



PDC Energy, Inc.
First Quarter 2023 Groundwater Monitoring Summary

November 23, 2022

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 January 31, 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.

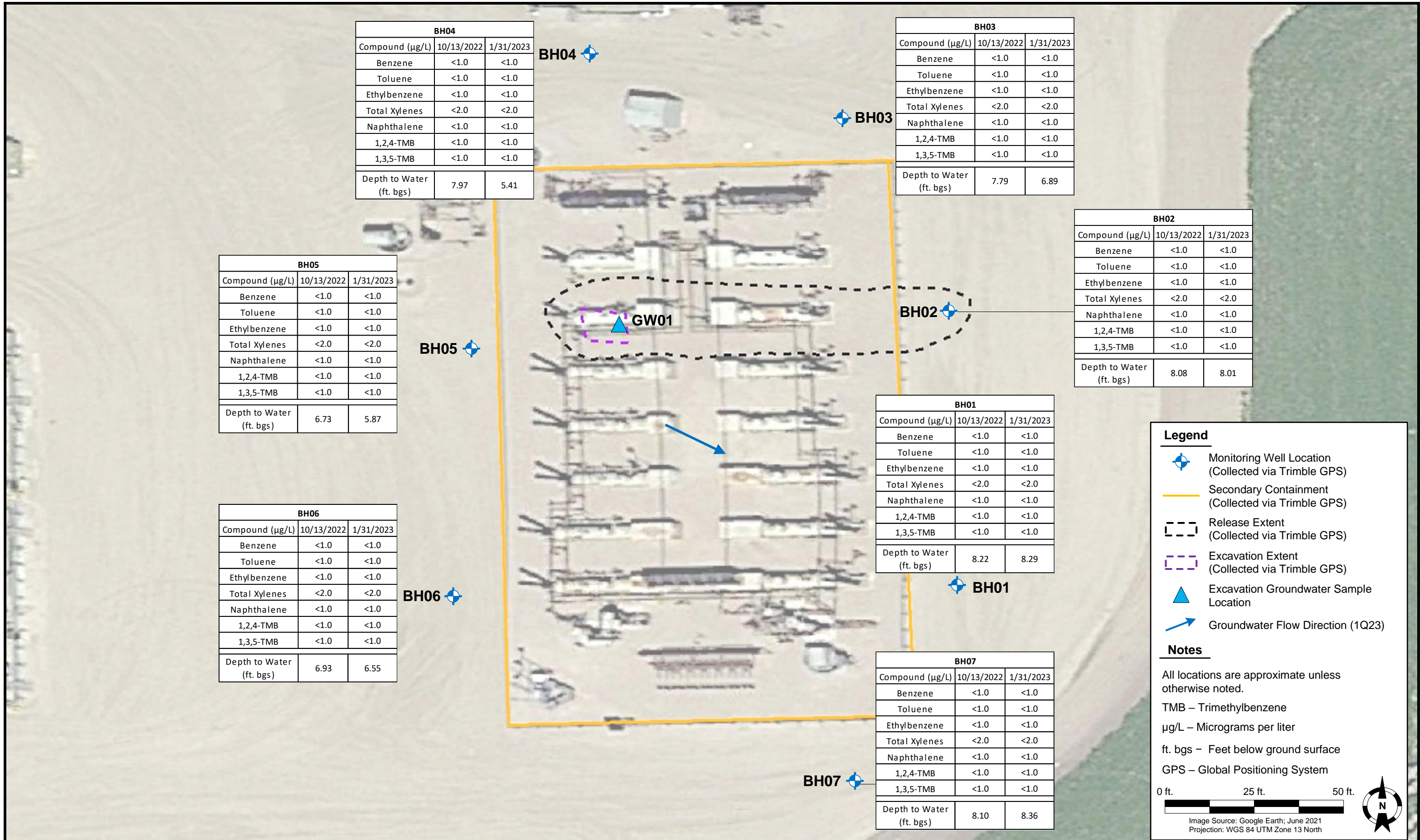
First quarter 2023 analytical results indicated that organic compound concentrations were in compliance with the applicable COGCC Table 915-1 regulatory standards in all seven monitoring well locations. Additionally, inorganic parameters were in compliance with the applicable regulatory standards or 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.

