

PDC Energy, Inc.
First Quarter 2023 Groundwater Monitoring Summary

February 15, 2023

Former Owl Creek 7, 7-5 Tank Battery
NESE Section 5 T6N R64W
Remediation # 16159

This groundwater monitoring summary has been prepared by Tasman, Inc. for the former Owl Creek 7, 7-5 Tank Battery.

Site History and Background

On January 29, 2021, a historic hydrocarbon release was discovered beneath the produced water vessel during decommissioning activities. Following the discovery, mitigation activities were initiated, and between January 29, and February 22, 2021, approximately 2,154 cubic yards of impacted material were removed from the former excavation. During excavation activities, groundwater was encountered within the excavation at approximately 7 feet below ground surface (bgs). Groundwater vacuum recovery activities were conducted concurrent with excavation activities and approximately 220 barrels of groundwater were removed from location. On March 31, 2021, twelve (12) monitoring wells (BH01 – BH12) were installed to confirm the absence of dissolved phase hydrocarbon impacts within and adjacent to the former excavation extent. Per landowner request, monitoring wells BH01 – BH08, and BH10 – BH11 were buried approximately 24 inches bgs. Due to agricultural practices, buried monitoring wells BH01 – BH08 and BH10 – BH11 were destroyed and temporary monitoring wells BH01R, BH02, BH03R – BH06R, BH07 – BH08, BH10R, and BH11 were installed quarterly via hand auger following the second quarter 2021 groundwater monitoring event. First quarter 2022 analytical results indicated that organic compound concentrations were in compliance with the applicable COGCC Table 915-1 regulatory standards for four consecutive quarters and subsequently were removed from the quarterly sampling and analysis plan.

Groundwater Monitoring Activities

On January 23, 2023, groundwater monitoring was conducted at all 12 monitoring wells (BH01R, BH02, BH03R—BH06R, BH07—BH09, BH10R, BH11, and BH12). Temporary monitoring wells BH01R, BH02, BH03R—BH06R, BH07—BH08, BH10R, and BH11) were installed using a hand auger in cultivated land. The wells were purged, sampled, and subsequently abandoned. Twelve groundwater samples were submitted for analysis of total dissolved solids (TDS) by Method SM 2540C, and chloride and sulfate anions by EPA Method 300.0.

First quarter 2023 analytical results indicated that TDS and sulfate anion concentrations were in exceedance of the applicable COGCC Table 915-1 groundwater standards and/or above 1.25x the background concentrations of the up- and cross-gradient monitoring wells (BH01R, BH06R, BH07, BH09, BH11, and BH12) in monitoring wells BH03R and BH04R. Chloride concentrations were in compliance with

the applicable regulatory standards in all 12 monitoring well locations. In addition, inorganic parameter concentration trends were examined over time and compared to historic background data and groundwater flow direction. Based on the data, there is an overall decreasing trend in inorganic concentrations over time. The graphs illustrating the data are included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. Groundwater elevation data is illustrated on Figure 2. Groundwater analytical results are summarized in Table 1. The laboratory analytical report is included as Attachment B.

Current Remediation Activities and Path Forward

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the second quarter 2021 and will remain the selected remediation strategy through the second quarter 2023.

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

BH02		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	15.8	23.6
Sulfate	2.20	214
TDS	544	503
Depth to water (ft. bgs)	2.73	5.19

BH01R		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	22.2	26.5
Sulfate	56.6	176
TDS	489	473
Depth to water (ft. bgs)	4.68	5.03

BH11		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	38.6	24.8
Sulfate	29.4	159
TDS	510	514
Depth to water (ft. bgs)	4.59	5.49

BH04R		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	22.6	68.6
Sulfate	57.4	1,300
TDS	577	1,710
Depth to water (ft. bgs)	4.98	4.55

BH12		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	33.0	23.0
Sulfate	9.60	207
TDS	428	494
Depth to water (ft. bgs)	5.01	6.20

BH03R		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	321	182
Sulfate	606	1,660
TDS	2,000	2,160
Depth to water (ft. bgs)	7.91	5.23

BH10R		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	8.20	26.8
Sulfate	97.6	338
TDS	633	644
Depth to water (ft. bgs)	5.41	5.67

BH08		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	57.6	29.6
Sulfate	89.4	218
TDS	844	668
Depth to water (ft. bgs)	4.88	5.09

BH05R		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	182	36.4
Sulfate	137	265
TDS	1,210	636
Depth to water (ft. bgs)	7.78	5.01

BH09		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	56.4	23.0
Sulfate	156	223
TDS	501	513
Depth to water (ft. bgs)	4.83	5.75

BH06R		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	41.0	25.2
Sulfate	40.6	234
TDS	696	554
Depth to water (ft. bgs)	7.43	5.13

