

PDC Energy, Inc.
Third Quarter 2022 Groundwater Monitoring Summary

September 12, 2022

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

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

Site History and Background

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

Groundwater Monitoring Activities

On August 3, 2022, groundwater monitoring was conducted at all eight monitoring wells (BH01 – BH08). Eight groundwater samples were submitted to Summit Scientific Laboratories for analysis of chloride and sulfate anions by EPA Method 300.0, total dissolved solids (TDS) by Method SM 2540C, and dissolved selenium by EPA Method 200.8.

Third quarter 2022 analytical results indicated that TDS, and sulfate anion concentrations were in compliance with the applicable regulatory standards or within 1.25x the background concentrations of the up- and cross-gradient monitoring wells (BH01 and BH04 – BH06) in all eight monitoring well locations. Dissolved selenium concentrations were below the applicable Colorado Department of Health and Environment (CDPHE) agricultural water supply standard in all monitoring well locations. Sample locations and corresponding analytical results are illustrated on 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 A.

Current Remediation Activities and Path Forward

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

Fourth quarter 2022 groundwater sampling will be conducted in November 2022.

BH01		
Compound (mg/L)	5/26/2022	8/3/2022
Chloride	257	205
Sulfate	8,580	8,530
TDS	8,910	9,140
Selenium (µg/L)	1.53	1.82
Depth to Water (ft. bgs)	3.68	4.20

BH02		
Compound (mg/L)	5/26/2022	8/3/2022
Chloride	148	97.6
Sulfate	2,560	2,910
TDS	3,560	3,170
Selenium (µg/L)	<1.00	<1.00
Depth to Water (ft. bgs)	2.69	3.03

BH08		
Compound (mg/L)	5/26/2022	8/3/2022
Chloride	255	112
Sulfate	2,050	2,720
TDS	2,900	2,920
Selenium (µg/L)	<1.00	<1.00
Depth to Water (ft. bgs)	2.19	2.68

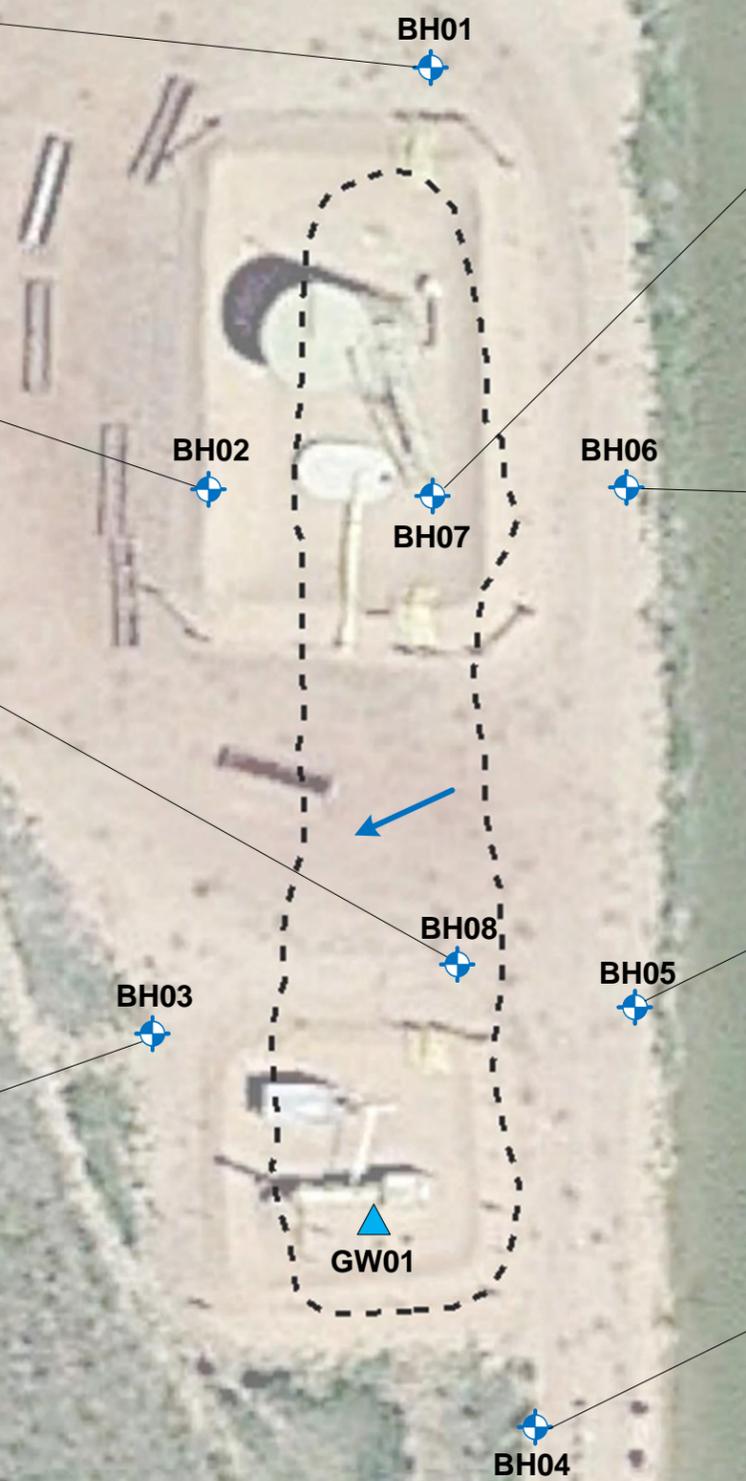
BH03		
Compound (mg/L)	5/26/2022	8/3/2022
Chloride	433	270
Sulfate	4,600	3,420
TDS	5,310	3,760
Selenium (µg/L)	1.14	2.07
Depth to Water (ft. bgs)	1.29	2.82

