



PDC Energy, Inc.
Second Quarter 2023 Groundwater Monitoring Summary

April 27, 2023

Fagerberg Pad
SWSW Section 12 T6N R66W
Remediation # 24464

This groundwater monitoring summary has been prepared by Tasman, Inc. for the Fagerberg Pad.

Site History and Background

On April 6, 2022, approximately 2 barrels (bbls) of produced water were released from a nipple pin hole leak at the Fagerberg Pad. Following the discovery, mitigation activities were initiated and approximately 40 cubic yards of impacted material were removed from location. During excavation activities, groundwater was encountered within the excavation at approximately 7 feet below ground surface (bgs). On October 7, 2022, seven monitoring wells (BH01 – BH07) were installed to delineate dissolved-phase hydrocarbon impacts surrounding the former excavation extent (Figure 1).

Groundwater Monitoring Activities

On April 5, 2023, groundwater monitoring was conducted at all seven monitoring wells (BH01 – BH07). Seven groundwater samples were submitted to Summit Scientific Laboratory 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, and total dissolved solids (TDS) by Method SM 2540C.

Second quarter 2023 analytical results indicated that organic compound concentrations were in compliance with the applicable COGCC Table 915-1 regulatory standards in all seven monitoring well locations. Additionally, inorganic parameters were in compliance with the applicable regulatory standards or within 1.25x the background concentrations of the up- and cross-gradient monitoring wells (BH05 and BH06) 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 fourth quarter 2022 and will remain the selected remediation strategy through the third quarter 2023.

Additionally, based on analytical results received for samples collected during confirmation soil sampling activities in April 2022, further sampling is necessary to vertically and horizontally delineate EC exceedances recorded in soil samples SS07 and SS08, as well as confirm the absence of hydrocarbon impacts in the vicinity of soil sample SS04.

Third quarter 2023 groundwater sampling will be conducted in July 2023.

BH04		
Compound (µg/L)	1/31/2023	4/5/2023
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)	5.41	5.74

BH03		
Compound (µg/L)	1/31/2023	4/5/2023
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)	6.89	6.95

BH02		
Compound (µg/L)	1/31/2023	4/5/2023
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)	8.01	7.72

BH05		
Compound (µg/L)	1/31/2023	4/5/2023
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)	5.87	5.91

BH01		
Compound (µg/L)	1/31/2023	4/5/2023
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)	8.29	8.09

BH06		
Compound (µg/L)	1/31/2023	4/5/2023
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)	6.55	6.47

BH07		
Compound (µg/L)	1/31/2023	4/5/2023
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)	8.36	8.11

Legend

- Monitoring Well Location (Collected via Trimble GPS)
- Secondary Containment (Collected via Trimble GPS)
- Release Extent (Collected via Trimble GPS)
- Excavation Extent (Collected via Trimble GPS)
- Excavation Groundwater Sample Location
- Groundwater Flow Direction (2Q23)

Notes

All locations are approximate unless otherwise noted.

TMB – Trimethylbenzene

µg/L – Micrograms per liter

ft. bgs – Feet below ground surface

GPS – Global Positioning System

0 ft. 25 ft. 50 ft.

Image Source: Google Earth; June 2021
Projection: WGS 84 UTM Zone 13 North

DATE: March 2, 2023

DESIGNED BY: C. Hamlin

DRAWN BY: G. Semenza



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

PDC Energy, Inc. – DJ Basin
Fagerberg Pad
SWSW, Section 12, Township 6 North, Range 66 West
Weld County, Colorado

GROUNDWATER
ANALYTICAL RESULTS
MAP

FIGURE
1

BH04		
Compound (mg/L)	1/31/2023	4/5/2023
Chloride	73.6	77.4
Sulfate	1,240	1,720
TDS	2,330	2,100
Depth to Water (ft. bgs)		
	5.41	5.74

BH03		
Compound (mg/L)	1/31/2023	4/5/2023
Chloride	81.8	78.6
Sulfate	1,540	1,820
TDS	2,410	2,210
Depth to Water (ft. bgs)		
	6.89	6.95

BH05		
Compound (mg/L)	1/31/2023	4/5/2023
Chloride	69.6	58.8
Sulfate	1,590	1,920
TDS	2,420	2,160
Depth to Water (ft. bgs)		
	5.87	5.91