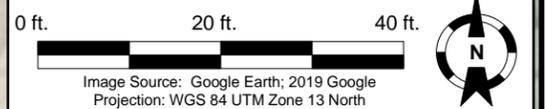
BH07		
Compound (mg/L)	10/12/2022	1/23/2023
Chloride	18.2	25.6
Sulfate	13.2	168
TDS	609	382
Depth to water (ft. bgs)	4.57	5.09

Legend

- Excavation Extent (Collected via Trimble GPS)
- Monitoring Well Location (Collected via Trimble GPS)
- Replacement Monitoring Well Location (Collected via Trimble GPS)
- Groundwater Sample Location
- Groundwater Flow Direction (1Q23)

Notes

All locations are approximate unless otherwise noted.
 GPS – Global Positioning System
 mg/L – Milligrams per liter
 TDS – Total dissolved solids
 Red text – exceedances of COGCC Table 915-1 standards and above 1.25x BCKG concentration.
 Bold text – exceedances of COGCC Table 915-1 standards but within 1.25x BCKG concentration.
 COGCC – Colorado Oil and Gas Conservation Commission
 BCKG – Background



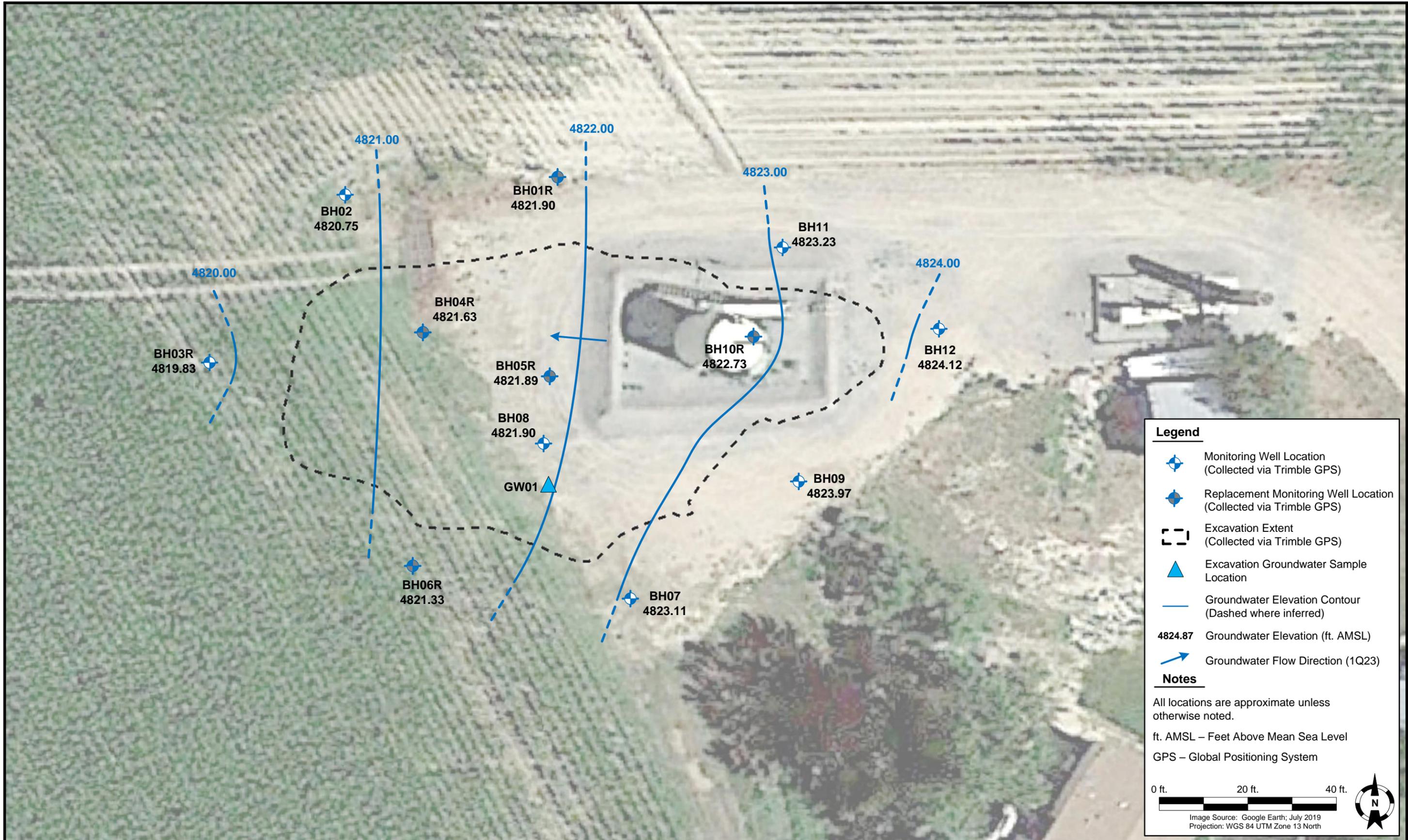
DATE: February 15, 2022
 DESIGNED BY: B. Nelson
 DRAWN BY: S. Anderson

