

**PDC Energy, Inc.**  
Second Quarter 2022 Groundwater Monitoring Summary

June 24, 2022

Former Anderson 12-13 Tank Battery  
SENW Section 13 T6N R65W  
Remediation # 17005

This groundwater monitoring summary has been prepared by Tasman, Inc. for the former Anderson 12-13 Tank Battery.

### Site History and Background

On March 31, 2021, a historic hydrocarbon release was discovered beneath the former tank battery infrastructure. Following the discovery, mitigation activities were initiated and between March 31, and April 6, 2021, approximately 706 cubic yards of impacted material were removed from the former excavation. During excavation activities, groundwater was encountered within the excavation at approximately 6 feet below ground surface (bgs). On July 27, 2021, eight monitoring wells (BH01 – BH08) were installed within and adjacent to the former excavation extent to confirm the absence of dissolved phase hydrocarbon impacts.

### Groundwater Monitoring Activities

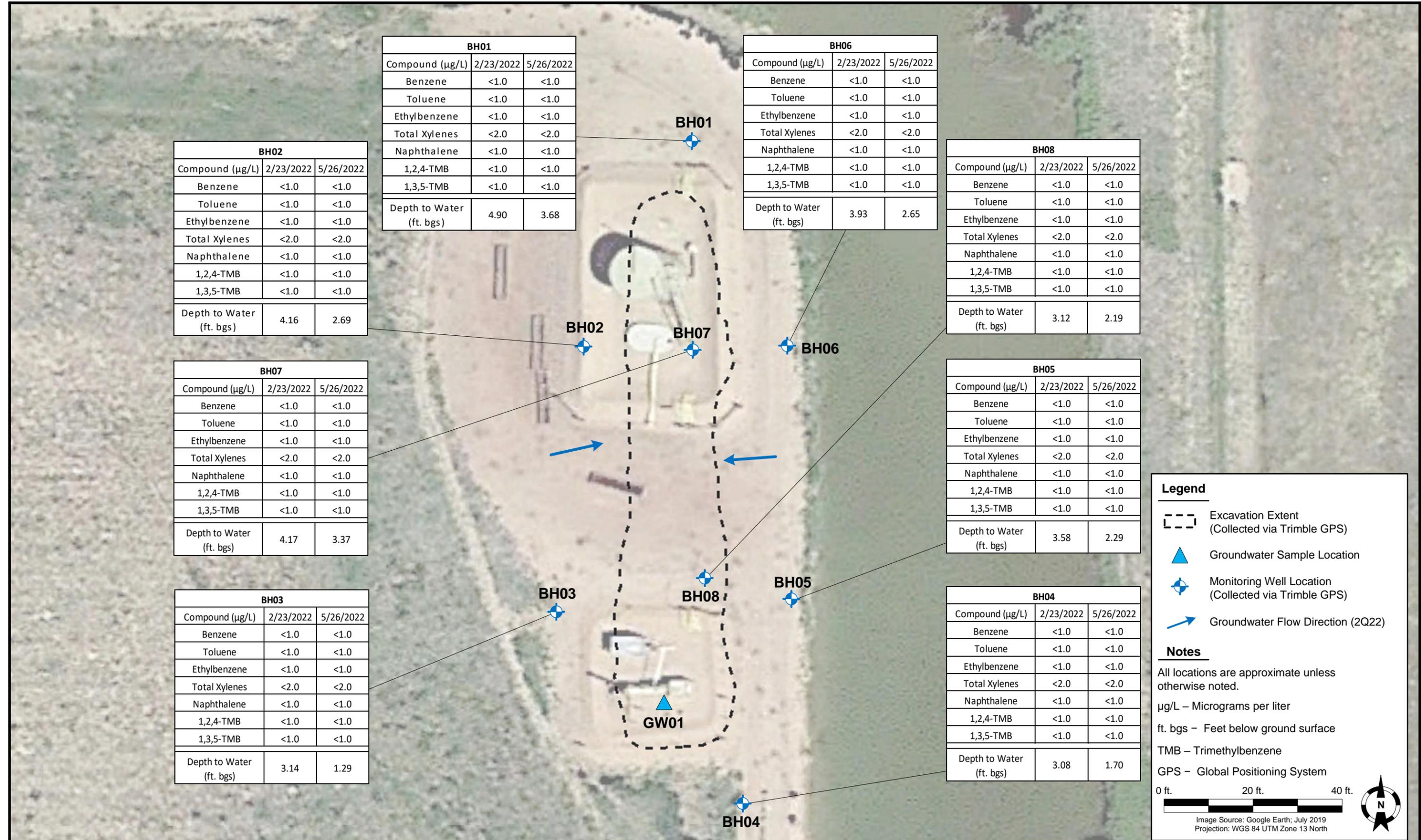
On May 26, 2022, groundwater monitoring was conducted at all eight monitoring wells (BH01 – BH08). Eight groundwater samples were submitted to Summit Scientific Laboratories for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260B, chloride and sulfate anions by EPA Method 300.0, total dissolved solids (TDS) by Method SM 2540C, and dissolved selenium by EPA Method 200.8.

