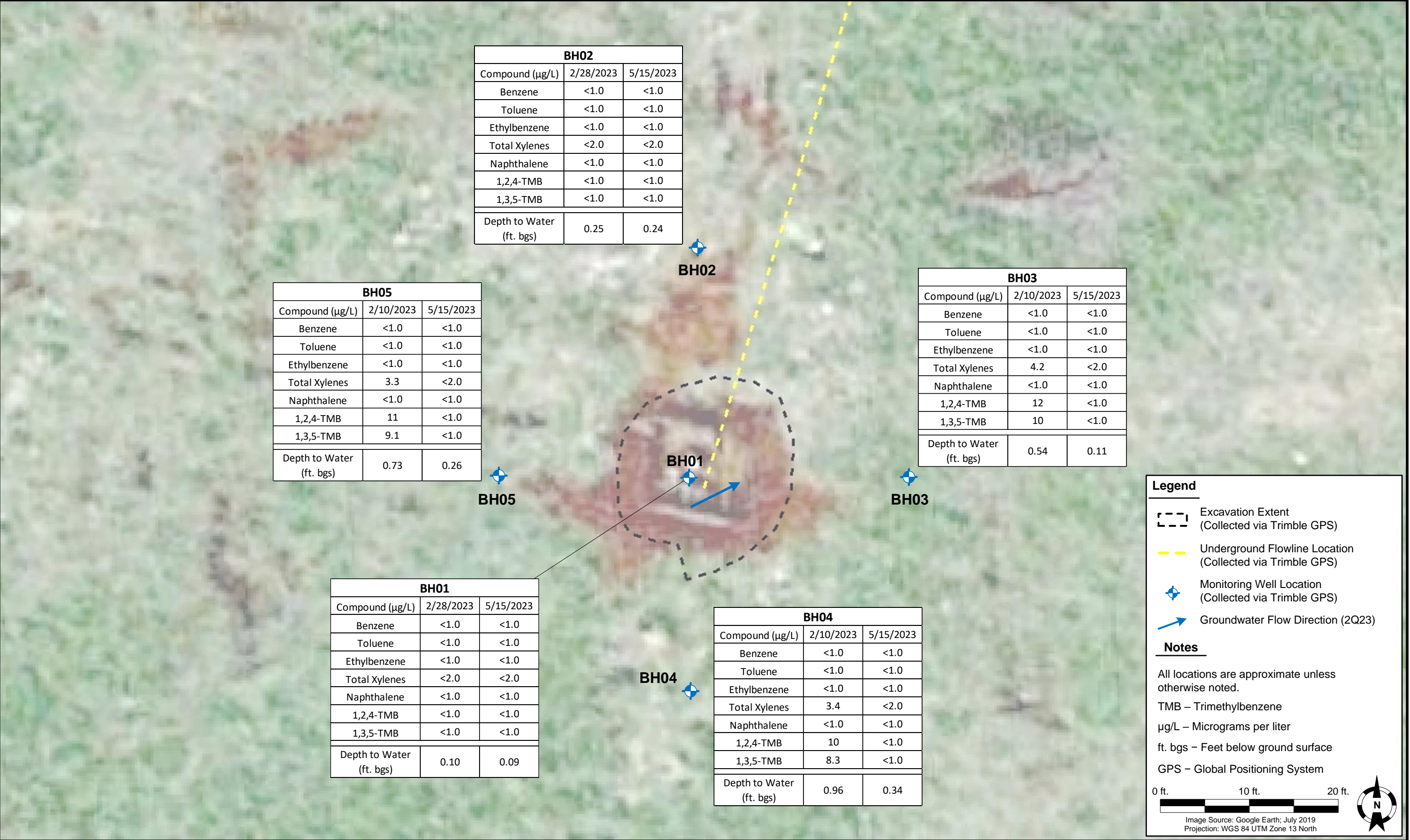


Attachment B

Groundwater Documents



BH02*		
Compound (mg/L)	2/28/2023	5/15/2023
Chloride	189	259
Sulfate	876	1,120
TDS	2,220	2,500
Depth to Water (ft. bgs)	0.25	0.24