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

PDC Energy, Inc. – DJ Basin
Former Owl Creek 7, 7-5 Tank Battery
 NESE, Section 5 Township 6 North, Range 64 West
 Weld County, Colorado

GROUNDWATER ANALYTICAL RESULTS MAP (INORGANIC PARAMETERS)

FIGURE 1



Legend

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

4824.87 Groundwater Elevation (ft. AMSL)

Groundwater Flow Direction (1Q23)

Notes

All locations are approximate unless otherwise noted.

ft. AMSL – Feet Above Mean Sea Level

GPS – Global Positioning System

0 ft. 20 ft. 40 ft.

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

DATE: February 23, 2023

DESIGNED BY: B. Nelson

DRAWN BY: M. Kaczmarek

Tasman, Inc.
6855 West 119th Avenue
Broomfield, CO 80020

PDC Energy, Inc. – DJ Basin
Former Owl Creek 7, 7-5 Tank Battery
NESE, Section 5 Township 6 North, Range 64 West
Weld County, Colorado

GROUNDWATER ELEVATION CONTOUR MAP (01/23/2023)

FIGURE 2

TABLE 1
FORMER OWL CREEK 7, 7-5 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC PARAMETERS

Sample ID	Date Sampled	TDS (mg/L)	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	-	-
BH01R	4/26/2021	1,140	157	254	2.92	4824.87
BH01R	7/13/2021	572	16.2	263	3.64	4825.40
BH01R	10/26/2021	550	11.6	241	4.50	4822.80
BH01R	1/27/2022	1,060	159	139	2.44	4825.16
BH01R	4/21/2022	497	52.4	157	4.61	4824.10
BH01R	7/27/2022	694	18.4	133	4.55	4820.83
BH01R	10/12/2022	489	22.2	56.6	4.68	4822.29
BH01R	1/23/2023	473	26.5	176	5.03	4821.90
BH02	4/6/2021	596	4.30	132	NM	NM
BH02	7/13/2021	530	14.4	474	3.88	4824.45
BH02	10/26/2021	590	12.2	270	2.66	4821.39
BH02	1/27/2022	1,130	159	156	2.43	4822.03
BH02	4/21/2022	471	40.4	141	2.81	4822.96
BH02	7/27/2022	516	1.40	94.2	3.05	4819.46
BH02	10/12/2022	544	15.8	2.20	2.73	4820.76
BH02	1/23/2023	503	23.6	214	5.19	4820.75
BH03R	4/26/2021	1,550	205	237	2.81	4822.99
BH03R	7/13/2021	1,860	292	1,500	3.27	4823.80
BH03R	10/26/2021	1,740	216	1,410	5.35	4820.16
BH03R	1/27/2022	3,280	194	1,370	4.90	4820.85
BH03R	4/21/2022	1,720	198	1,110	4.73	4822.10
BH03R	7/27/2022	1,690	123	785	4.42	4819.04
BH03R	10/12/2022	2,000	321	606	7.91	4817.22
BH03R	1/23/2023	2,160	182	1,660	5.23	4819.83
BH04R	4/26/2021	4,590	740	2,530	2.33	4824.69
BH04R	7/13/2021	2,850	343	2,420	2.48	4825.74
BH04R	10/26/2021	3,690	130	3,420	3.98	4822.51
BH04R	1/27/2022	2,680	731	308	6.71	4820.13
BH04R	4/21/2022	856	69.4	413	4.08	4823.78
BH04R	7/27/2022	694	8.20	133	4.45	4820.18
BH04R*	10/12/2022	577	22.6	57.4	4.98	4821.39
BH04R	1/23/2023	1,710	68.6	1,300	4.55	4821.63

TABLE 1
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INORGANIC PARAMETERS