Second quarter 2022 analytical results indicated that organic compound concentrations were below the applicable COGCC Table 915-1 groundwater standards in all eight monitoring well locations. Additionally, TDS, chloride, and sulfate, were in compliance with the applicable regulatory standards or within 1.25x the background concentrations of the up- and cross-gradient monitoring wells (BH01 and BH03 – BH06) in all eight monitoring well locations. Dissolved selenium concentrations were below the applicable Colorado Department of Health and Environment (CDPHE) agricultural water supply standard in all monitoring well locations. Sample locations and corresponding analytical results are illustrated on Figures 1 and 2. Groundwater elevation data is illustrated on Figure 3. Groundwater analytical results are summarized in Tables 1 and 2. The laboratory analytical report is included as Attachment A.

### **Current Remediation Activities and Path Forward**

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the third quarter 2021 and will remain the selected remediation strategy through the third quarter 2022.

Third quarter 2022 groundwater sampling will be conducted in August 2022.



BH02		
Compound (µg/L)	2/23/2022	5/26/2022
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	4.16	2.69

BH01		
Compound (µg/L)	2/23/2022	5/26/2022
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	4.90	3.68

BH06		
Compound (µg/L)	2/23/2022	5/26/2022
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	3.93	2.65

BH08		
Compound (µg/L)	2/23/2022	5/26/2022
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	3.12	2.19

BH07		
Compound (µg/L)	2/23/2022	5/26/2022
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	4.17	3.37

BH05		
Compound (µg/L)	2/23/2022	5/26/2022
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	3.58	2.29

BH03		
Compound (µg/L)	2/23/2022	5/26/2022
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	3.14	1.29

BH04		
Compound (µg/L)	2/23/2022	5/26/2022
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	3.08	1.70

**Legend**

- Excavation Extent (Collected via Trimble GPS)
- Groundwater Sample Location
- Monitoring Well Location (Collected via Trimble GPS)
- Groundwater Flow Direction (2Q22)

**Notes**

All locations are approximate unless otherwise noted.

µg/L – Micrograms per liter

ft. bgs – Feet below ground surface

TMB – Trimethylbenzene

GPS – Global Positioning System

0 ft. 20 ft. 40 ft.

Image Source: Google Earth; July 2019  
Projection: WGS 84 UTM Zone 13 North

DATE: June 24, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: E. Wozniak



Tasman, Inc.  
6855 W. 119<sup>th</sup> Ave.  
Broomfield, CO 80020

Red text denotes:

**PDC Energy, Inc. – DJ Basin**  
**Former Anderson 12-13 Tank Battery**  
SENW, Section 13 Township 6 North, Range 65 West  
Weld County, Colorado

**GROUNDWATER  
ANALYTICAL RESULTS  
MAP**

**FIGURE  
1**

BH01		
Compound (mg/L)	2/23/2022	5/26/2022
Chloride	165	257
Sulfate	3,780	8,580
TDS	6,680	8,910
Selenium (µg/L)	<1.90	1.53
Depth to Water (ft. bgs)	4.90	3.68

BH02		
Compound (mg/L)	2/23/2022	5/26/2022
Chloride	45.0	148
Sulfate	<b>1,860</b>	<b>2,560</b>
TDS	2,980	3,560
Selenium (µg/L)	6.93	<1.00
Depth to Water (ft. bgs)	4.16	2.69

BH08		
Compound (mg/L)	2/23/2022	5/26/2022
Chloride	58.6	<b>255</b>
Sulfate	<b>1,400</b>	<b>2,050</b>
TDS	2,000	2,900
Selenium (µg/L)	<1.90	<1.00
Depth to Water (ft. bgs)	3.12	2.19