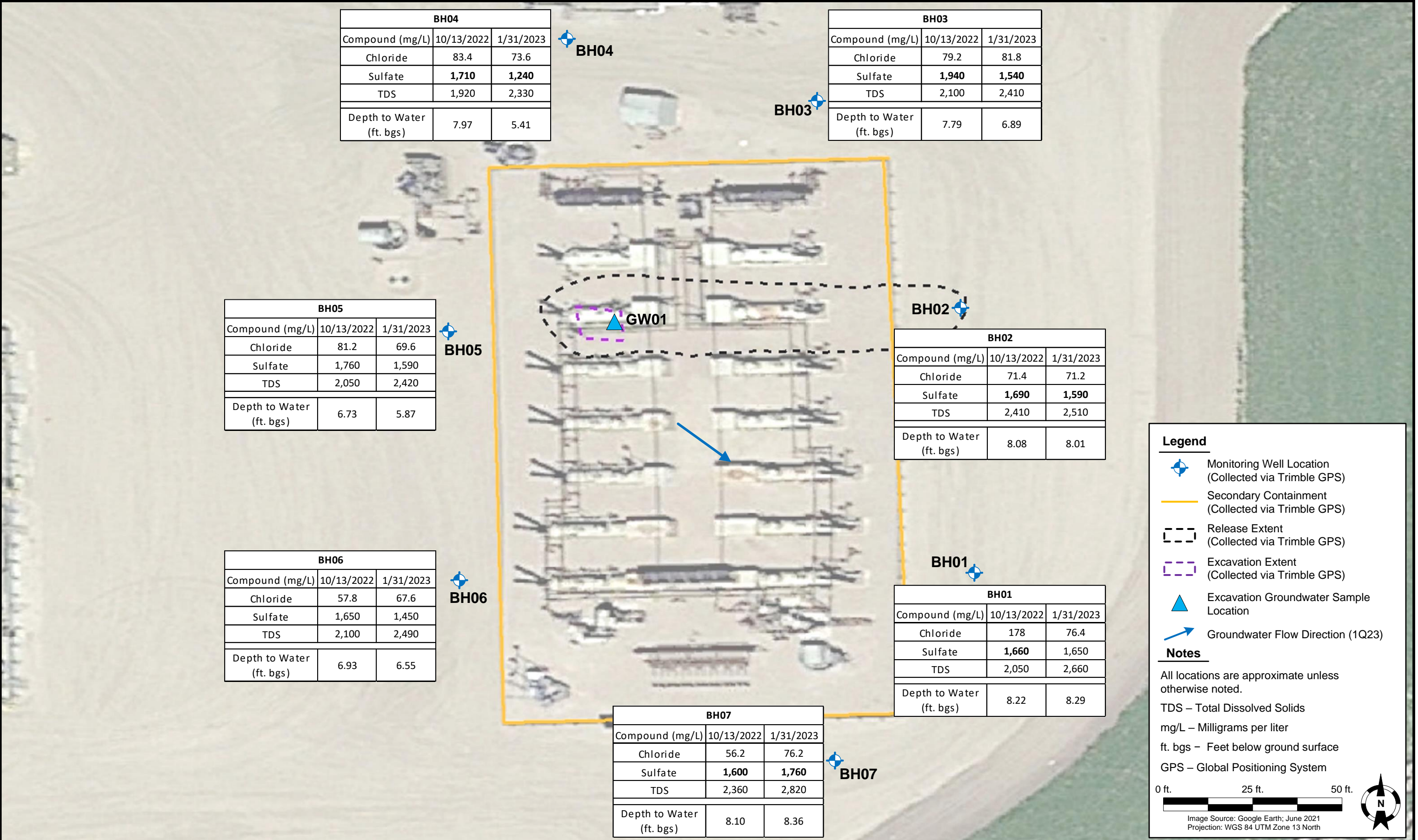
Current Remediation Activities and Path Forward

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 second 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.