Sample ID	Date Sampled	TDS (mg/L)	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	-	-
BH05R	4/26/2021	4,290	561	2,610	2.81	4825.06
BH05R	7/13/2021	1,390	85.4	1,280	2.93	4826.23
BH05R	10/26/2021	899	32.8	383	5.28	4822.06
BH05R	1/27/2022	1,690	98.0	479	4.85	4822.86
BH05R	4/21/2022	807	117	285	4.87	4823.97
BH05R	7/27/2022	1,490	28.0	707	4.02	4821.39
BH05R	10/12/2022	1,210	182	137	7.78	4819.23
BH05R	1/23/2023	636	36.4	265	5.01	4821.89
BH06R	4/26/2021	1,270	172	303	2.83	4824.25
BH06R	7/13/2021	653	19.8	342	2.52	4825.89
BH06R	10/26/2021	616	15.8	266	4.55	4821.90
BH06R	1/27/2022	1,080	149	133	4.61	4822.36
BH06R	4/21/2022	506	20.2	182	5.18	4822.72
BH06R	7/27/2022	793	15.6	215	4.48	4820.29
BH06R	10/12/2022	696	41.0	40.6	7.43	4818.83
BH06R	1/23/2023	554	25.2	234	5.13	4821.33
BH07	4/6/2021	561	3.34	125	2.90	4825.78
BH07	7/13/2021	640	21.2	431	3.82	4826.53
BH07	10/26/2021	582	13.0	252	5.10	4823.59
BH07	1/27/2022	1,510	256	177	5.47	4824.11
BH07	4/21/2022	617	98.4	141	5.02	4824.90
BH07	7/27/2022	725	14.2	153	4.56	4821.87
BH07	10/12/2022	609	18.2	13.2	4.57	4823.48
BH07	1/23/2023	382	25.6	168	5.09	4823.11
BH08	4/6/2021	686	6.88	227	NM	NM
BH08	7/13/2021	1,340	47.2	1,100	2.75	4826.03
BH08	10/26/2021	Not Sampled - Dry			Dry	Dry
BH08	1/27/2022	1,180	108	160	4.68	4822.74
BH08	4/21/2022	738	135	264	5.57	4822.88
BH08	7/27/2022	1,020	19.6	353	3.77	4821.36
BH08	10/12/2022	844	57.6	89.4	4.88	4822.02
BH08	1/23/2023	668	29.6	218	5.09	4821.90

TABLE 1
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GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC PARAMETERS

Sample ID	Date Sampled	TDS (mg/L)	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	-	-
BH09	4/6/2021	647	6.06	176	3.64	4826.77
BH09	7/13/2021	633	23.8	495	3.88	4826.53
BH09	10/26/2021	577	8.20	274	4.89	4824.93
BH09	1/27/2022	696	8.23	126	5.10	4825.14
BH09	4/21/2022	448	6.50	173	5.34	4825.99
BH09	7/27/2022	613	10.8	150	4.90	4822.94
BH09	10/12/2022	501	56.4	156	4.83	4823.01
BH09	1/23/2023	513	23.0	223	5.75	4823.97
BH10R	4/26/2021	1,540	189	410	3.44	4825.70
BH10R	7/13/2021	578	8.60	376	3.41	4827.03
BH10R	10/26/2021	721	11.8	401	5.12	4823.50
BH10R	1/27/2022	1,490	224	175	5.27	4823.64
BH10R	4/21/2022	561	36.8	247	5.76	4824.31
BH10R	7/27/2022	1,250	29.6	376	4.79	4822.09
BH10R	10/12/2022	633	8.20	97.6	5.41	4822.98
BH10R	1/23/2023	644	26.8	338	5.67	4822.73
BH11	4/6/2021	624	9.80	235	3.16	4826.40
BH11	7/13/2021	505	10.0	266	4.06	4826.94
BH11	10/26/2021	512	13.2	198	4.98	4824.00
BH11	1/27/2022	1,200	200	146	4.85	4824.57
BH11	4/21/2022	530	82.8	145	4.91	4825.29
BH11	7/27/2022	642	14.4	153	4.69	4822.32
BH11	10/12/2022	510	38.6	29.4	4.59	4824.00
BH11	1/23/2023	514	24.8	159	5.49	4823.23
BH12	4/6/2021	504	6.74	129	3.68	4827.31
BH12	7/13/2021	528	24.8	439	4.14	4826.85
BH12	10/26/2021	489	7.80	204	5.34	4825.65
BH12	1/27/2022	624	11.8	107	5.47	4825.42
BH12	4/21/2022	459	7.90	279	5.74	4826.19
BH12	7/27/2022	546	5.20	122	5.00	4823.58
BH12	10/12/2022	428	33.0	9.60	5.01	4823.57
BH12	1/23/2023	494	23.0	207	6.20	4824.12

TABLE 1
FORMER OWL CREEK 7, 7-5 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC PARAMETERS

Sample ID	Date Sampled	TDS (mg/L)	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	-	-

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.

* = Due to a GPS error, the location of BH04R is represented outside of the excavation extent. A new GPS point will be used during the first quarter 2023 to assure the location of BH04R remains consistent.