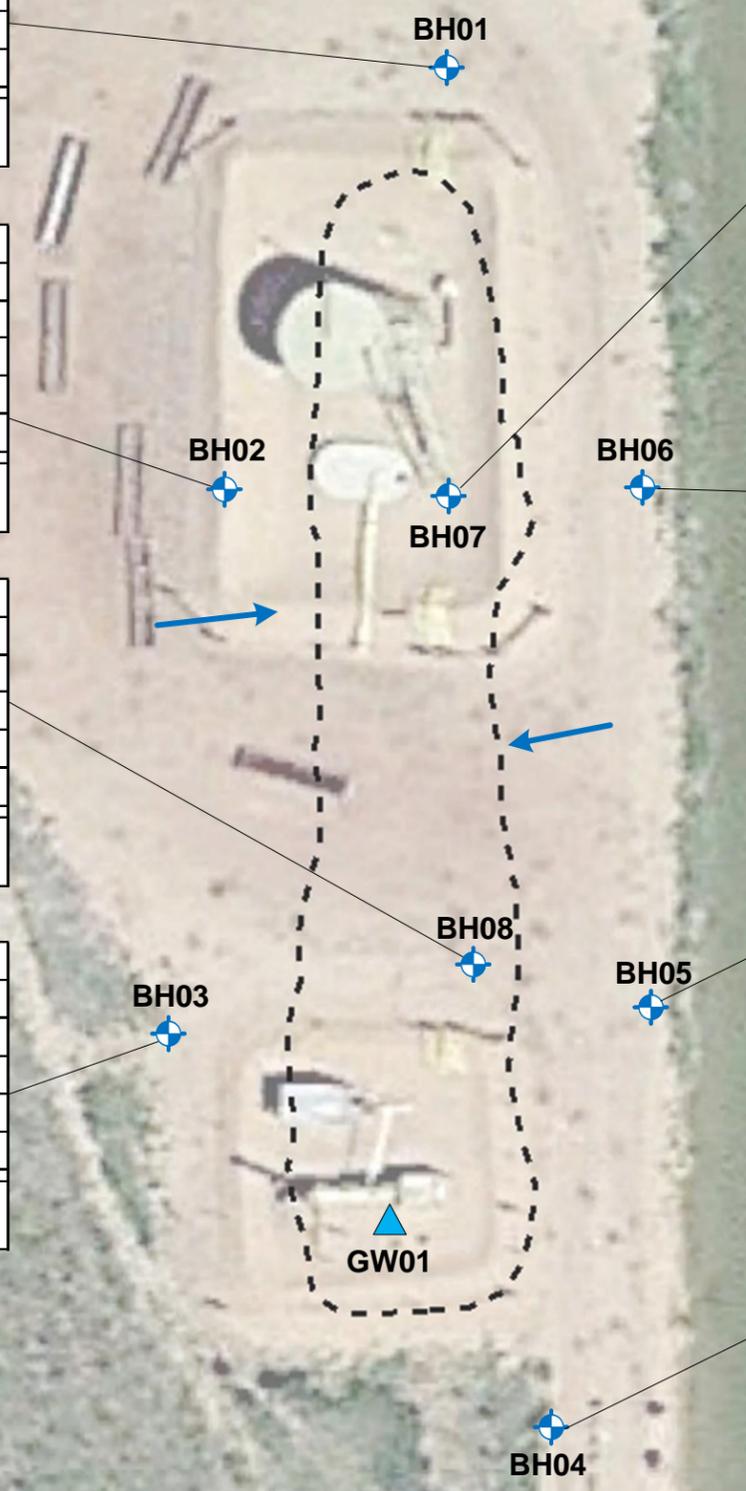
BH03		
Compound (mg/L)	2/23/2022	5/26/2022
Chloride	242	433
Sulfate	<b>2,630</b>	4,600
TDS	4,220	5,310
Selenium (µg/L)	12.3	1.14
Depth to Water (ft. bgs)	3.14	1.29

BH07		
Compound (mg/L)	2/23/2022	5/26/2022
Chloride	92.4	170
Sulfate	<b>2,030</b>	<b>3,550</b>
TDS	3,060	3,900
Selenium (µg/L)	6.38	2.74
Depth to Water (ft. bgs)	4.17	3.37

BH06		
Compound (mg/L)	2/23/2022	5/26/2022
Chloride	51.2	174
Sulfate	2,620	2,940
TDS	2,740	3,360
Selenium (µg/L)	<1.90	<1.00
Depth to Water (ft. bgs)	3.93	2.65

BH05		
Compound (mg/L)	2/23/2022	5/26/2022
Chloride	57.2	155
Sulfate	2,900	3,050
TDS	3,070	3,430
Selenium (µg/L)	3.34	2.14
Depth to Water (ft. bgs)	3.58	2.29

BH04		
Compound (mg/L)	2/23/2022	5/26/2022
Chloride	28.8	179
Sulfate	<b>1,650</b>	3,470
TDS	2,530	3,870
Selenium (µg/L)	<1.90	<1.00
Depth to Water (ft. bgs)	3.08	1.70



**Legend**

- Excavation Extent (Collected via Trimble GPS)
- Groundwater Sample Location
- Monitoring Well Location (Collected via Trimble GPS)
- Groundwater Flow Direction (2Q22)

**Notes**

All locations are approximate unless otherwise noted.

GPS – Global Positioning System

µg/L – Micrograms per liter

mg/L – Milligrams per liter

ft. bgs – Feet below ground surface

TDS – Total dissolved solids

Bold text – exceedances of COGCC Table 915-1 standards but within 1.25x BCKG concentration

COGCC – Colorado Oil and Gas Conservation Commission

BCKG – Background

0 ft. 20 ft. 40 ft.