BH02

BH05*		
Compound (mg/L)	2/10/2023	5/15/2023
Chloride	190	257
Sulfate	644	1,030
TDS	2,610	2,410
Depth to Water (ft. bgs)	0.73	0.26

BH05

BH03*		
Compound (mg/L)	2/10/2023	5/15/2023
Chloride	139	278
Sulfate	566	1,130
TDS	2,150	2,470
Depth to Water (ft. bgs)	0.54	0.11

BH03

BH01*		
Compound (mg/L)	2/28/2023	5/15/2023
Chloride	168	577
Sulfate	1,010	2,310
TDS	2,070	4,600
Depth to Water (ft. bgs)	0.10	0.09

BH04

BH04*		
Compound (mg/L)	2/10/2023	5/15/2023
Chloride	198	203
Sulfate	711	1,150
TDS	2,480	2,270
Depth to Water (ft. bgs)	0.96	0.34

Legend

- Excavation Extent (Collected via Trimble GPS)
- Underground Flowline Location (Collected via Trimble GPS)
- Monitoring Well Location (Collected via Trimble GPS)
- Groundwater Flow Direction (2Q23)

Notes

All locations are approximate unless otherwise noted.

TDS – Total dissolved solids

mg/L – Milligrams per liter

ft. bgs – Feet below ground surface

GPS – Global Positioning System

Black bold text denotes an exceedance of COGCC regulatory standards, but within 1.25x historic BKG concentrations

COGCC – Colorado Oil and Gas Conservation Commission

BKG – Background

* – Background wells from neighboring Loloff 35-5 Tank Battery were used for historic background concentrations at Loloff 35-5 Wellhead.

0 ft. 10 ft. 20 ft.

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



DATE: June 6, 2023

DESIGNED BY: C. Hamlin

DRAWN BY: G. Semenza



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

PDC Energy, Inc. – DJ Basin
Former Loloff 35-5 Wellhead
NENE, Section 35, Township 5 North, Range 64 West
Weld County, Colorado

GROUNDWATER
ANALYTICAL RESLUTS
MAP
(INORGANIC PARAMETERS)