TDS = Total dissolved solids

COGCC = Colorado Oil and Gas Conservation Commission

BCKG = Background

mg/L = Milligrams per liter

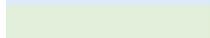
(<) = Analytical result is less than the indicated laboratory reporting limit.

NM = Not measured

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

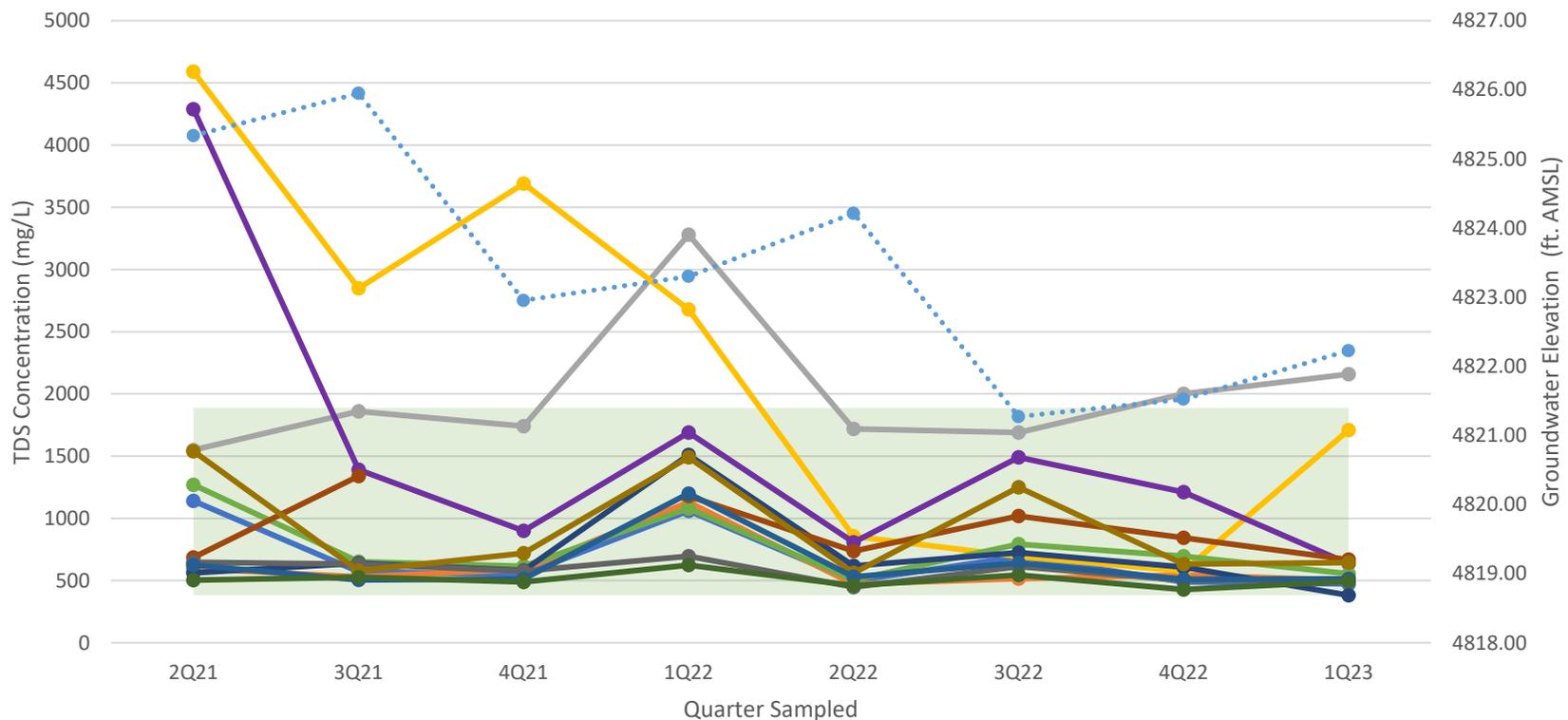
BOLD = Analytical result is in exceedance of applicable standard and above 1.25x background concentration.

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

 = Historic up- / cross-gradient well used for background concentration.