Second quarter 2023 groundwater sampling will be conducted in April 2023.





DATE: March 2, 2023

DESIGNED BY: C. Hamlin

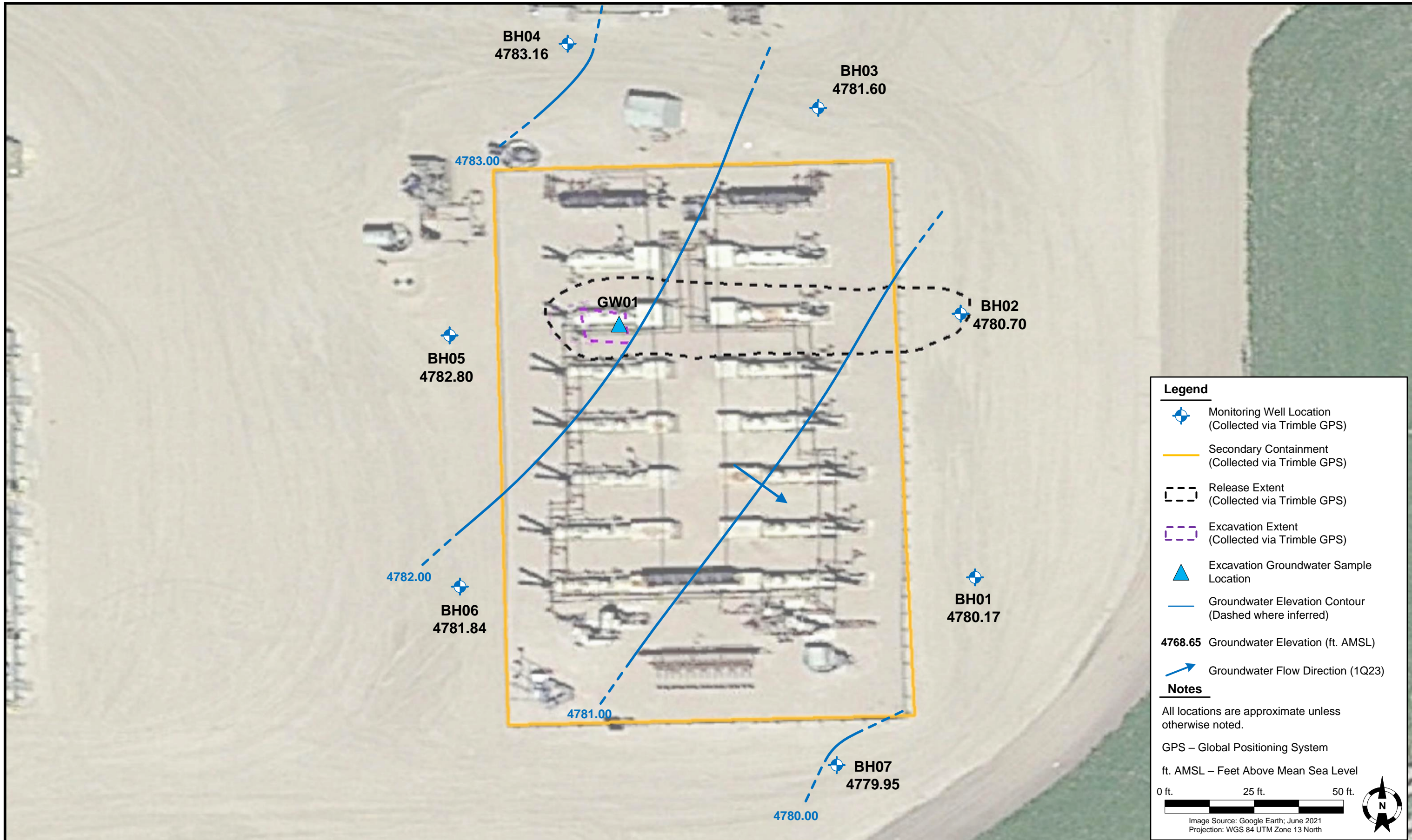
DRAWN BY: J. Marcus

 **TASMAN** 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 (1Q23)

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

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
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
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
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
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
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
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