FIGURE
2

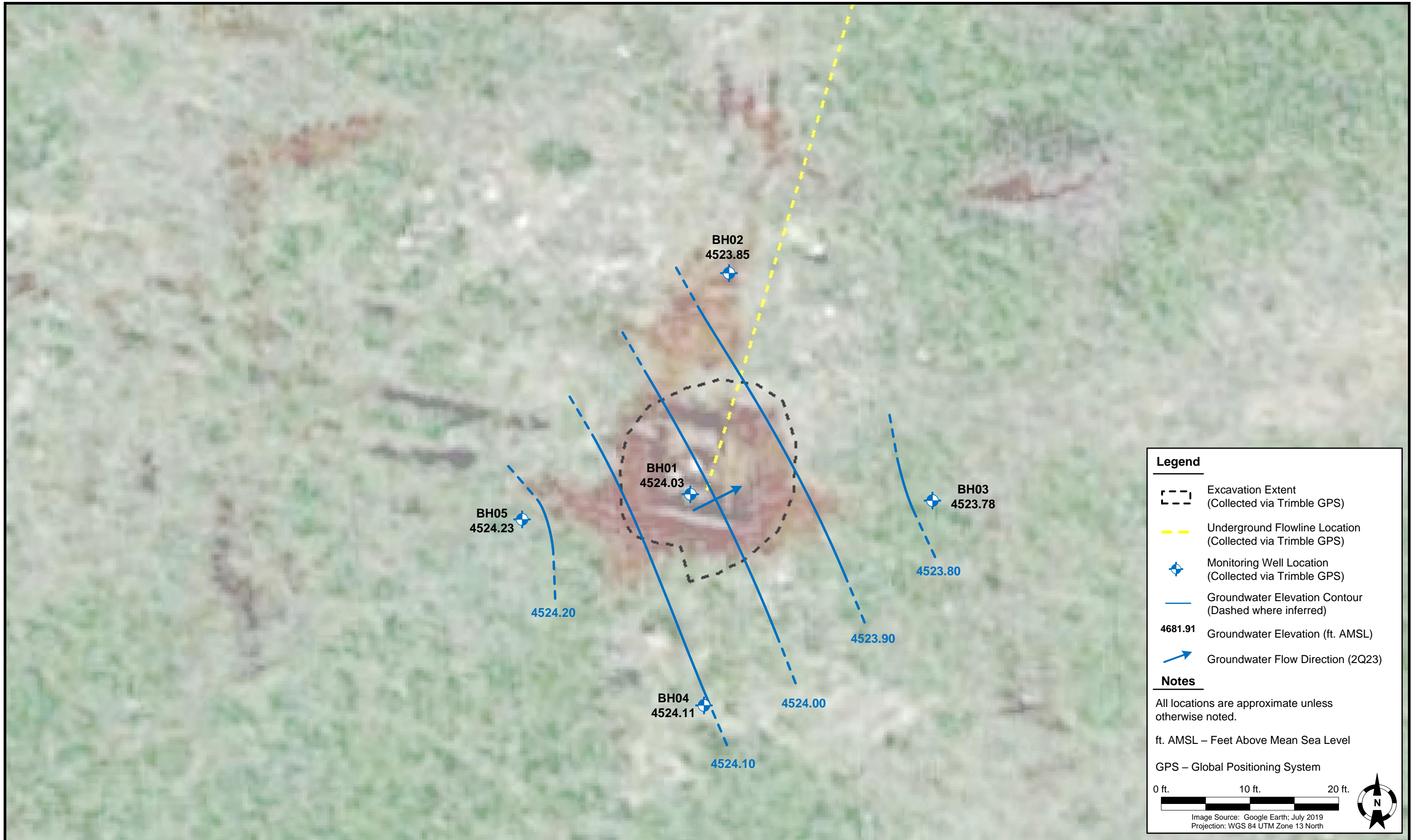


TABLE 1
FORMER LOLOFF 35-5 WELLHEAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS

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	-	-
BH01	NA	Not Sampled - Installed 6/9/2022							NA	NA
BH01	8/3/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.35	4520.77
BH01	11/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.06	4523.06
BH01	2/28/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.10	4524.02
BH01	5/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.09	4524.03
BH02	5/12/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.06	4523.06
BH02	8/3/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.39	4520.70
BH02	11/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.10	4522.99
BH02	2/28/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.25	4523.84
BH02	5/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.24	4523.85
BH03	5/12/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.92	4521.86
BH03	8/3/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.30	4520.59
BH03	11/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.98	4522.91
BH03	2/10/2023	<1.0	<1.0	<1.0	4.2	<1.0	12	10	0.54	4523.35
BH03	5/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.11	4523.78
BH04	5/12/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.31	4522.00
BH04	8/3/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.45	4520.66
BH04	11/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.38	4523.07
BH04	2/10/2023	<1.0	<1.0	<1.0	3.4	<1.0	10	8.3	0.96	4523.49
BH04	5/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.34	4524.11
BH05	5/12/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.79	4520.66
BH05	8/3/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.50	4520.79
BH05	11/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.16	4523.13
BH05	2/10/2023	<1.0	<1.0	<1.0	3.3	<1.0	11	9.1	0.73	4523.56
BH05	5/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.26	4524.23