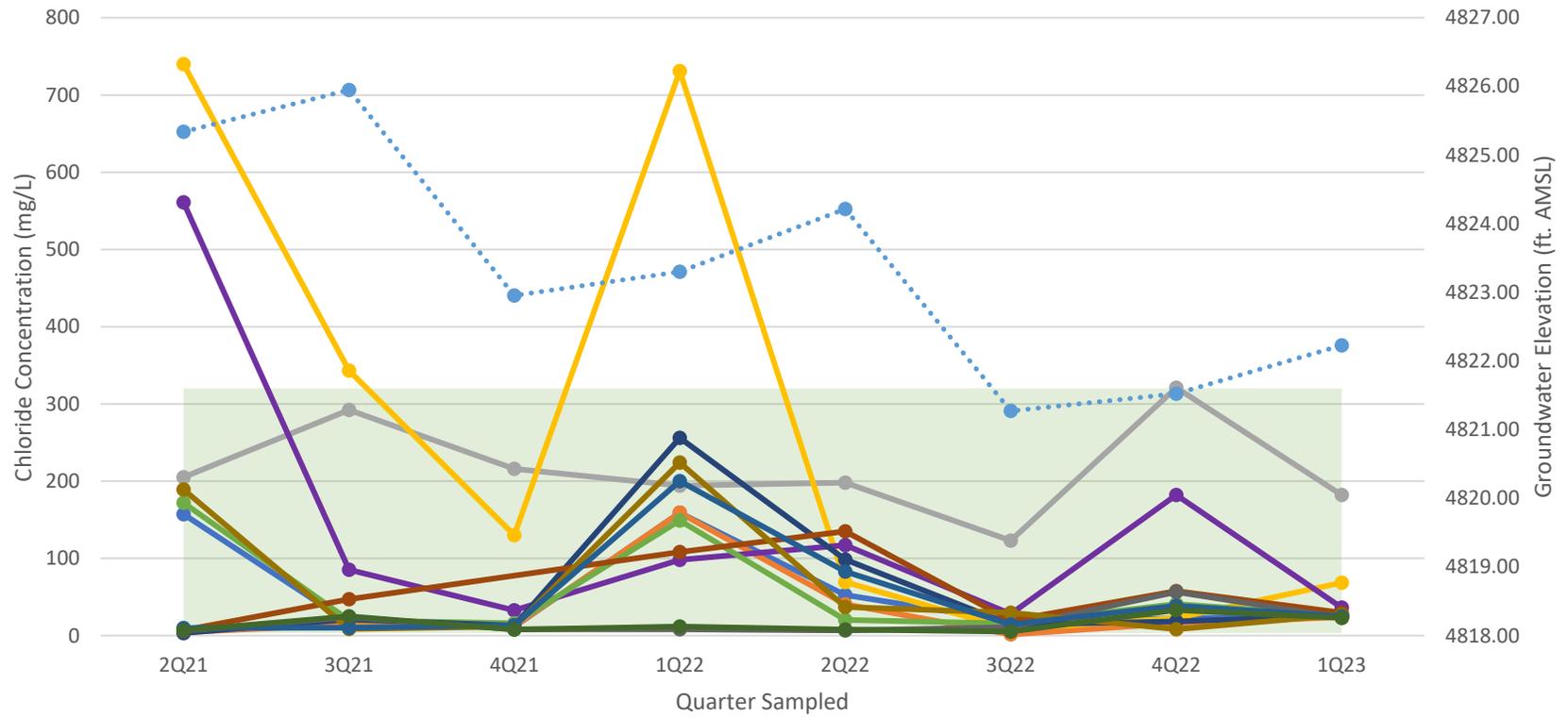
Attachment A

Former Owl Creek 7, 7-5 Tank Battery TDS Concentrations vs Historic Background



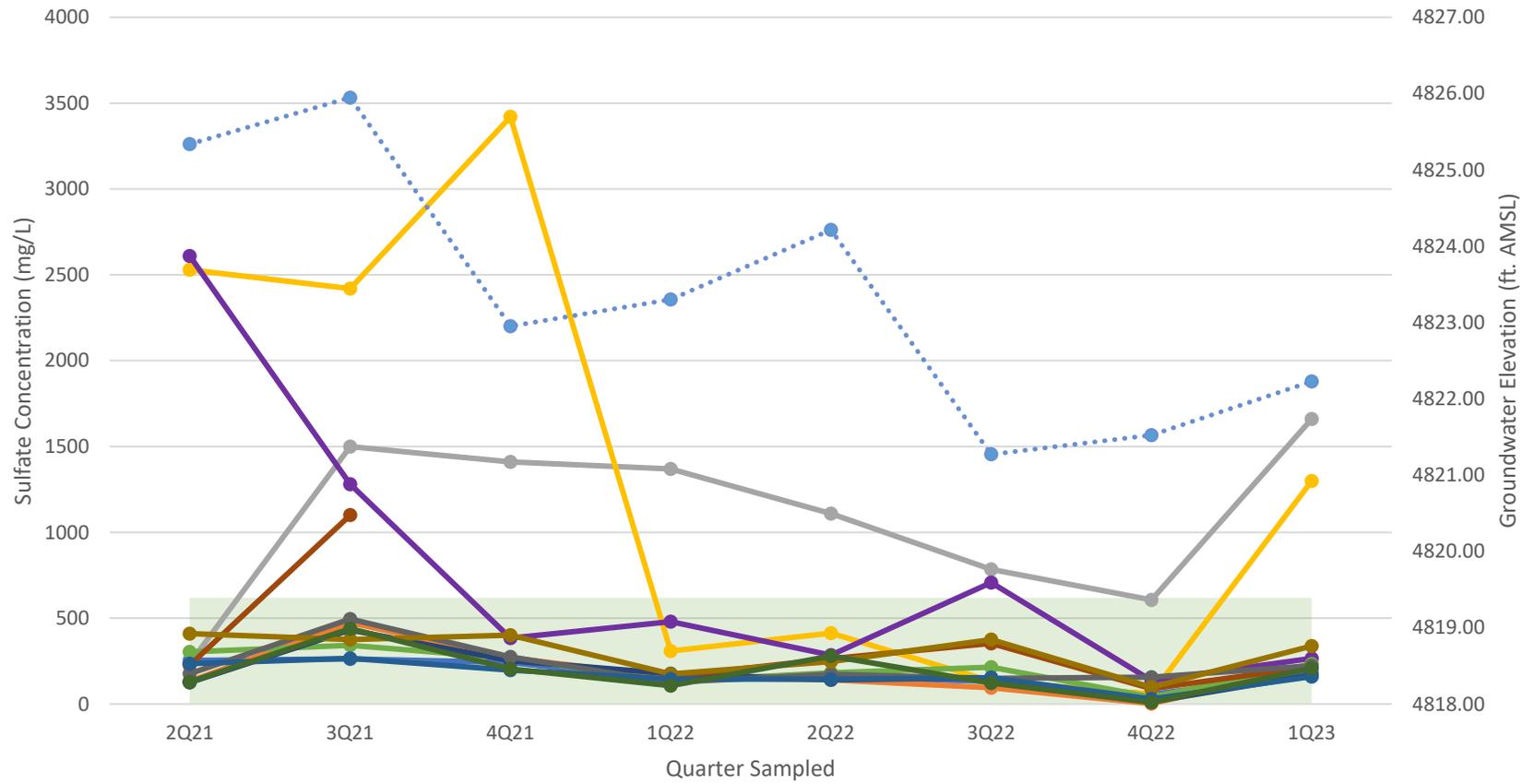
- Historic 1.25x Max and Min BCKG Concentration
 - BH02
 - BH04R
 - BH06R
 - BH08
 - BH10R
 - BH12
- BH01R
 - BH03R
 - BH05R
 - BH07
 - BH09
 - BH11
 - Average Site GWE

Former Owl Creek 7, 7-5 Tank Battery Chloride Concentrations vs Historic Background



- Historic 1.25x Max and Min BCKG Concentration
 - BH02
 - BH04R
 - BH06R
 - BH08
 - BH10R
 - BH12
- BH01R
 - BH03R
 - BH05R
 - BH07
 - BH09
 - BH11
 - Average Site GWE

Former Owl Creek 7, 7-5 Tank Battery Sulfate Concentrations vs Historic Background



- Historic 1.25x Max and Min BCKG
- BH01R
- BH02
- BH03R
- BH04R
- BH05R
- BH06R
- BH07
- BH08
- BH09
- BH10R
- BH11
- BH12
- Average Site GWE

Attachment B

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 25, 2023

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Owl Creek 7,7-5 Tank Battery

Work Order #2301390