BH02		
Compound (mg/L)	1/31/2023	4/5/2023
Chloride	71.2	67.6
Sulfate	1,590	2,130
TDS	2,510	2,310
Depth to Water (ft. bgs)		
	8.01	7.72

BH06		
Compound (mg/L)	1/31/2023	4/5/2023
Chloride	67.6	62.4
Sulfate	1,450	2,070
TDS	2,490	2,270
Depth to Water (ft. bgs)		
	6.55	6.47

BH01		
Compound (mg/L)	1/31/2023	4/5/2023
Chloride	76.4	72.6
Sulfate	1,650	2,210
TDS	2,660	2,350
Depth to Water (ft. bgs)		
	8.29	8.09

BH07		
Compound (mg/L)	1/31/2023	4/5/2023
Chloride	76.2	74.8
Sulfate	1,760	2,300
TDS	2,820	2,620
Depth to Water (ft. bgs)		
	8.36	8.11

Legend

- Monitoring Well Location (Collected via Trimble GPS)
- Secondary Containment (Collected via Trimble GPS)
- Release Extent (Collected via Trimble GPS)
- Excavation Extent (Collected via Trimble GPS)
- Excavation Groundwater Sample Location
- Groundwater Flow Direction (2Q23)

Notes

All locations are approximate unless otherwise noted.

Bold text denotes exceedance of COGCC Table 915-1 regulatory standard, but within 1.25x background concentration

COGCC – Colorado Oil and Gas Conservation Commission

TDS – Total Dissolved Solids

mg/L – Milligrams per liter

ft. bgs – Feet below ground surface

GPS – Global Positioning System

0 ft. 25 ft. 50 ft.