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

TABLE 2
FORMER LOLOFF 35-5 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	NA	Not Sampled - Installed 6/9/2022			NA	NA
BH01	8/3/2022	1,760	169	895	3.35	4520.77
BH01	11/2/2022	1,930	170	1,060	1.06	4523.06
BH01	2/28/2023	2,070	168	1,010	0.10	4524.02
BH01	5/15/2023	4,600	577	2,310	0.09	4524.03
BH02	5/12/2022	1,880	188	808	1.94	4522.15
BH02	8/3/2022	2,460	322	1,300	3.39	4520.70
BH02	11/2/2022	2,120	246	1,050	1.10	4522.99
BH02	2/28/2023	2,220	189	876	0.25	4523.84
BH02	5/15/2023	2,500	259	1,120	0.24	4523.85
BH03	5/12/2022	2,740	308	1,300	2.03	4521.86
BH03	8/3/2022	1,740	158	789	3.30	4520.59
BH03	11/2/2022	1,960	220	951	0.98	4522.91
BH03	2/10/2023	2,150	139	566	0.54	4523.35
BH03	5/15/2023	2,470	278	1,130	0.11	4523.78
BH04	5/12/2022	3,200	370	1,540	2.45	4522.00
BH04	8/3/2022	1,740	160	713	3.79	4520.66
BH04	11/2/2022	2,360	276	1,210	1.38	4523.07
BH04	2/10/2023	2,480	198	711	0.96	4523.49
BH04	5/15/2023	2,270	203	1,150	0.34	4524.11
BH05	5/12/2022	2,490	262	1,150	2.21	4522.08
BH05	8/3/2022	2,050	234	1,020	3.50	4520.79
BH05	11/2/2022	2,620	343	1,280	1.16	4523.13
BH05	2/10/2023	2,610	190	644	0.73	4523.56
BH05	5/15/2023	2,410	257	1,030	0.26	4524.23
Loloff 35-5 Tank Battery Background Wells ⁽³⁾						
BH17	4/20/2022	15,000	2,180	11,400	2.22	4576.55
BH17	7/15/2022	13,000	1,980	11,000	3.08	4575.69

TABLE 2
FORMER LOLOFF 35-5 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*	-	-
BH17	10/6/2022	11,700	1,670	9,460	1.43	4577.34
BH17	1/5/2023	11,300	1,650	9,120	1.47	4577.30
Historic Max BCKG Concentration		15,000	2,180	11,400		
x1.25		18,750	2,725	14,250		

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.

3. Background well from neighboring Loloff 35-5 Tank Battery was used for historic background concentration at Loloff 35-5 Wellhead

* = Historic background concentrations used to compare to site inorganic parameters.

TDS = Total dissolved solids

COGCC = Colorado Oil and Gas Conservation Commission

BCKG = Background

mg/L = Milligrams per liter

ft. = Feet

AMSL = Above Mean Sea Level

NA = Not applicable

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

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

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

BOLD = Analytical result is in exceedance of applicable standard.

BOLD = Analytical result is in exceedance of applicable standard and below 1.25x historic background concentrations.

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 24, 2023

Mark Longhurst

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: PDC - Loloff 35-5 Wellhead

Work Order #2305353

Enclosed are the results of analyses for samples received by Summit Scientific on 05/15/23 17:38. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jacob Wood For Paul Shrewsbury

President



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

Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2305353-01	Water	05/15/23 11:25	05/15/23 17:38
BH02	2305353-02	Water	05/15/23 11:00	05/15/23 17:38
BH03	2305353-03	Water	05/15/23 11:01	05/15/23 17:38
BH04	2305353-04	Water	05/15/23 11:13	05/15/23 17:38
BH05	2305353-05	Water	05/15/23 11:15	05/15/23 17:38

Client: PDC		PDC / Tasman		Send Data To:				Send Invoice To:			
Address: 6855 W 119th Ave		City/State/Zip: Broomfield / CO / 80220		Project Manager: Mark Longhurst				Company: PDC Energy			
Phone: 303-487-1228		Sampler Name: Jordan Hestmark		E-Mail: mark.longhurst@PDCE.com				Project Name/Location:			
				Project Name: Loloff 35-5 Wellhead				AFE#:			
				Project Number:				PO/Billing Codes:			
				Contact: Mark Longhurst							

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEN-82606	1,2,4,6,1,3,5-TMB	TDS, SO4, Cl							
1	BH01	5/15/23	1125	1	X				X					X	X	X						
2	BH02		1100																			
3	BH03		1101																			
4	BH04		1113																			
5	BH05		1115																			
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: Jordan Hestmark	Date/Time: 5/15/23 1452	Received by: Tasman Lockbox	Date/Time: 5/15/23 1452	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 5/15/23 1738	Received by: [Signature]	Date/Time: 5/15/23 1738	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: 8.1	Corrected Temperature: 6	IR gun #: 1	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order#

2305353

Client: BoctrasmanClient Project ID: Loloff 35-S wellhead

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

Airbill #:

