



PDC Energy, Inc.
First Quarter 2023 Groundwater Monitoring Summary

April 5, 2023

Former Churchill 5 Wellhead
NENW Section 28 T5N R64W
Remediation # 20066

This groundwater monitoring summary has been prepared by Tasman, Inc. for the former Churchill 5 wellhead location.

Site History and Background

On October 10, 2021, groundwater was encountered within the former wellhead excavation at approximately 6 feet below ground surface (bgs) during wellhead decommissioning activities. Analytical results received from the groundwater sample (GW05) collected from the base of the excavation indicated that the benzene concentration was in exceedance of the applicable COGCC Table 915-1 regulatory standards. No impacted soil was identified or removed during decommissioning activities. On August 12, 2022, five monitoring wells (BH01 – BH05) were installed to delineate dissolved-phase hydrocarbon impacts within and adjacent to the former excavation extent (Figure 1).

Groundwater Monitoring Activities

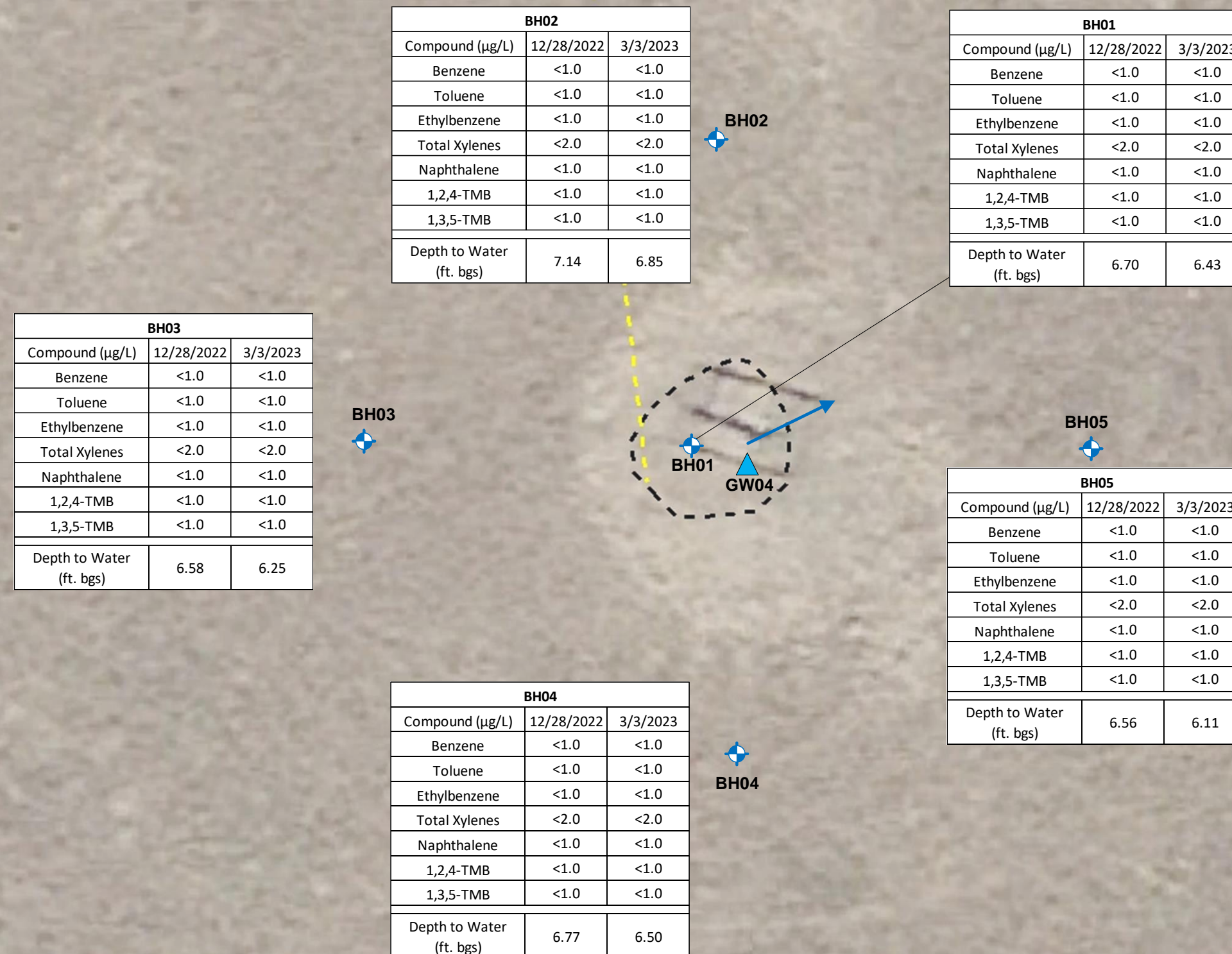
On March 3, 2022, groundwater monitoring was conducted at all five monitoring wells (BH01 – BH05). Five groundwater samples were submitted to Summit Scientific Laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB by EPA Method 8260B, sulfate and chloride anions by EPA Method 300.0, and total dissolved solids (TDS) by Method SM 2540C in accordance with Table 915-1 standards.