Image Source: Google Earth; June 2021
Projection: WGS 84 UTM Zone 13 North

DATE: March 2, 2023

DESIGNED BY: C. Hamlin

DRAWN BY: G. Semenza

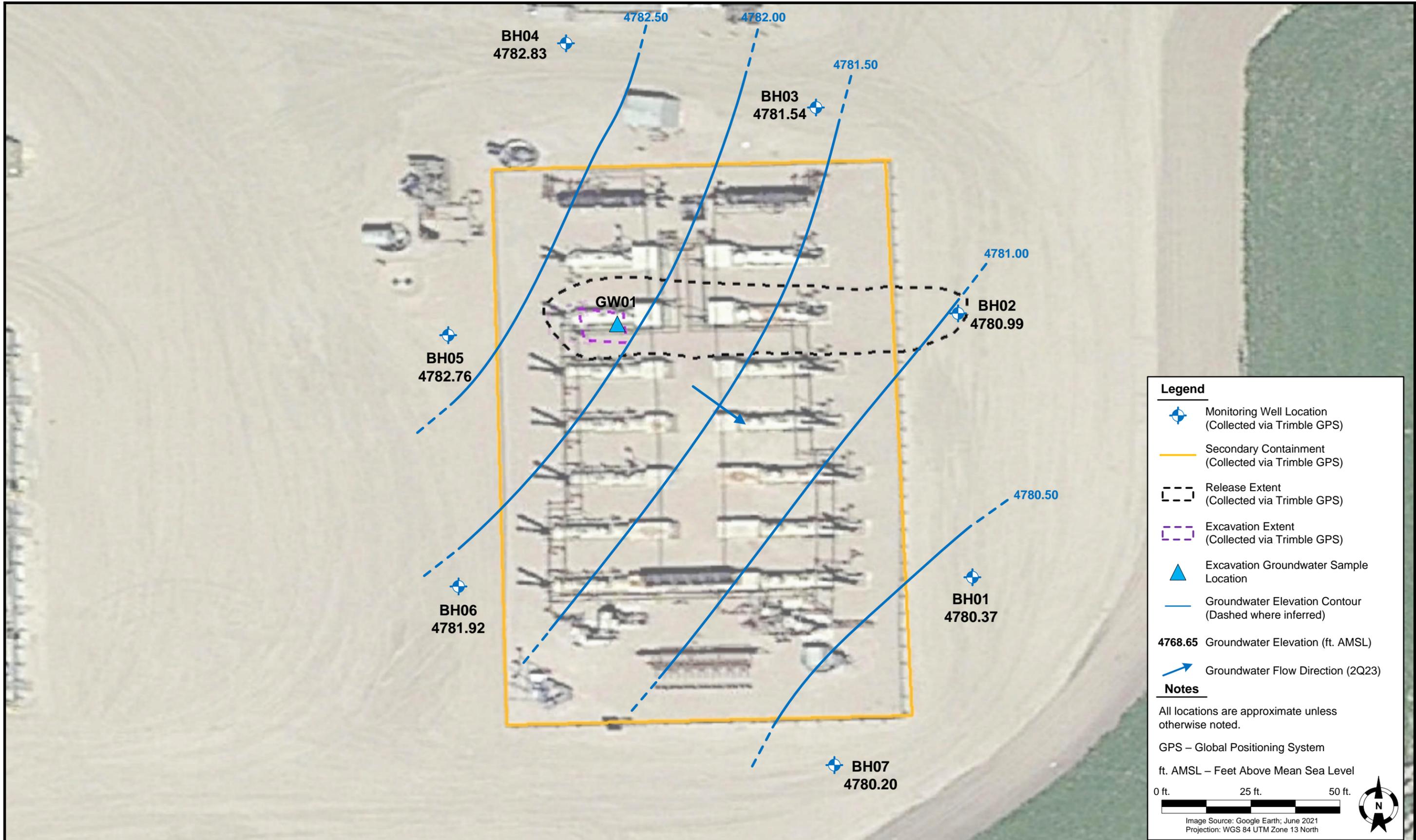


Tasman, Inc.
6855 W. 119th Ave.
Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin
Fagerberg Pad**
SWSW, Section 12, Township 6 North, Range 66 West
Weld County, Colorado

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

**FIGURE
2**



Legend

- Monitoring Well Location (Collected via Trimble GPS)
- Secondary Containment (Collected via Trimble GPS)
- Release Extent (Collected via Trimble GPS)
- Excavation Extent (Collected via Trimble GPS)
- Excavation Groundwater Sample Location
- Groundwater Elevation Contour (Dashed where inferred)

4768.65 Groundwater Elevation (ft. AMSL)

- Groundwater Flow Direction (2Q23)

Notes

All locations are approximate unless otherwise noted.

GPS – Global Positioning System

ft. AMSL – Feet Above Mean Sea Level

0 ft. 25 ft. 50 ft.

Image Source: Google Earth; June 2021
Projection: WGS 84 UTM Zone 13 North

DATE:	April 19, 2023
DESIGNED BY:	C. Hamlin
DRAWN BY:	J. Clonts

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

**PDC Energy, Inc. – DJ Basin
Fagerberg Pad**
SWSW, Section 12, Township 6 North, Range 66 West
Weld County, Colorado

**GROUNDWATER
ELEVATION CONTOUR
MAP (04/05/2023)**

**FIGURE
3**

TABLE 1
FAGERBERG PAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS

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 ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-	-
GW01	4/15/2022	120	690	84	700	23	150	56	~8	NA
BH01	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.22	4780.24
BH01	1/31/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.29	4780.17
BH01	4/5/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.09	4780.37
BH02	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.08	4780.63
BH02	1/31/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.01	4780.70
BH02	4/5/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.72	4780.99
BH03	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.79	4780.70
BH03	1/31/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.89	4781.60
BH03	4/5/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.95	4781.54
BH04	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.97	4780.60
BH04	1/31/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.41	4783.16
BH04	4/5/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.74	4782.83
BH05	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.73	4781.94
BH05	1/31/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.87	4782.80
BH05	4/5/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.91	4782.76
BH06	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.93	4781.46
BH06	1/31/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.55	4781.84
BH06	4/5/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.47	4781.92
BH07	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.10	4780.21
BH07	1/31/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.36	4779.95
BH07	4/5/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.11	4780.20

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

NA = Not applicable

BOLD = Analytical result in exceedance of applicable standard.