Image Source: Google Earth; July 2019  
Projection: WGS 84 UTM Zone 13 North

DATE: June 24, 2022

DESIGNED BY: C. Hamlin

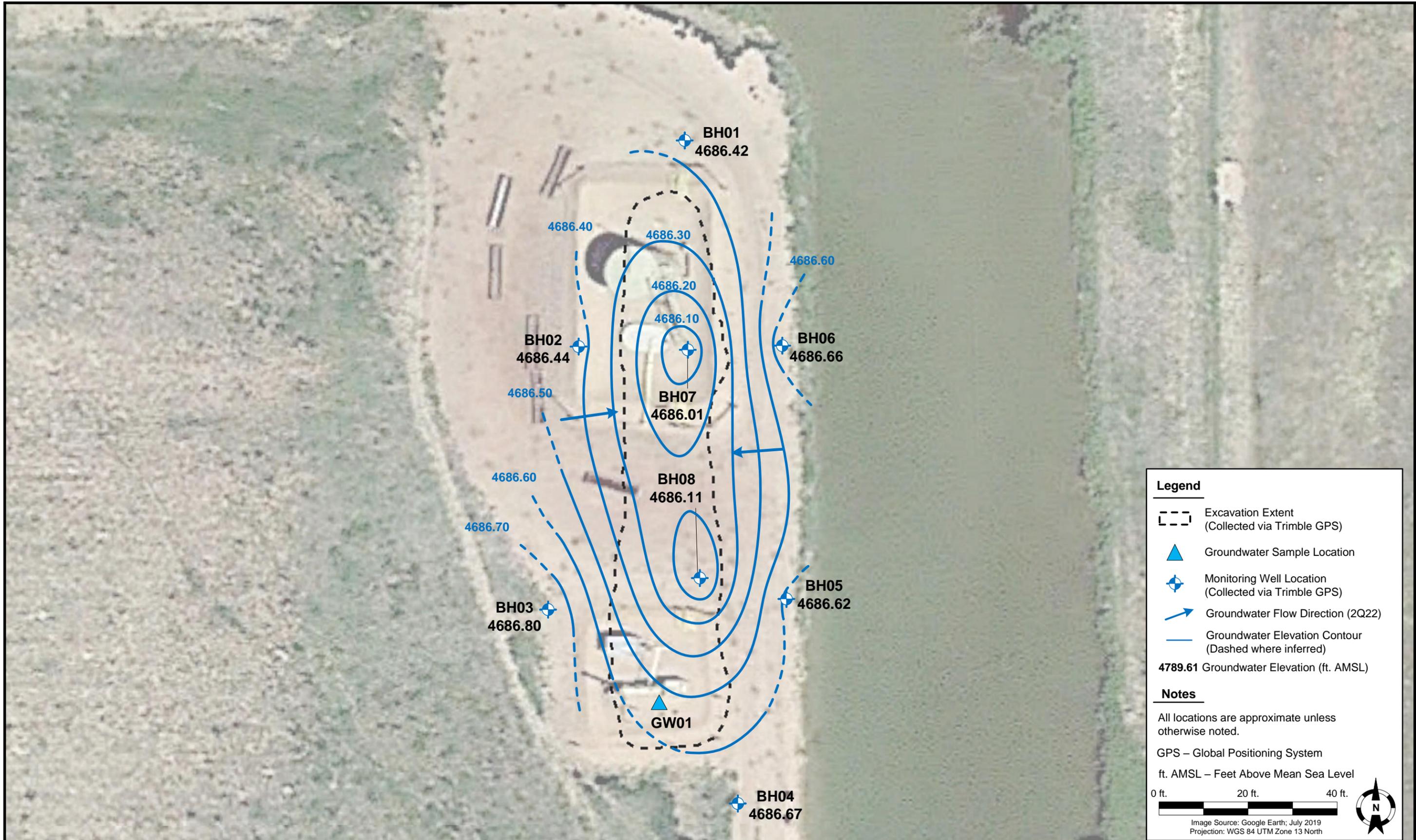
DRAWN BY: E. Wozniak

**Tasman, Inc.**  
6855 W. 119<sup>th</sup> Ave.  
Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**Former Anderson 12-13 Tank Battery**  
SENW, Section 13 Township 6 North, Range 65 West  
Weld County, Colorado

**GROUNDWATER ANALYTICAL RESULTS MAP (INORGANIC PARAMETERS)**

**FIGURE 2**



DATE: June 24, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: L. Reed



**Tasman, Inc.**  
6855 W. 119<sup>th</sup> Ave.  
Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**Former Anderson 12-13 Tank Battery**  
SENW, Section 13 Township 6 North, Range 65 West  
Weld County, Colorado