First quarter 2023 analytical results indicated that organic compound concentrations were in compliance with the applicable COGCC Table 915-1 regulatory standards in all five monitoring well locations. Additionally, inorganic parameters were in compliance with the applicable COGCC Table 915-1 regulatory standards or within 1.25x the background concentrations of the up-gradient monitoring wells (BH03 and BH04) 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 in 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 2022 and will remain the selected remediation strategy through the second quarter 2023.

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



DATE: April 5, 2023

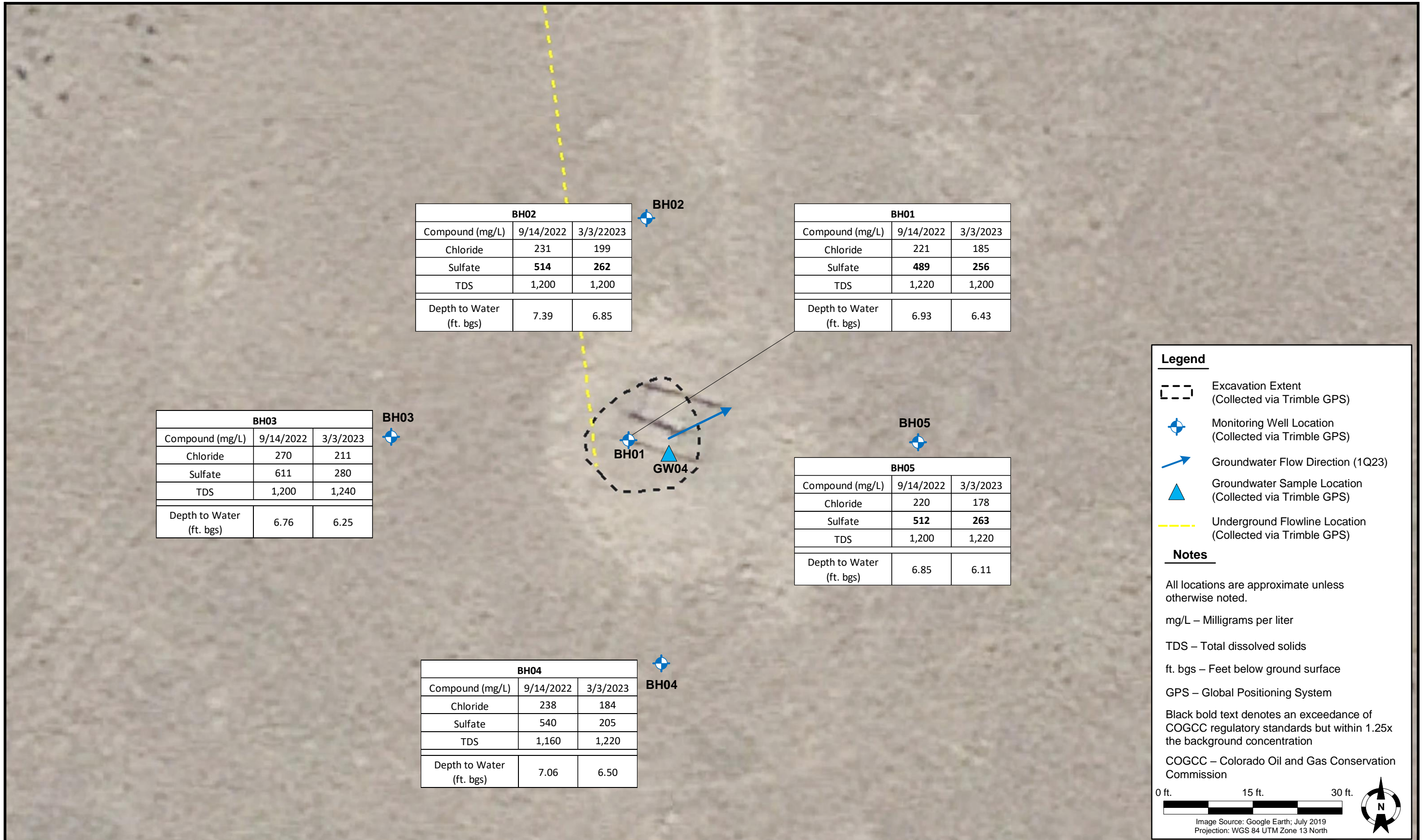


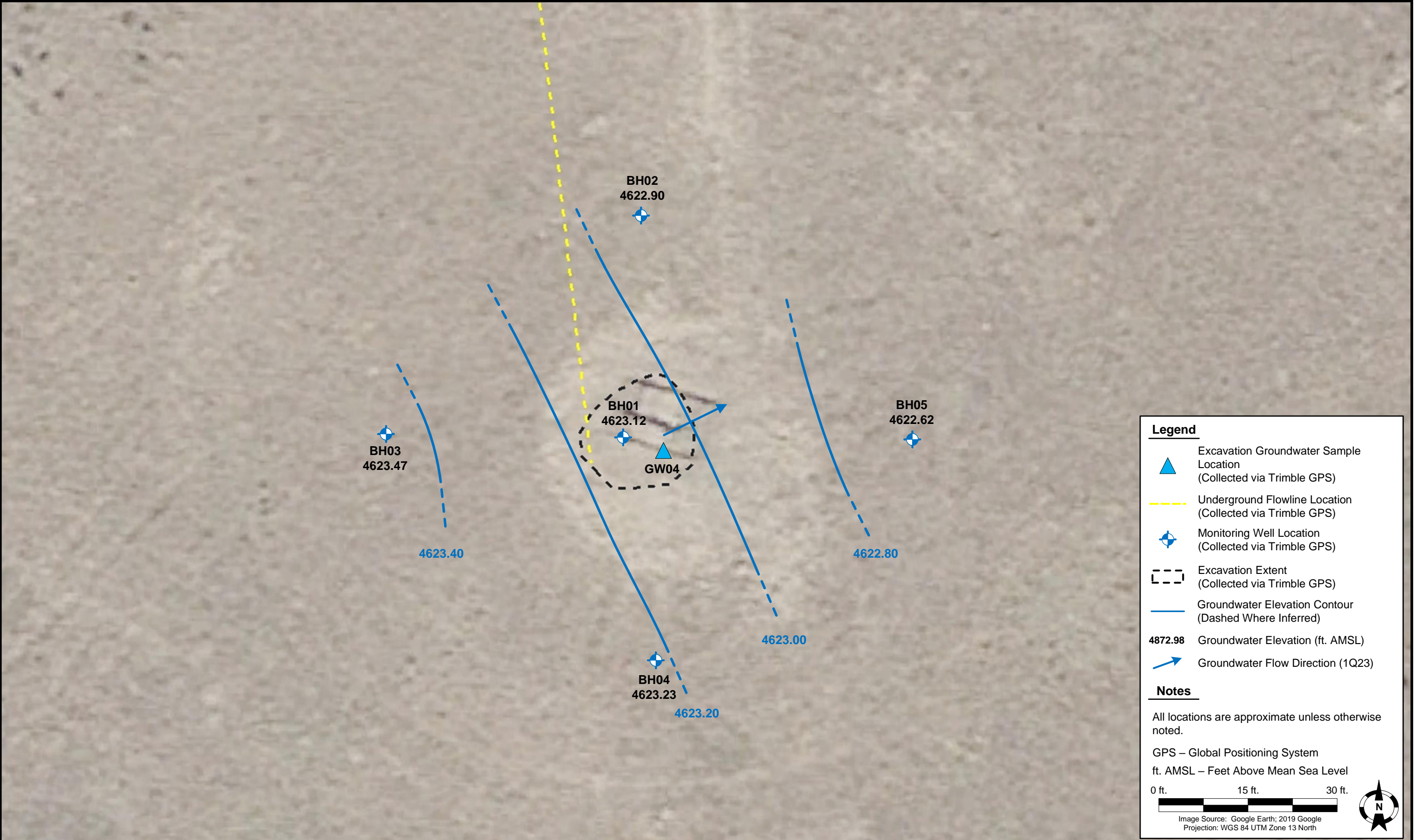
TASMAN

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

PDC Energy, Inc. – DJ Basin
Former Churchill 5 Wellhead
 NENW, Section 28, Township 5 North, Range 64 West
 Weld County, Colorado

GROUNDWATER ANALYTICAL RESULTS MAP





DATE:	March 23, 2023
DESIGNED BY:	C. Hamlin
DRAWN BY:	L. Reed

**TASMAN**

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

PDC Energy, Inc. – DJ Basin
Former Churchill 5 Wellhead
NENW, Section 28, Township 5 North, Range 64 West
Weld County, Colorado

**GROUNDWATER
ELEVATION CONTOUR
MAP (03/03/2023)**

**FIGURE
3**

TABLE 1
FORMER CHURCHILL 5 WELLHEAD
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	-	-