BH07		
Compound (mg/L)	5/26/2022	8/3/2022
Chloride	170	144
Sulfate	3,550	2,340
TDS	3,900	2,700
Selenium (µg/L)	2.74	<1.00
Depth to Water (ft. bgs)	3.37	3.70

BH06		
Compound (mg/L)	5/26/2022	8/3/2022
Chloride	174	99.0
Sulfate	2,940	3,200
TDS	3,360	3,370
Selenium (µg/L)	<1.00	<1.00
Depth to Water (ft. bgs)	2.65	3.03

BH05		
Compound (mg/L)	5/26/2022	8/3/2022
Chloride	155	84.6
Sulfate	3,050	3,540
TDS	3,430	3,730
Selenium (µg/L)	2.14	1.57
Depth to Water (ft. bgs)	2.29	2.72

BH04		
Compound (mg/L)	5/26/2022	8/3/2022
Chloride	179	101
Sulfate	3,470	3,240
TDS	3,870	3,410
Selenium (µg/L)	<1.00	<1.00
Depth to Water (ft. bgs)	1.70	2.20



Legend

- Excavation Extent (Collected via Trimble GPS)
- Groundwater Sample Location
- Monitoring Well Location (Collected via Trimble GPS)
- Groundwater Flow Direction (3Q22)

Notes

All locations are approximate unless otherwise noted.

GPS – Global Positioning System

µg/L – Micrograms per liter

mg/L – Milligrams per liter

ft. bgs – Feet below ground surface

TDS – Total dissolved solids

Red text – exceedances of COGCC Table 915-1 standards

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

COGCC – Colorado Oil and Gas Conservation Commission

BCKG – Background

0 ft. 20 ft. 40 ft.

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

DATE: September 6, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: J. Marcus



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

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

GROUNDWATER ANALYTICAL RESULTS MAP (INORGANIC PARAMETERS)

FIGURE 1



DATE: September 9, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: J. Clonts