**GROUNDWATER  
ELEVATION CONTOUR  
MAP (05/26/2022)**

**FIGURE  
3**

**TABLE 1  
FORMER ANDERSON 12-13 TANK BATTERY  
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	Depth to Water <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (µg/L) <sup>(1)</sup>		5	560	700	1,400	140	67	67	-	-
BH01	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.52	4685.58
BH01	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.13	4684.97
BH01	2/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.90	4685.20
BH01	5/26/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.68	4686.42
BH02	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.20	4685.93
BH02	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.28	4684.85
BH02	2/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.16	4684.97
BH02	5/26/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.69	4686.44
BH03	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.28	4685.81
BH03	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.24	4684.85
BH03	2/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.14	4684.95
BH03	5/26/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.29	4686.80
BH04	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.75	4685.62
BH04	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.32	4685.05
BH04	2/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.08	4685.29
BH04	5/26/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.70	4686.67
BH05	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.41	4685.50
BH05	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.73	4685.18
BH05	2/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.58	4685.33
BH05	5/26/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.29	4686.62
BH06	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.86	4685.45
BH06	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.02	4685.29
BH06	2/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.93	4685.38
BH06	5/26/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.65	4686.66
BH07	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.38	4686.00
BH07	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.40	4684.98
BH07	2/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.17	4685.21
BH07	5/26/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.37	4686.01
BH08	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.36	4685.94
BH08	11/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.59	4684.71
BH08	2/23/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.12	4685.18
BH08	5/26/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.19	4686.11

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.

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.

TMB = Trimethylbenzene

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

**TABLE 2**  
**FORMER ANDERSON 12-13 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Selenium <sup>(2)</sup> (µg/L)	Depth to Water <sup>(3)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
<b>COGCC Table 915-1 Groundwater Standard (mg/L) <sup>(1)</sup></b>		<b>&lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	<b>20</b>	<b>-</b>	<b>-</b>
BH01	8/23/2021	8,970	205	<b>8,210</b>	NA	4.52	4685.58
BH01	11/8/2022	11,100	235	9,810	19.0	5.13	4684.97
BH01	2/23/2022	6,680	165 <sup>(M)</sup>	3,780 <sup>(M)</sup>	<1.90	4.90	4685.20
BH01	5/26/2022	8,910	257	8,580	1.53	3.68	4686.42
BH02	11/8/2021	6,160	86.4	<b>4,190</b>	13.7	4.28	4684.85
BH02	2/23/2022	2,980	45.0	<b>1,860</b>	6.93	4.16	4684.97
BH02	5/26/2022	3,560	148	<b>2,560</b>	<1.00	2.69	4686.44
BH03	11/8/2021	12,600	<b>403</b>	<b>7,330</b>	<b>43.8</b>	3.24	4684.85
BH03	2/23/2022	4,220	242	<b>2,630</b>	12.3	3.14	4684.95
BH03	5/26/2022	5,310	433	4,600	1.14	1.29	4686.80
BH04	8/23/2021	3,980	105	<b>3,700</b>	NA	2.75	4685.62
BH04	11/8/2021	4,810	111	<b>4,590</b>	8.77	3.32	4685.05
BH04	2/23/2022	2,530	28.8	<b>1,650</b>	<1.90	3.08	4685.29
BH04	5/26/2022	3,870	179	3,470	<1.00	1.70	4686.67
BH05	11/8/2021	3,980	95.2	<b>3,690</b>	16.8	3.73	4685.18
BH05	2/23/2022	3,070	57.2	2,900	3.34	3.58	4685.33
BH05	5/26/2022	3,430	155	3,050	2.14	2.29	4686.62
BH06	11/8/2021	4,990	125	4,240	8.14	4.02	4685.29
BH06	2/23/2022	2,740	51.2	2,620	<1.90	3.93	4685.38
BH06	5/26/2022	3,360	174	2,940	<1.00	2.65	4686.66
BH07	8/23/2021	2,980	138	<b>2,720</b>	NA	3.38	4686.00
BH07	11/8/2021	4,040	145	<b>3,750</b>	1.97	4.40	4684.98
BH07	2/23/2022	3,060	92.4	<b>2,030</b>	6.38	4.17	4685.21
BH07	5/26/2022	3,900	170	<b>3,550</b>	2.74	3.37	4686.01
BH08	11/8/2021	3,730	80.2	<b>3,400</b>	<b>40.9</b>	3.59	4684.71
BH08	2/23/2022	2,000	58.6	<b>1,400</b>	<1.90	3.12	4685.18
BH08	5/26/2022	2,900	<b>255</b>	<b>2,050</b>	<1.00	2.19	4686.11

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.
2. Selenium groundwater standard referenced from the 5 CCR 1002-41, Regulation No. 41, Table 3, Agricultural Standards, January 31, 2013.
3. 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.

M = Possible matrix interference

TDS = Total dissolved solids

COGCC = Colorado Oil and Gas Conservation Commission

BCKG = Background

mg/L = Milligrams per liter

µg/L = Micrograms per liter

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

Up- / cross-gradient well location used for background concentration.

**BOLD** = Analytical result is in exceedance of applicable standard.

**BOLD** = Analytical result is in exceedance of applicable standard but within 1.25x background concentration.

ft. = Feet

AMSL = Above Mean Sea Level

NA = Constituent not analyzed

## Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 30, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Anderson 12-13

Work Order #2205411

Enclosed are the results of analyses for samples received by Summit Scientific on 05/26/22 16:34. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', written in a cursive style.