TABLE 2
FAGERBERG PAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC PARAMETERS

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Depth to Water ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (mg/L) (1)		<1.25 x BCKG	250 or <1.25 x BCKG	250 or <1.25 x BCKG	-	-
BH01	10/13/2022	2,050	178	1,660	8.22	4780.24
BH01	1/31/2023	2,660	76.4	1,650	8.29	4780.17
BH01	4/5/2023	2,350	72.6	2,210	8.09	4780.37
BH02	10/13/2022	2,410	71.4	1,690	8.08	4780.63
BH02	1/31/2023	2,510	71.2	1,590	8.01	4780.70
BH02	4/5/2023	2,310	67.6	2,130	7.72	4780.99
BH03	10/13/2022	2,100	79.2	1,940	7.79	4780.70
BH03	1/31/2023	2,410	81.8	1,540	6.89	4781.60
BH03	4/5/2023	2,210	78.6	1,820	6.95	4781.54
BH04	10/13/2022	1,920	83.4	1,710	7.97	4780.60
BH04	1/31/2023	2,330	73.6	1,240	5.41	4783.16
BH04	4/5/2023	2,100	77.4	1,720	5.74	4782.83
BH05	10/13/2022	2,050	81.2	1,760	6.73	4781.94
BH05	1/31/2023	2,420	69.6	1,590	5.87	4782.80
BH05	4/5/2023	2,160	58.8	1,920	5.91	4782.76
BH06	10/13/2022	2,100	57.8	1,650	6.93	4781.46
BH06	1/31/2023	2,490	67.6	1,450	6.55	4781.84
BH06	4/5/2023	2,270	62.4	2,070	6.47	4781.92
BH07	10/13/2022	2,360	56.2	1,600	8.10	4780.21
BH07	1/31/2023	2,820	76.2	1,760	8.36	4779.95
BH07	4/5/2023	2,620	74.8	2,300	8.11	4780.20

TABLE 2
FAGERBERG PAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC PARAMETERS

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Depth to Water ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (mg/L) <small>(1)</small>		<1.25 x BCKG	250 or <1.25 x BCKG	250 or <1.25 x BCKG	-	-

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.

TDS = Total dissolved solids

COGCC = Colorado Oil and Gas Conservation Commission

BCKG = Background

mg/L = Milligrams per liter

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

ft. = Feet

AMSL = Above Mean Sea Level

BOLD = Analytical result in exceedance of applicable standard, but within 1.25x BCKG concentrations.

 = Up-gradient well locations used for background concentration.

ATTACHMENT A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 12, 2023

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Fagerberg Pad

Work Order #2304080

Enclosed are the results of analyses for samples received by Summit Scientific on 04/05/23 17:37. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott Sheely For Paul Shrewsbury

President



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

Project: Fagerberg Pad

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2304080-01	Water	04/05/23 12:21	04/05/23 17:37
BH02	2304080-02	Water	04/05/23 13:34	04/05/23 17:37
BH03	2304080-03	Water	04/05/23 13:25	04/05/23 17:37
BH04	2304080-04	Water	04/05/23 13:13	04/05/23 17:37
BH05	2304080-05	Water	04/05/23 13:00	04/05/23 17:37
BH06	2304080-06	Water	04/05/23 12:48	04/05/23 17:37
BH07	2304080-07	Water	04/05/23 12:36	04/05/23 17:37

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

4653 Table Mountain Drive
Golden, CO 80403
303-277-9310

Lab ID	Page 1 of 1
2304080	

Client: PDC / Tasman		Project Manager: Mark Longhurst		Company: PDC Energy	
Address: 6855 W 119th Ave		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
City/State/Zip: Broomfield / CO / 80220				AFE#:	
Phone: 303-487-1228		Project Name: <i>Fagerberg Pad</i>		PO/Billing Codes:	
Sampler Name: <i>Jordan Hestmark</i>		Project Number:		Contact: Mark Longhurst	

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	TPH (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS		pH, EC, SAR
1	BH01	4/5/23	1221	4	X				X				X				X	
2	BH02		1334															
3	BH03		1325															
4	BH04		1313															
5	BH05		1300															
6	BH06		1248															
7	BH07		1236															
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

Relinquished by: <i>Jordan Hestmark</i>	Date/Time: 4/5/23 1606	Received by: <i>Tasman Lockbox</i>	Date/Time: 4/5/23 1606	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <i>Tasman Lockbox</i>	Date/Time: 4/5/23 1737	Received by: <i>[Signature]</i>	Date/Time: 4/5/23 1737	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: <u>8.5</u>	Corrected Temperature: <u>8</u>	IR gun #: <u>1</u>	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2304080