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

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

**GROUNDWATER
ELEVATION CONTOUR
MAP (08/03/2022)**

**FIGURE
2**

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

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Selenium ⁽²⁾ (µg/L)	Depth to Water ⁽³⁾ (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	20	-	-
BH01	8/23/2021	8,970	205	8,210	NA	4.52	4685.58
BH01	11/8/2022	11,100	235	9,810	19.0	5.13	4684.97
BH01	2/23/2022	6,680	165 ^(M)	3,780 ^(M)	<1.90	4.90	4685.20
BH01	5/26/2022	8,910	257	8,580	1.53	3.68	4686.42
BH01	8/3/2022	9,140	205	8,530	1.82	4.20	4685.90
BH02	11/8/2021	6,160	86.4	4,190	13.7	4.28	4684.85
BH02	2/23/2022	2,980	45.0	1,860	6.93	4.16	4684.97
BH02	5/26/2022	3,560	148	2,560	<1.00	2.69	4686.44
BH02	8/3/2022	3,170	97.6	2,910	<1.00	3.03	4686.10
BH03	11/8/2021	12,600	403	7,330	43.8	3.24	4684.85
BH03	2/23/2022	4,220	242	2,630	12.3	3.14	4684.95
BH03	5/26/2022	5,310	433	4,600	1.14	1.29	4686.80
BH03	8/3/2022	3,760	270	3,420	2.07	2.82	4685.27
BH04	8/23/2021	3,980	105	3,700	NA	2.75	4685.62
BH04	11/8/2021	4,810	111	4,590	8.77	3.32	4685.05
BH04	2/23/2022	2,530	28.8	1,650	<1.90	3.08	4685.29
BH04	5/26/2022	3,870	179	3,470	<1.00	1.70	4686.67
BH04	8/3/2022	3,410	101	3,240	<1.00	2.20	4686.17
BH05	11/8/2021	3,980	95.2	3,690	16.8	3.73	4685.18
BH05	2/23/2022	3,070	57.2	2,900	3.34	3.58	4685.33
BH05	5/26/2022	3,430	155	3,050	2.14	2.29	4686.62
BH05	8/3/2022	3,730	84.6	3,540	1.57	2.72	4686.19
BH06	11/8/2021	4,990	125	4,240	8.14	4.02	4685.29
BH06	2/23/2022	2,740	51.2	2,620	<1.90	3.93	4685.38
BH06	5/26/2022	3,360	174	2,940	<1.00	2.65	4686.66
BH06	8/3/2022	3,370	99.0	3,200	<1.00	3.03	4686.28
BH07	8/23/2021	2,980	138	2,720	NA	3.38	4686.00
BH07	11/8/2021	4,040	145	3,750	1.97	4.40	4684.98
BH07	2/23/2022	3,060	92.4	2,030	6.38	4.17	4685.21
BH07	5/26/2022	3,900	170	3,550	2.74	3.37	4686.01
BH07	8/3/2022	2,700	144	2,340	<1.00	3.70	4685.68
BH08	11/8/2021	3,730	80.2	3,400	40.9	3.59	4684.71
BH08	2/23/2022	2,000	58.6	1,400	<1.90	3.12	4685.18
BH08	5/26/2022	2,900	255	2,050	<1.00	2.19	4686.11
BH08	8/3/2022	2,920	112	2,720	<1.00	2.68	4685.62

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

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Selenium ⁽²⁾ (µg/L)	Depth to Water ⁽³⁾ (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	20	-	-

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.
2. Selenium groundwater standard referenced from the 5 CCR 1002-41, Regulation No. 41, Table 3, Agricultural Standards, January 31, 2013.
3. Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

M = Possible matrix interference

TDS = Total dissolved solids

COGCC = Colorado Oil and Gas Conservation Commission

BCKG = Background

mg/L = Milligrams per liter

µg/L = Micrograms per liter

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

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

BOLD = Analytical result is in exceedance of applicable standard.

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

ft. = Feet

AMSL = Above Mean Sea Level

NA = Constituent not analyzed

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 10, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Anderson 12-13 Tank Battery

Work Order #2208046

Enclosed are the results of analyses for samples received by Summit Scientific on 08/03/22 17:14. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mikayla Axtell For Paul Shrewsbury

President



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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/10/22 14:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2208046-01	Water	08/03/22 11:05	08/03/22 17:14
BH02	2208046-02	Water	08/03/22 11:12	08/03/22 17:14
BH03	2208046-03	Water	08/03/22 11:28	08/03/22 17:14
BH04	2208046-04	Water	08/03/22 10:17	08/03/22 17:14
BH05	2208046-05	Water	08/03/22 10:37	08/03/22 17:14
BH06	2208046-06	Water	08/03/22 10:45	08/03/22 17:14
BH07	2208046-07	Water	08/03/22 10:53	08/03/22 17:14
BH08	2208046-08	Water	08/03/22 10:28	08/03/22 17:14