Paul Shrewsbury

President



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

Project: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2205411-01	Water	05/26/22 13:12	05/26/22 16:34
BH02	2205411-02	Water	05/26/22 13:23	05/26/22 16:34
BH03	2205411-03	Water	05/26/22 14:27	05/26/22 16:34
BH04	2205411-04	Water	05/26/22 14:34	05/26/22 16:34
BH05	2205411-05	Water	05/26/22 14:01	05/26/22 16:34
BH06	2205411-06	Water	05/26/22 13:46	05/26/22 16:34
BH07	2205411-07	Water	05/26/22 13:34	05/26/22 16:34
BH08	2205411-08	Water	05/26/22 14:15	05/26/22 16:34

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.*

2205411

# Summit Scientific

S<sub>2</sub>

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: <u>Anderson 12-15</u>
Sampler Name: <u>Dyer Murrel</u>	Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	1,2,4 & 1,3,5-TMB	TDS, CL, SO4	Selenium	
1	BH01	5.26.22	1312	4	X				X				X	X	X	X	* - Dissolved Selenium
2	BH02		1323														
3	BH03		1422														
4	BH04		1439														
5	BH05		1401														
6	BH06		1346														
7	BH07		1334														
8	BH08		1415														
9																	
10																	

Relinquished by: <u>[Signature]</u>	Date/Time: <u>5.26.22 1634</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: _____	Turn Around Time (Check)	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: _____	Received by: <u>[Signature]</u>	Date/Time: <u>5/26/22 1845</u>	Same Day _____ 72 hours _____	
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____	24 hours _____ Standard <u>X</u>	
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____	48 hours _____	
				Sample Integrity:	
				Temperature Upon Receipt: _____	
				Samples Intact: <u>(Yes)</u> No	

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2205411

Client: PDC / DAsman Client Project ID: Anderson 12-13

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

Grid with 'X' in the second cell

Matrix (Check all that apply) Air [ ] Soil/Solid [X] Water [X] Other [ ]

Temp (°C) 18.7 Thermometer # 02

Table with 5 columns: Yes, No, N/A, Comments (if any). Rows include questions about cooling, sample integrity, volume, custody seals, chain-of-custody, and preservation.

Additional Comments (if any):

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

Custodian Printed Name: Robert Connolly

Date/Time: 5/26/22 1845



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

Project: Anderson 12-13

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

**BH01**  
**2205411-01 (Water)**

**Summit Scientific**

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

Date Sampled: **05/26/22 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0659	05/27/22	05/28/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/26/22 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	9.73	73.0 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	12.2	91.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.4	92.8 %		21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **05/26/22 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	<b>1.53</b>	1.00		ug/l	1	BFE0640	05/27/22	05/27/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **05/26/22 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>257</b>	12.0		mg/L	200	BFF0019	06/01/22	06/01/22	EPA 300.0	
Sulfate	<b>8580</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

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: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**BH01**  
**2205411-01 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/26/22 13:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>8910</b>	10.0		mg/L	1	BFE0744	05/31/22	05/31/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

**BH02**  
**2205411-02 (Water)**

**Summit Scientific**

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

Date Sampled: **05/26/22 13:23**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0659	05/27/22	05/28/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/26/22 13:23**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	8.89	66.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	12.1	90.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.6	86.6 %		21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **05/26/22 13:23**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	ND	1.00		ug/l	1	BFE0640	05/27/22	05/27/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **05/26/22 13:23**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>148</b>	12.0		mg/L	200	BFF0019	06/01/22	06/01/22	EPA 300.0	
Sulfate	<b>2560</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**BH02**  
**2205411-02 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/26/22 13:23**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>3560</b>	10.0		mg/L	1	BFE0744	05/31/22	05/31/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

**BH03**  
**2205411-03 (Water)**

**Summit Scientific**

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

Date Sampled: **05/26/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0659	05/27/22	05/28/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/26/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	9.42	70.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	12.5	93.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.4	85.4 %		21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **05/26/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	1.14	1.00		ug/l	1	BFE0640	05/27/22	05/27/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **05/26/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	433	12.0		mg/L	200	BFF0019	06/01/22	06/01/22	EPA 300.0	
Sulfate	4600	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**BH03**  
**2205411-03 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/26/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>5310</b>	10.0		mg/L	1	BFE0744	05/31/22	05/31/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

**BH04**  
**2205411-04 (Water)**

**Summit Scientific**

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

Date Sampled: **05/26/22 14:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0659	05/27/22	05/28/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/26/22 14:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	8.43	63.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	11.7	88.0 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	10.9	81.7 %		21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **05/26/22 14:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	ND	1.00		ug/l	1	BFE0640	05/27/22	05/27/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **05/26/22 14:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>179</b>	12.0		mg/L	200	BFF0019	06/01/22	06/01/22	EPA 300.0	
Sulfate	<b>3470</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**BH04**  
**2205411-04 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/26/22 14:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>3870</b>	10.0		mg/L	1	BFE0744	05/31/22	05/31/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