Client: Actasman Client Project ID: Fagerberg Pad

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

-

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

Temp (°C) Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS
Custodian Printed Name

4/5/23
Date/Time



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

Project: Fagerberg Pad
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

BH01
2304080-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/05/23 12:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGD0164	04/06/23	04/07/23	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: **04/05/23 12:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	16.3	123 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.8	104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.7	95.0 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **04/05/23 12:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	72.6	12.0		mg/L	200	BGD0247	04/08/23	04/08/23	EPA 300.0	
Sulfate	2210	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **04/05/23 12:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2350	10.0		mg/L	1	BGD0277	04/10/23	04/10/23	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: Fagerberg Pad

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

BH02
2304080-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/05/23 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGD0164	04/06/23	04/07/23	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: **04/05/23 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	16.1	121 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.6	102 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.0	97.6 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **04/05/23 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	67.6	12.0		mg/L	200	BGD0247	04/08/23	04/08/23	EPA 300.0	
Sulfate	2130	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **04/05/23 13:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2310	10.0		mg/L	1	BGD0277	04/10/23	04/10/23	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: Fagerberg Pad
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

BH03
2304080-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/05/23 13:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGD0164	04/06/23	04/07/23	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: **04/05/23 13:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	17.0	128 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.9	104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.6	94.4 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **04/05/23 13:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	78.6	12.0		mg/L	200	BGD0247	04/08/23	04/08/23	EPA 300.0	
Sulfate	1820	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **04/05/23 13:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2210	10.0		mg/L	1	BGD0277	04/10/23	04/10/23	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: Fagerberg Pad
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

BH04
2304080-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/05/23 13:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGD0164	04/06/23	04/07/23	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: **04/05/23 13:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	15.4	116 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.8	103 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.9	96.6 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **04/05/23 13:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	77.4	12.0		mg/L	200	BGD0247	04/08/23	04/08/23	EPA 300.0	
Sulfate	1720	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **04/05/23 13:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2100	10.0		mg/L	1	BGD0277	04/10/23	04/10/23	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: Fagerberg Pad
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

BH05
2304080-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/05/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGD0164	04/06/23	04/07/23	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: **04/05/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	17.5	131 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.6	102 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.8	96.2 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **04/05/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	58.8	12.0		mg/L	200	BGD0247	04/08/23	04/08/23	EPA 300.0	
Sulfate	1920	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **04/05/23 13:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2160	10.0		mg/L	1	BGD0277	04/10/23	04/10/23	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: Fagerberg Pad
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

BH06
2304080-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/05/23 12:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGD0164	04/06/23	04/07/23	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: **04/05/23 12:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	15.9	119 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	14.0	105 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.1	98.0 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **04/05/23 12:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	62.4	12.0		mg/L	200	BGD0247	04/08/23	04/08/23	EPA 300.0	
Sulfate	2070	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **04/05/23 12:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2270	10.0		mg/L	1	BGD0277	04/10/23	04/10/23	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: Fagerberg Pad
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

BH07
2304080-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/05/23 12:36**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGD0164	04/06/23	04/07/23	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: **04/05/23 12:36**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	17.2	129 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.6	102 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.8	96.2 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **04/05/23 12:36**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	74.8	12.0		mg/L	200	BGD0247	04/08/23	04/08/23	EPA 300.0	
Sulfate	2300	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **04/05/23 12:36**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2620	10.0		mg/L	1	BGD0277	04/10/23	04/10/23	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: Fagerberg Pad

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

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 BGD0164 - EPA 5030 Water MS

Blank (BGD0164-BLK1)

Prepared: 04/06/23 Analyzed: 04/07/23

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	14.2		"	13.3		106		23-173			
Surrogate: Toluene-d8	12.7		"	13.3		95.6		20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.9		21-167			

LCS (BGD0164-BS1)