Notes:

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

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

February 06, 2023

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Fagerberg Pad

Work Order #2301543

Enclosed are the results of analyses for samples received by Summit Scientific on 01/31/23 17:42. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Sheely".

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:
02/06/23 11:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2301543-01	Water	01/31/23 11:15	01/31/23 17:42
BH02	2301543-02	Water	01/31/23 11:20	01/31/23 17:42
BH03	2301543-03	Water	01/31/23 11:25	01/31/23 17:42
BH04	2301543-04	Water	01/31/23 11:30	01/31/23 17:42
BH05	2301543-05	Water	01/31/23 11:35	01/31/23 17:42
BH06	2301543-06	Water	01/31/23 11:40	01/31/23 17:42
BH07	2301543-07	Water	01/31/23 11:45	01/31/23 17:42

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.

2301543

Summit Scientific

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: PDC/Tasman Geosciences

Project Manager: Mark Longhurst

Address: 6855 W. 119 St.

E-Mail: mark.longhurst@pdce.com

City/State/Zip: Broomfield CO 80020

Phone: 303-487-1228

Project Name: Fagerberg Pad

Sampler Name: Gabe Semenza

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	1,2,4 & 1,3,5 TMB	TPH (C6 - C36)	Table 915-1 PAH	pH, EC, SAR	Boron	TDS, Cl, SO ₄		
1	BH01	1/31/23	1115	4	3		1		X				X	X					X		
2	BH02	↓	1120	↓	↓		↓		↓				↓	↓				↓			
3	BH03	↓	1125	↓	↓		↓		↓				↓	↓				↓			
4	BH04	↓	1130	↓	↓		↓		↓				↓	↓				↓			
5	BH05	↓	1135	↓	↓		↓		↓				↓	↓				↓			
6	BH06	↓	1140	↓	↓		↓		↓				↓	↓				↓			
7	BH07	↓	1145	↓	↓		↓		↓				↓	↓				↓			
8																					
9																					
10																					

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
<u>G. Semenza</u>	<u>1/31/23</u> <u>1550</u>	<u>Tasman Lockbox</u>	<u>1/31/23</u> <u>1550</u>	Same Day	72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
<u>Tasman Lockbox</u>	<u>1/31/23</u> <u>1742</u>	<u>[Signature]</u>	<u>1/31/23</u> <u>1742</u>	48 hours	<u>X</u>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
				Temperature Upon Receipt: <u>5.8</u>		
				Samples Intact: <u>Yes</u> No		

S₂

Sample Receipt Checklist

S2 Work Order# 2301543Client: PDC / RasmanClient Project ID: Fagerberg PadShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

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"/>	
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

1/31/23
Date/Time



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

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

Reported:
02/06/23 11:24

BH01
2301543-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/31/23 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BGB0005	02/01/23	02/01/23	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: **01/31/23 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	20.8	156 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	14.2	106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.1	113 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **01/31/23 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	76.4	12.0	mg/L	200	BGB0091	02/03/23	02/03/23	EPA 300.0	
Sulfate	1650	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/31/23 11:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	2660	10.0	mg/L	1	BGB0041	02/02/23	02/02/23	SM2540C	