Enclosed are the results of analyses for samples received by Summit Scientific on 01/23/23 18:18. 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: Owl Creek 7,7-5 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
01/25/23 15:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01R	2301390-01	Water	01/23/23 12:03	01/23/23 18:18
BH02	2301390-02	Water	01/23/23 12:41	01/23/23 18:18
BH03R	2301390-03	Water	01/23/23 13:28	01/23/23 18:18
BH04R	2301390-04	Water	01/23/23 14:42	01/23/23 18:18
BH05R	2301390-05	Water	01/23/23 14:50	01/23/23 18:18
BH06R	2301390-06	Water	01/23/23 13:52	01/23/23 18:18
BH07	2301390-07	Water	01/23/23 16:01	01/23/23 18:18
BH08	2301390-08	Water	01/23/23 14:35	01/23/23 18:18
BH09	2301390-09	Water	01/23/23 16:05	01/23/23 18:18
BH10R	2301390-10	Water	01/23/23 14:59	01/23/23 18:18
BH11	2301390-11	Water	01/23/23 15:44	01/23/23 18:18
BH12	2301390-12	Water	01/23/23 15:24	01/23/23 18:18

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

S₂

2301390.1

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310 ♦ 303-374-5933 (f)

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: Owl Creek 7, 7-5 Tank Battery

