA 8260B | |
| Toluene | ND | 0.0050 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.0050 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.010 | " | " | " | " | " | " | |
| Naphthalene | ND | 0.010 | " | " | " | " | " | " | |
| Gasoline Range Hydrocarbons | ND | 0.50 | " | " | " | " | " | " | |

Date Sampled: **04/28/20 10:20**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *92.4 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *105 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *103 %* | *21-167* | | " | " | " | " | |

## Extractable Petroleum Hydrocarbons by 8015

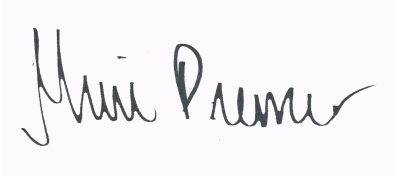
Date Sampled: **04/28/20 10:20**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 (DRO) | ND | 50 | mg/kg | 1 | 2004374 | 04/30/20 | 04/30/20 | EPA 8015M | |

Date Sampled: **04/28/20 10:20**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: o-Terphenyl* | | *82.7 %* | *30-150* | | " | " | " | " | |

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.*

S2

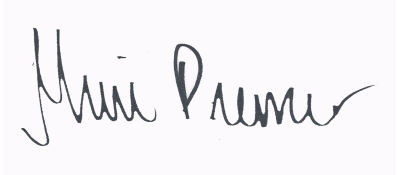
| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/01/20 13:46 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

## Summit Scientific

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2004373 - EPA 5030 Soil MS** | | | | | | | | | | |
| **Blank (2004373-BLK1)** | | | | Prepared & Analyzed: 04/30/20 | | | | | | |
| Benzene | ND | 0.0020 | mg/kg | | | | | | | |
| Toluene | ND | 0.0050 | " | | | | | | | |
| Ethylbenzene | ND | 0.0050 | " | | | | | | | |
| Xylenes (total) | ND | 0.010 | " | | | | | | | |
| Naphthalene | ND | 0.010 | " | | | | | | | |
| Gasoline Range Hydrocarbons | ND | 0.50 | " | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0390* | | " | *0.0400* | | *97.5* | *23-173* | | | |
| *Surrogate: Toluene-d8* | *0.0458* | | " | *0.0400* | | *115* | *20-170* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0403* | | " | *0.0400* | | *101* | *21-167* | | | |
| **LCS (2004373-BS1)** | | | | Prepared & Analyzed: 04/30/20 | | | | | | |
| Benzene | 0.0946 | 0.0020 | mg/kg | 0.100 | | 94.6 | 70-130 | | | |
| Toluene | 0.0718 | 0.0050 | " | 0.100 | | 71.8 | 70-130 | | | |
| Ethylbenzene | 0.0873 | 0.0050 | " | 0.100 | | 87.3 | 70-130 | | | |
| m,p-Xylene | 0.169 | 0.010 | " | 0.200 | | 84.3 | 70-130 | | | |
| o-Xylene | 0.0878 | 0.0050 | " | 0.100 | | 87.8 | 70-130 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0295* | | " | *0.0400* | | *73.6* | *23-173* | | | |
| *Surrogate: Toluene-d8* | *0.0406* | | " | *0.0400* | | *102* | *20-170* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0380* | | " | *0.0400* | | *94.9* | *21-167* | | | |
| **Matrix Spike (2004373-MS1)** | | **Source: 2004375-01** | | Prepared & Analyzed: 04/30/20 | | | | | | |
| Benzene | 0.0736 | 0.0020 | mg/kg | 0.100 | ND | 73.6 | 70-130 | | | |
| Toluene | 0.0740 | 0.0050 | " | 0.100 | ND | 74.0 | 70-130 | | | |
| Ethylbenzene | 0.0976 | 0.0050 | " | 0.100 | 0.0111 | 86.5 | 70-130 | | | |
| m,p-Xylene | 0.181 | 0.010 | " | 0.200 | 0.00471 | 88.3 | 70-130 | | | |
| o-Xylene | 0.0920 | 0.0050 | " | 0.100 | ND | 92.0 | 70-130 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0330* | | " | *0.0400* | | *82.5* | *23-173* | | | |
| *Surrogate: Toluene-d8* | *0.0379* | | " | *0.0400* | | *94.7* | *20-170* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0375* | | " | *0.0400* | | *93.7* | *21-167* | | | |