**BH05**  
**2205411-05 (Water)**

**Summit Scientific**

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

Date Sampled: **05/26/22 14:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0659	05/27/22	05/28/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/26/22 14:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	8.78	65.9 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	12.2	91.7 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.3	84.9 %		21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **05/26/22 14:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	2.14	1.00		ug/l	1	BFE0640	05/27/22	05/27/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **05/26/22 14:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	155	12.0		mg/L	200	BFF0019	06/01/22	06/01/22	EPA 300.0	
Sulfate	3050	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

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: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**BH05**  
**2205411-05 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/26/22 14:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Total Dissolved Solids</b>	<b>3430</b>	10.0	mg/L	1	BFE0744	05/31/22	05/31/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

**BH06**  
**2205411-06 (Water)**

**Summit Scientific**

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

Date Sampled: **05/26/22 13:46**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0659	05/27/22	05/28/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/26/22 13:46**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	8.62	64.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	11.9	89.3 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.0	82.2 %		21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **05/26/22 13:46**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	ND	1.00		ug/l	1	BFE0640	05/27/22	05/27/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **05/26/22 13:46**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>174</b>	12.0		mg/L	200	BFF0019	06/01/22	06/01/22	EPA 300.0	
Sulfate	<b>2940</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

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: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**BH06**  
**2205411-06 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/26/22 13:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Total Dissolved Solids</b>	<b>3360</b>	10.0	mg/L	1	BFE0744	05/31/22	05/31/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

**BH07**  
**2205411-07 (Water)**

**Summit Scientific**

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

Date Sampled: **05/26/22 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0659	05/27/22	05/28/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/26/22 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	9.01	67.6 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	12.0	89.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	10.9	82.0 %		21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **05/26/22 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	2.74	1.00		ug/l	1	BFE0640	05/27/22	05/27/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **05/26/22 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	170	12.0		mg/L	200	BFF0019	06/01/22	06/01/22	EPA 300.0	
Sulfate	3550	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

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: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**BH07**  
**2205411-07 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/26/22 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>3900</b>	10.0		mg/L	1	BFE0744	05/31/22	05/31/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

**BH08**  
**2205411-08 (Water)**

**Summit Scientific**

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

Date Sampled: **05/26/22 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0659	05/27/22	05/29/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/26/22 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	8.72	65.4 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	12.2	91.6 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.4	85.7 %		21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **05/26/22 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	ND	1.00		ug/l	1	BFE0640	05/27/22	05/27/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **05/26/22 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>255</b>	12.0		mg/L	200	BFF0019	06/01/22	06/01/22	EPA 300.0	
Sulfate	<b>2050</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**BH08**  
**2205411-08 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/26/22 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>2900</b>	10.0		mg/L	1	BFE0744	05/31/22	05/31/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

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

#### Summit Scientific

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

#### Batch BFE0659 - EPA 5030 Water MS

##### Blank (BFE0659-BLK1)

Prepared: 05/27/22 Analyzed: 05/28/22

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	2.0	"								
Naphthalene	ND	1.0	"								
1,2,4-Trimethylbenzene	ND	1.0	"								
1,3,5-Trimethylbenzene	ND	1.0	"								
Surrogate: 1,2-Dichloroethane-d4	8.99		"	13.3		67.4		23-173			
Surrogate: Toluene-d8	12.1		"	13.3		90.9		20-170			
Surrogate: 4-Bromofluorobenzene	11.3		"	13.3		84.8		21-167			

##### LCS (BFE0659-BS1)

Prepared: 05/27/22 Analyzed: 05/28/22

Benzene	24.3	1.0	ug/l	33.3		73.0		51-132			
Toluene	30.7	1.0	"	33.3		92.2		51-138			
Ethylbenzene	35.2	1.0	"	33.3		106		58-146			
m,p-Xylene	73.9	2.0	"	66.7		111		57-144			
o-Xylene	37.0	1.0	"	33.3		111		53-146			
Naphthalene	33.8	1.0	"	33.3		101		70-130			
1,2,4-Trimethylbenzene	36.6	1.0	"	33.3		110		70-130			
1,3,5-Trimethylbenzene	38.0	1.0	"	33.3		114		70-130			
Surrogate: 1,2-Dichloroethane-d4	9.82		"	13.3		73.7		23-173			
Surrogate: Toluene-d8	12.3		"	13.3		92.3		20-170			
Surrogate: 4-Bromofluorobenzene	11.4		"	13.3		85.7		21-167			