Prepared: 04/06/23 Analyzed: 04/07/23

Benzene	36.3	1.0	ug/l	41.7		87.2		51-132			
Toluene	38.9	1.0	"	41.7		93.4		51-138			
Ethylbenzene	40.4	1.0	"	41.7		96.9		58-146			
m,p-Xylene	81.9	2.0	"	83.3		98.3		57-144			
o-Xylene	39.3	1.0	"	41.7		94.4		53-146			
Naphthalene	37.7	1.0	"	41.7		90.6		70-130			
1,2,4-Trimethylbenzene	44.4	1.0	"	41.7		107		70-130			
1,3,5-Trimethylbenzene	45.0	1.0	"	41.7		108		70-130			
Surrogate: 1,2-Dichloroethane-d4	15.8		"	13.3		119		23-173			
Surrogate: Toluene-d8	13.9		"	13.3		104		20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.4		21-167			

Matrix Spike (BGD0164-MS1)

Source: 2304080-01

Prepared: 04/06/23 Analyzed: 04/07/23

Benzene	33.6	1.0	ug/l	41.7	ND	80.7		34-141			
Toluene	36.0	1.0	"	41.7	ND	86.4		27-151			
Ethylbenzene	40.7	1.0	"	41.7	ND	97.7		29-160			
m,p-Xylene	82.6	2.0	"	83.3	ND	99.1		20-166			
o-Xylene	39.6	1.0	"	41.7	ND	95.1		33-159			
Naphthalene	44.0	1.0	"	41.7	ND	106		70-130			
1,2,4-Trimethylbenzene	45.3	1.0	"	41.7	ND	109		70-130			
1,3,5-Trimethylbenzene	45.8	1.0	"	41.7	ND	110		70-130			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.3		108		23-173			
Surrogate: Toluene-d8	12.6		"	13.3		94.2		20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.7		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.



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

Project: Fagerberg Pad

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/12/23 11:09

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BGD0164 - EPA 5030 Water MS

Matrix Spike Dup (BGD0164-MSD1)	Source: 2304080-01			Prepared: 04/06/23 Analyzed: 04/07/23					
Benzene	37.4	1.0	ug/l	41.7	ND	89.7	34-141	10.5	30
Toluene	39.7	1.0	"	41.7	ND	95.3	27-151	9.75	30
Ethylbenzene	41.8	1.0	"	41.7	ND	100	29-160	2.62	30
m,p-Xylene	84.4	2.0	"	83.3	ND	101	20-166	2.17	30
o-Xylene	39.8	1.0	"	41.7	ND	95.5	33-159	0.428	30
Naphthalene	44.4	1.0	"	41.7	ND	107	70-130	0.972	30
1,2,4-Trimethylbenzene	46.1	1.0	"	41.7	ND	111	70-130	1.90	30
1,3,5-Trimethylbenzene	47.0	1.0	"	41.7	ND	113	70-130	2.46	30
Surrogate: 1,2-Dichloroethane-d4	15.6		"	13.3		117	23-173		
Surrogate: Toluene-d8	14.0		"	13.3		105	20-170		
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.5	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.



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

Project: Fagerberg Pad

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 04/12/23 11:09

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 BGD0247 - General Preparation

LCS (BGD0247-BS1)

Prepared & Analyzed: 04/08/23

Chloride	2.78	0.0600	mg/L	3.00		92.7	90-110
Sulfate	14.1	0.300	"	15.0		93.8	90-110

Duplicate (BGD0247-DUP1)

Source: 2304080-01

Prepared & Analyzed: 04/08/23

Chloride	72.0	12.0	mg/L		72.6		0.830	20
Sulfate	2120	60.0	"		2210		4.18	20

Matrix Spike (BGD0247-MS1)

Source: 2304080-01

Prepared & Analyzed: 04/08/23

Chloride	588	12.0	mg/L	600	72.6	85.9	80-120
Sulfate	4660	60.0	"	3000	2210	81.7	80-120

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: Fagerberg Pad

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 04/12/23 11:09

Total Dissolved Solids by SM2540C - Quality Control

Summit Scientific

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

Batch BGD0277 - General Preparation

Blank (BGD0277-BLK1)

Prepared & Analyzed: 04/10/23

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BGD0277-DUP1)

Source: 2304077-01

Prepared & Analyzed: 04/10/23

Total Dissolved Solids 1760 10.0 mg/L 1760 0.398 20

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: Fagerberg Pad
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/12/23 11:09

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