S2

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/01/20 13:46 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

## Summit Scientific

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2004373 - EPA 5030 Soil MS** | | | | | | | | | | |
| **Matrix Spike Dup (2004373-MSD1)** | **Source: 2004375-01** | | | Prepared & Analyzed: 04/30/20 | | | | | | |
| Benzene | 0.0762 | 0.0020 | mg/kg | 0.100 | ND | 76.2 | 70-130 | 3.36 | 30 | |
| Toluene | 0.0744 | 0.0050 | " | 0.100 | ND | 74.4 | 70-130 | 0.485 | 30 | |
| Ethylbenzene | 0.120 | 0.0050 | " | 0.100 | 0.0111 | 109 | 70-130 | 20.9 | 30 | |
| m,p-Xylene | 0.183 | 0.010 | " | 0.200 | 0.00471 | 89.1 | 70-130 | 0.890 | 30 | |
| o-Xylene | 0.0922 | 0.0050 | " | 0.100 | ND | 92.2 | 70-130 | 0.228 | 30 | |
| *Surrogate: 1,2-Dichloroethane-d4* | *0.0325* | | *"* | *0.0400* | | *81.2* | *23-173* | | | |
| *Surrogate: Toluene-d8* | *0.0362* | | *"* | *0.0400* | | *90.6* | *20-170* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *0.0386* | | *"* | *0.0400* | | *96.5* | *21-167* | | | |

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.*

S2

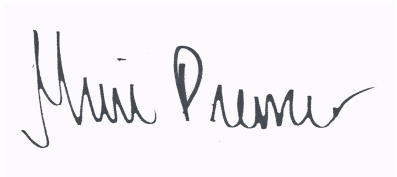
| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/01/20 13:46 |

## Extractable Petroleum Hydrocarbons by 8015 - Quality Control

## Summit Scientific

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2004374 - EPA 3550A** | | | | | | | | | | |
| **Blank (2004374-BLK1)** | | | | Prepared & Analyzed: 04/30/20 | | | | | | |
| C10-C28 (DRO) | ND | 50 | mg/kg | | | | | | | |
| **LCS (2004374-BS1)** | | | | Prepared & Analyzed: 04/30/20 | | | | | | |
| C10-C28 (DRO) | 383 | 50 | mg/kg | 500 | | 76.6 | 70-130 | | | |
| **Matrix Spike (2004374-MS1)** | **Source: 2004375-01** | | | Prepared & Analyzed: 04/30/20 | | | | | | |
| C10-C28 (DRO) | 414 | 50 | mg/kg | 500 | ND | 82.9 | 70-130 | | | |
| **Matrix Spike Dup (2004374-MSD1)** | **Source: 2004375-01** | | | Prepared & Analyzed: 04/30/20 | | | | | | |
| C10-C28 (DRO) | 421 | 50 | mg/kg | 500 | ND | 84.2 | 70-130 | 1.54 | 20 | |





S2

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/01/20 13:46 |

## 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

4653 Table Mountain Drive,  Golden, Colorado  80403

303.277.9310

May 29, 2020

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

RE: French 5,41-4, Sitzman 1
Work Order #2005209

Enclosed are the results of analyses for samples received by Summit Scientific on 05/20/20 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Paul Shrewsbury
President