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

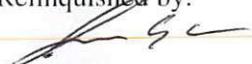
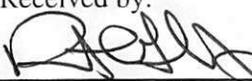
2208046

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

Page | of |

Client: PDC / Tasman Project Manager: Mark Longhurst
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com
City/State/Zip: Broomfield/ CO/ 80020
Phone: 303-487-1228 Project Name: Anderson 12-13 Tank Battery
Sampler Name: Sam Anderson 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	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAHs	Metals	CL, SO ₄ , TDS		Selenium (dissolved)			
1	BH01	8/3/22	1105	5	X				X																pH, EC, SAR by saturated paste
2	BH02		1112																						
3	BH03		1128																						
4	BH04		1017																						
5	BH05		1037																						
6	BH06		1045																						
7	BH07		1053																						
8	BH08		1028																						
9																									
10	..																								

Relinquished by: 	Date/Time: 8/3/22	Received by: Tasman's Lock Box	Date/Time: 8/3/22 1426	Turn Around Time (Check) Same Day ___ 72 hours ___ 24 hours ___ Standard <input checked="" type="checkbox"/> 48 hours ___ Sample Integrity: Temperature Upon Receipt: 6.1 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes: *Organics on hold.
Relinquished by: Tasman's Lock Box	Date/Time: 8322 1714	Received by: 	Date/Time: 8322 1714		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

2208046

Sample Receipt Checklist

S2 Work Order# _____

Client: ABC Tasman Client Project ID: Anderson 12-13 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) 6.1 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.	-			ON ICE
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples due within 48 hours present?		-		
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			-	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		-		
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.	-			HCl
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	

Additional Comments (if any):

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

[Signature]
Custodian Printed Name

8322
Date/Time



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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

BH01
2208046-01 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **08/03/22 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	1.82	1.00	ug/l	1	BFH0170	08/08/22	08/09/22	EPA 200.8	

Anions by EPA Method 300.0

Date Sampled: **08/03/22 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	205	12.0	mg/L	200	BFH0194	08/09/22	08/09/22	EPA 300.0	
Sulfate	8530	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **08/03/22 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	9140	10.0	mg/L	1	BFH0139	08/05/22	08/05/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

BH02
2208046-02 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **08/03/22 11:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	ND	1.00		ug/l	1	BFH0170	08/08/22	08/09/22	EPA 200.8	

Anions by EPA Method 300.0

Date Sampled: **08/03/22 11:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	97.6	12.0		mg/L	200	BFH0194	08/09/22	08/09/22	EPA 300.0	
Sulfate	2910	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **08/03/22 11:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	3170	10.0		mg/L	1	BFH0139	08/05/22	08/05/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

BH03
2208046-03 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **08/03/22 11:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	2.07	1.00	ug/l	1	BFH0170	08/08/22	08/09/22	EPA 200.8	

Anions by EPA Method 300.0

Date Sampled: **08/03/22 11:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	270	12.0	mg/L	200	BFH0194	08/09/22	08/09/22	EPA 300.0	
Sulfate	3420	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **08/03/22 11:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	3760	10.0	mg/L	1	BFH0139	08/05/22	08/05/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

BH04
2208046-04 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **08/03/22 10:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	ND	1.00	ug/l	1	BFH0170	08/08/22	08/09/22	EPA 200.8	

Anions by EPA Method 300.0

Date Sampled: **08/03/22 10:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	101	12.0	mg/L	200	BFH0194	08/09/22	08/09/22	EPA 300.0	
Sulfate	3240	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **08/03/22 10:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	3410	10.0	mg/L	1	BFH0139	08/05/22	08/05/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

BH05
2208046-05 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **08/03/22 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	1.57	1.00	ug/l	1	BFH0170	08/08/22	08/09/22	EPA 200.8	