GW04	10/19/2021	7.1	13	<1.0	11	<1.0	1.3	<1.0	6	NA
BH01	9/14/2022	2.5	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.93	4622.62
BH01	12/28/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.70	4622.85
BH01	3/3/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.43	4623.12
BH02	9/14/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.39	4622.36
BH02	12/28/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.14	4622.61
BH02	3/3/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.85	4622.90
BH03	9/14/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.76	4622.96
BH03	12/28/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.58	4623.14
BH03	3/3/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.25	4623.47
BH04	9/14/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.06	4622.67
BH04	12/28/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.77	4622.96
BH04	3/3/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.50	4623.23
BH05	9/14/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.85	4622.12
BH05	12/28/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.56	4622.41
BH05	3/3/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.11	4623.62

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 COGCC standards

TABLE 2
FORMER CHURCHILL 5 WELLHEAD
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	9/14/2022	1,220	221	489	6.93	4622.62
BH01	3/3/2023	1,200	185	256	6.43	4623.12
BH02	9/14/2022	1,200	231	514	7.39	4622.36
BH02	3/3/2023	1,220	199	262	6.85	4622.90
BH03	9/14/2022	1,200	270	611	6.76	4622.96
BH03	3/3/2023	1,240	211	280	6.25	4623.47
BH04	9/14/2022	1,160	238	540	7.06	4622.67
BH04	3/3/2023	1,220	184	205	6.50	4623.23
BH05	9/14/2022	1,200	220	512	6.85	4622.12
BH05	3/3/2023	1,220	178	263	6.11	4623.62

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

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

Up- / Cross-gradient well locations used for background concentration.

BOLD = Analytical result is in exceedance of applicable COGCC standard but within 1.25x BCKG concentration

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 10, 2023

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Churchill 5 Wellhead

Work Order #2303117

Enclosed are the results of analyses for samples received by Summit Scientific on 03/03/23 17:28. 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: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

ANALYTICAL REPORT FOR SAMPLES

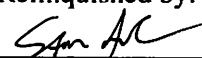


Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2303117-01	Water	03/03/23 09:44	03/03/23 17:28
BH02	2303117-02	Water	03/03/23 09:52	03/03/23 17:28
BH03	2303117-03	Water	03/03/23 10:03	03/03/23 17:28
BH04	2303117-04	Water	03/03/23 10:14	03/03/23 17:28
BH05	2303117-05	Water	03/03/23 10:27	03/03/23 17:28

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.