S2

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

**ANALYTICAL REPORT FOR SAMPLES**

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| BH01 | 2005209-01 | Water | 05/20/20 13:00 | 05/20/20 17:30 |
| BH02 | 2005209-02 | Water | 05/20/20 13:07 | 05/20/20 17:30 |
| BH03 | 2005209-03 | Water | 05/20/20 13:12 | 05/20/20 17:30 |
| BH04 | 2005209-04 | Water | 05/20/20 13:17 | 05/20/20 17:30 |
| BH05 | 2005209-05 | Water | 05/20/20 13:22 | 05/20/20 17:30 |
| BH06 | 2005209-06 | Water | 05/20/20 13:27 | 05/20/20 17:30 |
| BH07 | 2005209-07 | Water | 05/20/20 13:32 | 05/20/20 17:30 |
| BH08 | 2005209-08 | Water | 05/20/20 13:37 | 05/20/20 17:30 |

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

2005209

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

Page 1 of 1

Client: PDC / Tasman
Address: 6855 W 119th Ave
City/State/Zip: Broomfield CO 80020
Phone: 303-487-1228 Fax:
Sampler Name: J Marcus

Project Manager: Mark Longhurst
E-Mail: Mark.longhurst@PDCE.com
Project Name: French 5, 41-4, Sitaman 1
Project Number: n/a

| | | | | Preservative | | | | Matrix | | | | Analyze For: | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Description | Date Sampled | Time Sampled | Number of Containers | HCl | $HNO_3$ | None | Other (Specify) | Groundwater | Soil | Air - Canister Serial # | Other (Specify) | BTEX | | | | | | | | Special Instructions |
| BH01 | 5/20/20 | 1300 | 3 | X | | | | X | | | | X | | | | | | | | |
| BH02 | 5/20/20 | 1307 | 3 | X | | | | X | | | | X | | | | | | | | |
| BH03 | 5/20/20 | 1312 | 3 | X | | | | X | | | | X | | | | | | | | |
| BH04 | 5/20/20 | 1317 | 3 | X | | | | X | | | | X | | | | | | | | |
| BH05 | 5/20/20 | 1322 | 3 | X | | | | X | | | | X | | | | | | | | |
| BH06 | 5/20/20 | 1327 | 3 | X | | | | X | | | | X | | | | | | | | |
| BH07 | 5/20/20 | 1332 | 3 | X | | | | X | | | | X | | | | | | | | |
| BH08 | 5/20/20 | 1337 | 3 | X | | | | X | | | | X | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |

Relinquished by: Date/Time: 5/20/20 1455
Received by: TasmanLockBox Date/Time: 5/20/20 1455

Relinquished by: TASMANLockBox Date/Time: 05/20/2020 1730
Received by: Date/Time: 05/20/2020 1730

Relinquished by: Date/Time:
Received in Lab by: Date/Time:

**Turn Around Time (Check)**

| | | | |
|---|---|---|---|
| Same Day | | 72 Hours | |
| 24 Hours | | Standard | X |
| 48 Hours | | | |

**Sample Integrity:**
Temperature Upon Receipt: 4.5
Intact: Yes X No

Notes:

**Sample Receipt Checklist**

S2 Work Order 2005209

Client: PDC/TASMAN Client Project ID: FRENCH 5,4-4,5,TASMAN

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ ☒ ☐ ☐ ☐ Airbill #: _____

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

| Temp (°C) | 4.5 |
|---|---|

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. | X | | | |
| Were all samples received intact (1)? | X | | | |
| Was adequate sample volume provided (1)? | X | | | |
| If custody seals are present, are they intact (1)? | | | X | |
| Are samples with holding times due within 48 hours sample due within 48 hours present? | | X | | |
| Is a chain-of-custody (COC) form present and filled out completely (1)? | X | | | |
| Does the COC agree with the number and type of sample bottles received (1)? | X | | | |
| Do the sample IDs on the bottle labels match the COC (1)? | X | | | |
| Is the COC properly relinquished by the client w/ date and time recorded (1)? | X | | | |
| For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.** | | X | | |
| Are samples preserved that require preservation **(excluding cooling)** (1)? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect | X | | | HCL |
| If samples are acid preserved for metals, is the pH ≤ 2(1)? Record the pH in Comments. | | | X | |
| If dissolved metals are requested, were samples field filtered? | | | X | |
| Additional Comments (if any): | | | | |