##### Matrix Spike (BFE0659-MS1)

Source: 2205403-01

Prepared: 05/27/22 Analyzed: 05/28/22

Benzene	23.6	1.0	ug/l	33.3	ND	70.9		34-141			
Toluene	30.4	1.0	"	33.3	ND	91.3		27-151			
Ethylbenzene	35.8	1.0	"	33.3	ND	107		29-160			
m,p-Xylene	73.8	2.0	"	66.7	ND	111		20-166			
o-Xylene	37.4	1.0	"	33.3	ND	112		33-159			
Naphthalene	37.4	1.0	"	33.3	ND	112		70-130			
1,2,4-Trimethylbenzene	37.1	1.0	"	33.3	ND	111		70-130			
1,3,5-Trimethylbenzene	38.1	1.0	"	33.3	ND	114		70-130			
Surrogate: 1,2-Dichloroethane-d4	9.36		"	13.3		70.2		23-173			
Surrogate: Toluene-d8	12.0		"	13.3		90.0		20-170			
Surrogate: 4-Bromofluorobenzene	11.8		"	13.3		88.5		21-167			

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

Project: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

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

**Summit Scientific**

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

**Batch BFE0659 - EPA 5030 Water MS**

Matrix Spike Dup (BFE0659-MSD1)	Source: 2205403-01			Prepared: 05/27/22 Analyzed: 05/28/22					
Benzene	22.6	1.0	ug/l	33.3	ND	68.0	34-141	4.24	30
Toluene	28.5	1.0	"	33.3	ND	85.6	27-151	6.45	30
Ethylbenzene	33.9	1.0	"	33.3	ND	102	29-160	5.49	30
m,p-Xylene	71.2	2.0	"	66.7	ND	107	20-166	3.67	30
o-Xylene	36.5	1.0	"	33.3	ND	109	33-159	2.44	30
Naphthalene	38.8	1.0	"	33.3	ND	116	70-130	3.57	30
1,2,4-Trimethylbenzene	36.9	1.0	"	33.3	ND	111	70-130	0.432	30
1,3,5-Trimethylbenzene	37.7	1.0	"	33.3	ND	113	70-130	1.16	30
Surrogate: 1,2-Dichloroethane-d4	10.0		"	13.3		75.1	23-173		
Surrogate: Toluene-d8	12.1		"	13.3		90.7	20-170		
Surrogate: 4-Bromofluorobenzene	11.9		"	13.3		89.4	21-167		

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**Dissolved Metals by EPA Method 200.8 - Quality Control**

**Summit Scientific**

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

**Batch BFE0640 - EPA 200.8**

**Blank (BFE0640-BLK1)**

Prepared & Analyzed: 05/27/22

Selenium ND 1.00 ug/l

**LCS (BFE0640-BS1)**

Prepared & Analyzed: 05/27/22

Selenium 49.0 1.00 ug/l 50.0 97.9 85-115

**Duplicate (BFE0640-DUP1)**

Source: 2205373-01

Prepared & Analyzed: 05/27/22

Selenium 6.92 1.00 ug/l 7.67 10.2 20

**Matrix Spike (BFE0640-MS1)**

Source: 2205373-01

Prepared & Analyzed: 05/27/22

Selenium 58.6 1.00 ug/l 50.0 7.67 102 70-130

**Matrix Spike Dup (BFE0640-MSD1)**

Source: 2205373-01

Prepared & Analyzed: 05/27/22

Selenium 57.7 1.00 ug/l 50.0 7.67 100 70-130 1.53 25

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**Anions by EPA Method 300.0 - Quality Control**  
**Summit Scientific**

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

**Batch BFF0019 - General Preparation**

**Blank (BFF0019-BLK1)**

Prepared & Analyzed: 06/01/22

Chloride	ND	0.0600	mg/L							
Sulfate	ND	0.300	"							

**LCS (BFF0019-BS1)**

Prepared & Analyzed: 06/01/22

Chloride	3.18	0.0600	mg/L	3.00	106	90-110				
Sulfate	15.6	0.300	"	15.0	104	90-110				

**Duplicate (BFF0019-DUP1)**

Source: 2205411-01

Prepared & Analyzed: 06/01/22

Chloride	255	12.0	mg/L		257		0.937	20		
Sulfate	7590	60.0	"		8580		12.3	20		

**Matrix Spike (BFF0019-MS1)**

Source: 2205411-01

Prepared & Analyzed: 06/01/22

Chloride	934	12.0	mg/L	600	257	113	80-120			
Sulfate	10900	60.0	"	3000	8580	76.3	80-120			QM-02

Summit Scientific

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 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: Anderson 12-13

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/30/22 14:23

**Total Dissolved Solids by SM2540C - Quality Control**

**Summit Scientific**

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

**Batch BFE0744 - General Preparation**

**Blank (BFE0744-BLK1)**

Prepared & Analyzed: 05/31/22

Total Dissolved Solids      ND      10.0      mg/L

**Duplicate (BFE0744-DUP1)**

Source: 2205376-01

Prepared & Analyzed: 05/31/22

Total Dissolved Solids      1390      10.0      mg/L      1300      6.31      20

Summit Scientific

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

Project: Anderson 12-13

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
06/30/22 14:23

### Notes and Definitions

- QM-02 The RPD and/or percent recovery for this QC sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
- 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