Summit Scientific

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

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

Reported:
02/06/23 11:24

BH02
2301543-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/31/23 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGB0005	02/01/23	02/01/23	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: **01/31/23 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	18.8	141 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.9	105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.4	116 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **01/31/23 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	71.2	12.0	mg/L	200	BGB0091	02/03/23	02/03/23	EPA 300.0	
Sulfate	1590	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/31/23 11:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	2510	10.0	mg/L	1	BGB0041	02/02/23	02/02/23	SM2540C	

Summit Scientific

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

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

Reported:
02/06/23 11:24

BH03
2301543-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/31/23 11:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGB0005	02/01/23	02/01/23	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: **01/31/23 11:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	18.6	139 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.9	104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.3	115 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **01/31/23 11:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	81.8	12.0		mg/L	200	BGB0091	02/03/23	02/03/23	EPA 300.0	
Sulfate	1540	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/31/23 11:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2410	10.0		mg/L	1	BGB0041	02/02/23	02/02/23	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:
02/06/23 11:24

BH04
2301543-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/31/23 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGB0005	02/01/23	02/01/23	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: **01/31/23 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	19.0	142 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	14.1	106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.1	114 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **01/31/23 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	73.6	12.0	mg/L	200	BGB0091	02/03/23	02/03/23	EPA 300.0	
Sulfate	1240	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/31/23 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	2330	10.0	mg/L	1	BGB0041	02/02/23	02/02/23	SM2540C	

Summit Scientific

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

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

Reported:
02/06/23 11:24

BH05
2301543-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/31/23 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGB0005	02/01/23	02/01/23	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: **01/31/23 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	18.3	137 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.9	104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.3	115 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **01/31/23 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	69.6	12.0		mg/L	200	BGB0091	02/03/23	02/03/23	EPA 300.0	
Sulfate	1590	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/31/23 11:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2420	10.0		mg/L	1	BGB0041	02/02/23	02/02/23	SM2540C	

Summit Scientific

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

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

Reported:
02/06/23 11:24

BH06
2301543-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/31/23 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGB0005	02/01/23	02/01/23	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: **01/31/23 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	19.1	144 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	14.0	105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.1	113 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **01/31/23 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	67.6	12.0	mg/L	200	BGB0091	02/03/23	02/03/23	EPA 300.0	
Sulfate	1450	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/31/23 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	2490	10.0	mg/L	1	BGB0041	02/02/23	02/02/23	SM2540C	

Summit Scientific

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

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

Reported:
02/06/23 11:24

BH07
2301543-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/31/23 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGB0005	02/01/23	02/01/23	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: **01/31/23 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	18.9	142 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	14.2	106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.4	115 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **01/31/23 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	76.2	12.0	mg/L	200	BGB0091	02/03/23	02/04/23	EPA 300.0	
Sulfate	1760	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/31/23 11:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	2820	10.0	mg/L	1	BGB0041	02/02/23	02/02/23	SM2540C	

Summit Scientific

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

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

Reported:
02/06/23 11:24

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BGB0005 - EPA 5030 Water MS

Blank (BGB0005-BLK1)

Prepared & Analyzed: 02/01/23

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	18.2		"	13.3		137	23-173			
Surrogate: Toluene-d8	13.8		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	15.3		"	13.3		115	21-167			

LCS (BGB0005-BS1)

Prepared & Analyzed: 02/01/23

Benzene	31.2	1.0	ug/l	41.7		74.8	51-132			
Toluene	42.7	1.0	"	41.7		102	51-138			
Ethylbenzene	44.8	1.0	"	41.7		108	58-146			
m,p-Xylene	86.3	2.0	"	83.3		104	57-144			
o-Xylene	42.4	1.0	"	41.7		102	53-146			
Naphthalene	44.2	1.0	"	41.7		106	70-130			
1,2,4-Trimethylbenzene	48.5	1.0	"	41.7		116	70-130			
1,3,5-Trimethylbenzene	47.5	1.0	"	41.7		114	70-130			
Surrogate: 1,2-Dichloroethane-d4	18.5		"	13.3		139	23-173			
Surrogate: Toluene-d8	14.0		"	13.3		105	20-170			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108	21-167			