Anions by EPA Method 300.0

Date Sampled: **08/03/22 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	84.6	12.0	mg/L	200	BFH0194	08/09/22	08/09/22	EPA 300.0	
Sulfate	3540	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **08/03/22 10:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	3730	10.0	mg/L	1	BFH0139	08/05/22	08/05/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

BH06
2208046-06 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **08/03/22 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	ND	1.00		ug/l	1	BFH0170	08/08/22	08/09/22	EPA 200.8	

Anions by EPA Method 300.0

Date Sampled: **08/03/22 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	99.0	12.0		mg/L	200	BFH0194	08/09/22	08/09/22	EPA 300.0	
Sulfate	3200	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **08/03/22 10:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	3370	10.0		mg/L	1	BFH0139	08/05/22	08/05/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

BH07
2208046-07 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **08/03/22 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Selenium	ND	1.00	ug/l	1	BFH0170	08/08/22	08/09/22	EPA 200.8	

Anions by EPA Method 300.0

Date Sampled: **08/03/22 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	144	12.0	mg/L	200	BFH0194	08/09/22	08/09/22	EPA 300.0	
Sulfate	2340	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **08/03/22 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	2700	10.0	mg/L	1	BFH0139	08/05/22	08/05/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

BH08
2208046-08 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **08/03/22 10:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Selenium	ND	1.00		ug/l	1	BFH0170	08/08/22	08/09/22	EPA 200.8	

Anions by EPA Method 300.0

Date Sampled: **08/03/22 10:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	112	12.0		mg/L	200	BFH0194	08/09/22	08/09/22	EPA 300.0	
Sulfate	2720	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **08/03/22 10:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2920	10.0		mg/L	1	BFH0139	08/05/22	08/05/22	SM2540C	

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

Dissolved Metals by EPA Method 200.8 - Quality Control

Summit Scientific

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

Batch BFH0170 - EPA 200.8

Blank (BFH0170-BLK1)

Prepared: 08/08/22 Analyzed: 08/09/22

Selenium	ND	1.00	ug/l							
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LCS (BFH0170-BS1)

Prepared: 08/08/22 Analyzed: 08/09/22

Selenium	50.3	1.00	ug/l	50.0	101	85-115				
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Duplicate (BFH0170-DUP1)

Source: 2208046-01

Prepared: 08/08/22 Analyzed: 08/09/22

Selenium	2.02	1.00	ug/l		1.82		10.6	20		
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Matrix Spike (BFH0170-MS1)

Source: 2208046-01

Prepared: 08/08/22 Analyzed: 08/09/22

Selenium	59.3	1.00	ug/l	50.0	1.82	115	70-130			
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Matrix Spike Dup (BFH0170-MSD1)

Source: 2208046-01

Prepared: 08/08/22 Analyzed: 08/09/22

Selenium	60.9	1.00	ug/l	50.0	1.82	118	70-130	2.72	25	
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Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

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 BFH0194 - General Preparation

Blank (BFH0194-BLK1)

Prepared & Analyzed: 08/09/22

Chloride	ND	0.0600	mg/L						
Sulfate	ND	0.300	"						

LCS (BFH0194-BS1)

Prepared & Analyzed: 08/09/22

Chloride	3.10	0.0600	mg/L	3.00	103	90-110
Sulfate	14.6	0.300	"	15.0	97.1	90-110

Duplicate (BFH0194-DUP1)

Source: 2208046-01

Prepared & Analyzed: 08/09/22

Chloride	193	12.0	mg/L	205		6.13	20
Sulfate	8400	60.0	"	8530		1.61	20

Matrix Spike (BFH0194-MS1)

Source: 2208046-01

Prepared & Analyzed: 08/09/22

Chloride	720	12.0	mg/L	600	205	85.8	80-120
Sulfate	11800	60.0	"	3000	8530	109	80-120

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/10/22 14:24

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 BFH0139 - General Preparation

Blank (BFH0139-BLK1)

Prepared & Analyzed: 08/05/22

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BFH0139-DUP1)

Source: 2208046-01

Prepared & Analyzed: 08/05/22

Total Dissolved Solids 9140 10.0 mg/L 9140 0.00 20

Summit Scientific

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

Project: Anderson 12-13 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/10/22 14:24

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