(1) **If NO, then contact the client before proceeding with analysis and note in case narrative.**

KC

**Custodian Printed Name or Initials**

**Signature of Custodian**

05/20/2020

**Date/Time**

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

**BH01**

**2005209-01 (Water)**

**Summit Scientific**

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

Date Sampled: **05/20/20 13:00**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | ug/l | 1 | 2005294 | 05/26/20 | 05/27/20 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **05/20/20 13:00**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *136 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *92.0 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *107 %* | *21-167* | | " | " | " | " | |

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

**BH02**

**2005209-02 (Water)**

**Summit Scientific**

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

Date Sampled: **05/20/20 13:07**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | ug/l | 1 | 2005294 | 05/26/20 | 05/28/20 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **05/20/20 13:07**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *137 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *89.9 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *111 %* | *21-167* | | " | " | " | " | |

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

**BH03**

**2005209-03 (Water)**

**Summit Scientific**

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

Date Sampled: **05/20/20 13:12**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | ug/l | 1 | 2005294 | 05/26/20 | 05/28/20 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **05/20/20 13:12**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *133 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *91.1 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *106 %* | *21-167* | | " | " | " | " | |

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

**BH04**

**2005209-04 (Water)**

**Summit Scientific**

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

Date Sampled: **05/20/20 13:17**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | ug/l | 1 | 2005294 | 05/26/20 | 05/28/20 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **05/20/20 13:17**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *130 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *92.6 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *105 %* | *21-167* | | " | " | " | " | |

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

## BH05

**2005209-05 (Water)**

**Summit Scientific**

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

Date Sampled: **05/20/20 13:22**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | ug/l | 1 | 2005294 | 05/26/20 | 05/28/20 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **05/20/20 13:22**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *132 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *91.1 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *107 %* | *21-167* | | " | " | " | " | |



| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

## BH06

**2005209-06 (Water)**

**Summit Scientific**

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

Date Sampled: **05/20/20 13:27**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | ug/l | 1 | 2005294 | 05/26/20 | 05/28/20 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **05/20/20 13:27**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *134 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *91.4 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *107 %* | *21-167* | | " | " | " | " | |

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

**BH07**

**2005209-07 (Water)**

**Summit Scientific**

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

Date Sampled: **05/20/20 13:32**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **2.8** | 1.0 | ug/l | 1 | 2005294 | 05/26/20 | 05/28/20 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| **Ethylbenzene** | **14** | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **05/20/20 13:32**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *132 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *89.0 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *108 %* | *21-167* | | " | " | " | " | |



| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

## BH08

**2005209-08 (Water)**

**Summit Scientific**

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

Date Sampled: **05/20/20 13:37**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | ug/l | 1 | 2005294 | 05/26/20 | 05/28/20 | EPA 8260B | |
| Toluene | ND | 1.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 1.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 2.0 | " | " | " | " | " | " | |

Date Sampled: **05/20/20 13:37**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| *Surrogate: 1,2-Dichloroethane-d4* | | *139 %* | *23-173* | | " | " | " | " | |
| *Surrogate: Toluene-d8* | | *92.3 %* | *20-170* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *109 %* | *21-167* | | " | " | " | " | |



| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

## Summit Scientific

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2005294 - EPA 5030 Water MS** | | | | | | | | | | |
| **Blank (2005294-BLK1)** | | | | Prepared: 05/26/20 Analyzed: 05/27/20 | | | | | | |
| Benzene | ND | 1.0 | ug/l | | | | | | | |
| Toluene | ND | 1.0 | " | | | | | | | |
| Ethylbenzene | ND | 1.0 | " | | | | | | | |
| Xylenes (total) | ND | 2.0 | " | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *16.2* | | *"* | *13.3* | | *122* | *23-173* | | | |
| *Surrogate: Toluene-d8* | *12.6* | | *"* | *13.3* | | *94.2* | *20-170* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *14.4* | | *"* | *13.3* | | *108* | *21-167* | | | |
| **LCS (2005294-BS1)** | | | | Prepared: 05/26/20 Analyzed: 05/27/20 | | | | | | |
| Benzene | 47.8 | 1.0 | ug/l | 41.7 | | 115 | 51-132 | | | |
| Toluene | 44.4 | 1.0 | " | 41.7 | | 107 | 51-138 | | | |
| Ethylbenzene | 50.0 | 1.0 | " | 41.7 | | 120 | 58-146 | | | |
| m,p-Xylene | 86.3 | 2.0 | " | 83.3 | | 104 | 57-144 | | | |
| o-Xylene | 44.7 | 1.0 | " | 41.7 | | 107 | 53-146 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *14.8* | | *"* | *13.3* | | *111* | *23-173* | | | |
| *Surrogate: Toluene-d8* | *13.0* | | *"* | *13.3* | | *97.5* | *20-170* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *13.8* | | *"* | *13.3* | | *103* | *21-167* | | | |
| **Matrix Spike (2005294-MS1)** | | **Source: 2005207-02** | | Prepared: 05/26/20 Analyzed: 05/27/20 | | | | | | |
| Benzene | 45.2 | 1.0 | ug/l | 41.7 | ND | 108 | 34-141 | | | |
| Toluene | 42.0 | 1.0 | " | 41.7 | ND | 101 | 27-151 | | | |
| Ethylbenzene | 47.1 | 1.0 | " | 41.7 | ND | 113 | 29-160 | | | |
| m,p-Xylene | 82.2 | 2.0 | " | 83.3 | ND | 98.7 | 20-166 | | | |
| o-Xylene | 43.0 | 1.0 | " | 41.7 | ND | 103 | 33-159 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *15.6* | | *"* | *13.3* | | *117* | *23-173* | | | |
| *Surrogate: Toluene-d8* | *12.9* | | *"* | *13.3* | | *96.6* | *20-170* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *13.9* | | *"* | *13.3* | | *104* | *21-167* | | | |

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

## Summit Scientific

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2005294 - EPA 5030 Water MS** | | | | | | | | | | |
| **Matrix Spike Dup (2005294-MSD1)** | **Source: 2005207-02** | | | Prepared: 05/26/20 Analyzed: 05/27/20 | | | | | | |
| Benzene | 44.8 | 1.0 | ug/l | 41.7 | ND | 107 | 34-141 | 0.867 | 30 | |
| Toluene | 41.6 | 1.0 | " | 41.7 | ND | 99.9 | 27-151 | 0.933 | 30 | |
| Ethylbenzene | 47.6 | 1.0 | " | 41.7 | ND | 114 | 29-160 | 0.971 | 30 | |
| m,p-Xylene | 82.5 | 2.0 | " | 83.3 | ND | 99.0 | 20-166 | 0.304 | 30 | |
| o-Xylene | 42.8 | 1.0 | " | 41.7 | ND | 103 | 33-159 | 0.606 | 30 | |
| *Surrogate: 1,2-Dichloroethane-d4* | *15.3* | | *"* | *13.3* | | *115* | *23-173* | | | |
| *Surrogate: Toluene-d8* | *12.7* | | *"* | *13.3* | | *95.4* | *20-170* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *13.8* | | *"* | *13.3* | | *104* | *21-167* | | | |



S2

| | | |
|---|---|---|
| PDC Energy<br>1775 Sherman St. STE. 3000<br>Denver CO, 80203 | Project: French 5,41-4, Sitzman 1<br>Project Number: [none]<br>Project Manager: Mark Longhurst | **Reported:**<br>05/29/20 13:35 |

## 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 |