Matrix Spike (BGB0005-MS1)

Source: 2301543-01

Prepared & Analyzed: 02/01/23

Benzene	30.2	1.0	ug/l	41.7	ND	72.6	34-141			
Toluene	42.0	1.0	"	41.7	ND	101	27-151			
Ethylbenzene	44.0	1.0	"	41.7	ND	106	29-160			
m,p-Xylene	83.4	2.0	"	83.3	ND	100	20-166			
o-Xylene	41.2	1.0	"	41.7	ND	98.9	33-159			
Naphthalene	54.1	1.0	"	41.7	ND	130	70-130			
1,2,4-Trimethylbenzene	47.2	1.0	"	41.7	ND	113	70-130			
1,3,5-Trimethylbenzene	46.3	1.0	"	41.7	ND	111	70-130			
Surrogate: 1,2-Dichloroethane-d4	20.1		"	13.3		151	23-173			
Surrogate: Toluene-d8	14.0		"	13.3		105	20-170			
Surrogate: 4-Bromofluorobenzene	14.6		"	13.3		109	21-167			

Summit Scientific

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

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

Reported:
02/06/23 11:24

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch BGB0005 - EPA 5030 Water MS

Matrix Spike Dup (BGB0005-MSD1)	Source: 2301543-01			Prepared & Analyzed: 02/01/23						
Benzene	29.9	1.0	ug/l	41.7	ND	71.8	34-141	1.13	30	
Toluene	42.2	1.0	"	41.7	ND	101	27-151	0.404	30	
Ethylbenzene	44.1	1.0	"	41.7	ND	106	29-160	0.340	30	
m,p-Xylene	84.0	2.0	"	83.3	ND	101	20-166	0.753	30	
o-Xylene	41.8	1.0	"	41.7	ND	100	33-159	1.54	30	
Naphthalene	51.6	1.0	"	41.7	ND	124	70-130	4.69	30	
1,2,4-Trimethylbenzene	47.6	1.0	"	41.7	ND	114	70-130	0.696	30	
1,3,5-Trimethylbenzene	46.6	1.0	"	41.7	ND	112	70-130	0.539	30	
Surrogate: 1,2-Dichloroethane-d4	19.4		"	13.3		146	23-173			
Surrogate: Toluene-d8	14.2		"	13.3		107	20-170			
Surrogate: 4-Bromofluorobenzene	14.3		"	13.3		108	21-167			

Summit Scientific

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

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

Reported:
02/06/23 11:24

Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

Batch BGB0091 - General Preparation

Blank (BGB0091-BLK1)

Prepared & Analyzed: 02/03/23

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

LCS (BGB0091-BS1)

Prepared & Analyzed: 02/03/23

Chloride	2.99	0.0600	mg/L	3.00	99.6	90-110
Sulfate	14.6	0.300	"	15.0	97.2	90-110

Duplicate (BGB0091-DUP1)

Source: 2301543-01

Prepared & Analyzed: 02/03/23

Chloride	74.8	12.0	mg/L	76.4	2.12	20
Sulfate	1620	60.0	"	1650	1.67	20

Matrix Spike (BGB0091-MS1)

Source: 2301543-01

Prepared & Analyzed: 02/03/23

Chloride	530	12.0	mg/L	600	76.4	75.6	80-120	QM-02
Sulfate	4020	60.0	"	3000	1650	79.0	80-120	QM-02

Summit Scientific

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

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

Reported:
02/06/23 11:24

Total Dissolved Solids by SM2540C - Quality Control
Summit Scientific

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

Batch BGB0041 - General Preparation

Blank (BGB0041-BLK1)

Prepared & Analyzed: 02/02/23

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BGB0041-DUP1)

Source: 2301543-01

Prepared & Analyzed: 02/02/23

Total Dissolved Solids 2710 10.0 mg/L 2660 2.09 20

Summit Scientific

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

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

Reported:
02/06/23 11:24

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