Client: PDC / Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W 119th Ave		Project Manager: Mark Longhurst		Company: PDC Energy	
City/State/Zip: Broomfield / CO / 80220		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
Phone: 303-487-1228		Project Name: Churchill 5 Wellhead		AFE#:	
Sampler Name: S. Anderson		Project Number:		PO/Billing Codes:	
				Contact: Mark Longhurst	

				Preservative				Matrix				Analysis Requested								Special Instructions	
ID	Sample Description	Date Sampled	Time Sampled	# of containers	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	TDs, Cl, SO ₄	
1	BH01	3/3/23	944	1	X				X				X		X					X	
2	BH02		952																		
3	BH03		1003																		
4	BH04		1014																		
5	BH05		1021																		
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: 	Date/Time: 3/3/23 1400	Received by: Tasman Lockbox	Date/Time: 3/3/23 1400	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 3/3/23 1728	Received by: 	Date/Time: 3/3/23 1728	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 7.1	Corrected Temperature: 	IR gun #: _____	HNO3 lot #: _____			

S₂

Sample Receipt Checklist

S2 Work Order# 230317Client: Pac/Tasman Client Project ID: Churchhill 5 wellheadShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐☐ ☐ ☐ ☐ ☐Matrix (Check all that apply) Air ☐ Soil/Solid ☐ Water ☐ Other ☐Temp (°C) 7.1Thermometer # i

	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"/>	<u>ON ICE</u>
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

3/3/23

Date/Time



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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

BH01
2303117-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/03/23 09:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BGC0150	03/06/23	03/07/23	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: **03/03/23 09:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	15.9	119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.0	97.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.9	104 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/03/23 09:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	185	12.0	mg/L	200	BGC0138	03/06/23	03/07/23	EPA 300.0	
Sulfate	256	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/03/23 09:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	1200	10.0	mg/L	1	BGC0140	03/06/23	03/06/23	SM2540C	

Summit Scientific

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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

BH02
2303117-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/03/23 09:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGC0150	03/06/23	03/07/23	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: **03/03/23 09:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	15.8	118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.9	97.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	14.1	105 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/03/23 09:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	199	12.0	mg/L	200	BGC0138	03/06/23	03/07/23	EPA 300.0	
Sulfate	262	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/03/23 09:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	1220	10.0	mg/L	1	BGC0140	03/06/23	03/06/23	SM2540C	

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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

BH03
2303117-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/03/23 10:03**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGC0150	03/06/23	03/07/23	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: **03/03/23 10:03**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	15.5	117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.9	96.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	14.2	107 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/03/23 10:03**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	211	12.0	mg/L	200	BGC0138	03/06/23	03/07/23	EPA 300.0	
Sulfate	280	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/03/23 10:03**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	1240	10.0	mg/L	1	BGC0140	03/06/23	03/06/23	SM2540C	

Summit Scientific

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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

BH04
2303117-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/03/23 10:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGC0150	03/06/23	03/07/23	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: **03/03/23 10:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	15.8	119 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.0	97.2 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.7	103 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/03/23 10:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	184	12.0		mg/L	200	BGC0138	03/06/23	03/07/23	EPA 300.0	
Sulfate	205	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/03/23 10:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	1220	10.0		mg/L	1	BGC0140	03/06/23	03/06/23	SM2540C	

Summit Scientific

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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

BH05
2303117-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/03/23 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGC0150	03/06/23	03/07/23	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: **03/03/23 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	16.2	122 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	12.9	97.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	14.1	106 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/03/23 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	178	12.0		mg/L	200	BGC0138	03/06/23	03/07/23	EPA 300.0	
Sulfate	263	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/03/23 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	1220	10.0		mg/L	1	BGC0140	03/06/23	03/06/23	SM2540C	

Summit Scientific

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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

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 BGC0150 - EPA 5030 Water MS

Blank (BGC0150-BLK1)

Prepared: 03/06/23 Analyzed: 03/07/23

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	14.5		"	13.3		109	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.5	20-170			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	21-167			