Sampler Name: Gabe Semenza

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	TMB's (1,2,4)&(1,3,5)	TPH-(C6-36)	PAH - 915	pH, EC, SAR	Boron	
1	BH01R	1/23/23	1203	1			X		X									X	
2	BH02		1241																
3	BH03R		1328																
4	BH04R		1442																
5	BH05R		1450																
6	BH06R		1352																
7	BH07		1601																
8	BH08		^{CS} 1430 1435																
9	BH09		1605																
10	BH10R		1459																

Relinquished by: <i>G. Semenza</i>	Date/Time: 1/23/23 1818	Received by: Tasman Lockbox	Date/Time: 1/23/23 1818	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: <u>3.1</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: Tasman Lockbox	Date/Time: 1/23/23 1818	Received by: <i>J. Longhurst</i>	Date/Time: 1/23/23 1818		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Summit Scientific

S₂

2301390.2

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310 ♦ 303-374-5933 (f)

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: Owl Creek 7, 7-5 Tank Battery
Sampler Name: Gabe Semenza 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	TMB's (1,2,4)&(1,3,5)	TPH-(C6-36)	PAH - 915	pH, EC, SAR	Boron		CI, SO ₄ , TDS
1	BH11	1/23/23	1544	1			X		X										X	
2	BH12	1/23/23	1524	1			X		X										X	
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by: <i>G. Semenza</i>	Date/Time: 1/23/23 1818	Received by: <i>Tasman Lockbox</i>	Date/Time: 1/23/23 1818	Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: <u>3.1</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: <i>Tasman Lockbox</i>	Date/Time: 1/23/23 1818	Received by: <i>[Signature]</i>	Date/Time: 1/23/23 1818		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

Sample Receipt Checklist

S2 Work Order# 2301390'

Client: PDC/Tasman Client Project ID: Owl Creek 7, 7-5 Tank Battery

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

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

Temp (°C) 3.1 Thermometer # 1

	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"/>	<i>On ice.</i>
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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" 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

1/23/23

Date/Time



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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH01R
2301390-01 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 12:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	25.6	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	176	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 12:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	473	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH02
2301390-02 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 12:41**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	23.6	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	214	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 12:41**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	503	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH03R
2301390-03 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 13:28**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	182	12.0	mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	1660	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 13:28**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	2160	10.0	mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH04R
2301390-04 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 14:42**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	68.6	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	1300	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 14:42**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	1710	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH05R
2301390-05 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	36.4	12.0	mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	265	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 14:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	636	10.0	mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH06R
2301390-06 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 13:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	25.2	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	234	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 13:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	554	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH07
2301390-07 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 16:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	25.6	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	168	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 16:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	382	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH08
2301390-08 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	29.6	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	218	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	668	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH09
2301390-09 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 16:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	23.0	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	223	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 16:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	513	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH10R
2301390-10 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 14:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	26.8	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	338	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 14:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	644	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH11
2301390-11 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 15:44**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	24.8	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	159	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 15:44**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	514	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

BH12
2301390-12 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **01/23/23 15:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	23.0	12.0		mg/L	200	BGA0594	01/24/23	01/24/23	EPA 300.0	
Sulfate	207	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **01/23/23 15:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	494	10.0		mg/L	1	BGA0584	01/24/23	01/24/23	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

Anions by EPA Method 300.0 - Quality Control

Summit Scientific

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

Batch BGA0594 - General Preparation

Blank (BGA0594-BLK1)

Prepared & Analyzed: 01/24/23

Chloride	ND	0.0600	mg/L						
Sulfate	ND	0.300	"						

LCS (BGA0594-BS1)

Prepared & Analyzed: 01/24/23

Chloride	3.27	0.0600	mg/L	3.00	109	90-110		
Sulfate	15.7	0.300	"	15.0	105	90-110		

Duplicate (BGA0594-DUP1)

Source: 2212553-01

Prepared & Analyzed: 01/24/23

Chloride	220	12.0	mg/L		216		1.74	20
Sulfate	344	60.0	"		412		18.0	20

Matrix Spike (BGA0594-MS1)

Source: 2212553-01

Prepared & Analyzed: 01/24/23

Chloride	746	12.0	mg/L	600	216	88.3	80-120	
Sulfate	3250	60.0	"	3000	412	94.7	80-120	

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/25/23 15:24

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 BGA0584 - General Preparation

Blank (BGA0584-BLK1)

Prepared & Analyzed: 01/24/23

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BGA0584-DUP1)

Source: 2212553-01

Prepared & Analyzed: 01/24/23

Total Dissolved Solids 1050 10.0 mg/L 1050 0.00 20

Summit Scientific

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

Project: Owl Creek 7,7-5 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
01/25/23 15:24

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