LCS (BGC0150-BS1)

Prepared: 03/06/23 Analyzed: 03/07/23

Benzene	47.2	1.0	ug/l	50.0		94.4	51-132			
Toluene	46.7	1.0	"	50.0		93.4	51-138			
Ethylbenzene	45.8	1.0	"	50.0		91.6	58-146			
m,p-Xylene	92.8	2.0	"	100		92.8	57-144			
o-Xylene	46.1	1.0	"	50.0		92.2	53-146			
Naphthalene	55.0	1.0	"	50.0		110	70-130			
1,2,4-Trimethylbenzene	47.2	1.0	"	50.0		94.3	70-130			
1,3,5-Trimethylbenzene	46.0	1.0	"	50.0		92.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.3		107	23-173			
Surrogate: Toluene-d8	13.4		"	13.3		101	20-170			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.0	21-167			

Matrix Spike (BGC0150-MS1)

Source: 2303024-01

Prepared: 03/06/23 Analyzed: 03/07/23

Benzene	52.3	1.0	ug/l	50.0	ND	105	34-141			
Toluene	52.8	1.0	"	50.0	ND	106	27-151			
Ethylbenzene	52.6	1.0	"	50.0	ND	105	29-160			
m,p-Xylene	108	2.0	"	100	ND	108	20-166			
o-Xylene	52.3	1.0	"	50.0	ND	105	33-159			
Naphthalene	53.1	1.0	"	50.0	ND	106	70-130			
1,2,4-Trimethylbenzene	52.8	1.0	"	50.0	ND	106	70-130			
1,3,5-Trimethylbenzene	52.3	1.0	"	50.0	ND	105	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		98.9	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	20-170			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.8	21-167			

Summit Scientific

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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

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 BGC0150 - EPA 5030 Water MS

Matrix Spike Dup (BGC0150-MSD1)	Source: 2303024-01			Prepared: 03/06/23 Analyzed: 03/07/23						
Benzene	51.4	1.0	ug/l	50.0	ND	103	34-141	1.73	30	
Toluene	52.0	1.0	"	50.0	ND	104	27-151	1.55	30	
Ethylbenzene	52.6	1.0	"	50.0	ND	105	29-160	0.0190	30	
m,p-Xylene	107	2.0	"	100	ND	107	20-166	0.382	30	
o-Xylene	52.3	1.0	"	50.0	ND	105	33-159	0.00	30	
Naphthalene	53.7	1.0	"	50.0	ND	107	70-130	1.20	30	
1,2,4-Trimethylbenzene	52.9	1.0	"	50.0	ND	106	70-130	0.208	30	
1,3,5-Trimethylbenzene	52.7	1.0	"	50.0	ND	105	70-130	0.648	30	
Surrogate: 1,2-Dichloroethane-d4	12.8		"	13.3		95.7	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.7	21-167			

Summit Scientific

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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

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 BGC0138 - General Preparation

Blank (BGC0138-BLK1)

Prepared & Analyzed: 03/06/23

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

LCS (BGC0138-BS1)

Prepared & Analyzed: 03/06/23

Chloride	3.10	0.0600	mg/L	3.00	103	90-110
Sulfate	13.7	0.300	"	15.0	91.0	90-110

Duplicate (BGC0138-DUP1)

Source: 2303116-01

Prepared & Analyzed: 03/06/23

Chloride	158	12.0	mg/L	146	8.02	20
Sulfate	364	60.0	"	322	12.1	20

Matrix Spike (BGC0138-MS1)

Source: 2303116-01

Prepared & Analyzed: 03/06/23

Chloride	759	12.0	mg/L	600	146	102	80-120
Sulfate	2980	60.0	"	3000	322	88.8	80-120

Summit Scientific

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

Project: Churchill 5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

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 BGC0140 - General Preparation

Blank (BGC0140-BLK1)

Prepared & Analyzed: 03/06/23

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BGC0140-DUP1)

Source: 2303071-01

Prepared & Analyzed: 03/06/23

Total Dissolved Solids 735 10.0 mg/L 703 4.42 20

Summit Scientific

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

Project: Churchill 5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
03/10/23 15:23

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