☐ ☒ ☐ ☐ ☐

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☒

Other

☐

Temp (°C)

8.1

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"/>	on ICE
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Custodian Printed Name

Date/Time

5.15.23

18:45



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

Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

BH01
2305353-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/15/23 11:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BGE0537	05/16/23	05/18/23	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: **05/15/23 11:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	18.0	135 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.9	104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.4	115 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/15/23 11:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	577	12.0	mg/L	200	BGE0680	05/19/23	05/19/23	EPA 300.0	
Sulfate	2310	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **05/15/23 11:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	4600	10.0	mg/L	1	BGE0629	05/18/23	05/18/23	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.



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

Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

BH02
2305353-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/15/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGE0537	05/16/23	05/18/23	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: **05/15/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	18.3	137 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	14.0	105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.3	115 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/15/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	259	12.0	mg/L	200	BGE0680	05/19/23	05/19/23	EPA 300.0	
Sulfate	1120	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **05/15/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	2500	10.0	mg/L	1	BGE0629	05/18/23	05/18/23	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.



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

Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

BH03
2305353-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/15/23 11:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGE0537	05/16/23	05/18/23	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: **05/15/23 11:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	17.8	134 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.9	104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.3	114 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/15/23 11:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	278	12.0	mg/L	200	BGE0680	05/19/23	05/19/23	EPA 300.0	
Sulfate	1130	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **05/15/23 11:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	2470	10.0	mg/L	1	BGE0629	05/18/23	05/18/23	SM2540C	

Summit Scientific

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

Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

BH04
2305353-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/15/23 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGE0537	05/16/23	05/18/23	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: **05/15/23 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	18.2	137 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.7	103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.0	113 %	21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/15/23 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	203	12.0	mg/L	200	BGE0680	05/19/23	05/19/23	EPA 300.0	
Sulfate	1150	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **05/15/23 11:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	2270	10.0	mg/L	1	BGE0629	05/18/23	05/18/23	SM2540C	

Summit Scientific

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

Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

BH05
2305353-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/15/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGE0537	05/16/23	05/18/23	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: **05/15/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	18.2	136 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	14.0	105 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	15.3	115 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **05/15/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	257	12.0		mg/L	200	BGE0680	05/19/23	05/19/23	EPA 300.0	
Sulfate	1030	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **05/15/23 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2410	10.0		mg/L	1	BGE0629	05/18/23	05/18/23	SM2540C	

Summit Scientific

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Tasman Geosciences
6855 W. 119th Ave.
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Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

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 BGE0537 - EPA 5030 Water MS

Blank (BGE0537-BLK1)

Prepared & Analyzed: 05/16/23

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	11.2		"	13.3		83.8	23-173			
Surrogate: Toluene-d8	9.95		"	13.3		74.6	20-170			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108	21-167			

LCS (BGE0537-BS1)

Prepared & Analyzed: 05/16/23

Benzene	37.8	1.0	ug/l	50.0		75.6	51-132			
Toluene	38.4	1.0	"	50.0		76.9	51-138			
Ethylbenzene	36.9	1.0	"	50.0		73.8	58-146			
m,p-Xylene	83.9	2.0	"	100		83.9	57-144			
o-Xylene	36.8	1.0	"	50.0		73.6	53-146			
Naphthalene	38.2	1.0	"	50.0		76.4	70-130			
1,2,4-Trimethylbenzene	35.6	1.0	"	50.0		71.2	70-130			
1,3,5-Trimethylbenzene	36.0	1.0	"	50.0		72.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.3		112	23-173			
Surrogate: Toluene-d8	11.8		"	13.3		88.9	20-170			
Surrogate: 4-Bromofluorobenzene	18.1		"	13.3		136	21-167			

Matrix Spike (BGE0537-MS1)

Source: 2305329-01

Prepared & Analyzed: 05/16/23

Benzene	30.2	1.0	ug/l	50.0	ND	60.4	34-141			
Toluene	49.9	1.0	"	50.0	ND	99.8	27-151			
Ethylbenzene	49.8	1.0	"	50.0	ND	99.7	29-160			
m,p-Xylene	88.8	2.0	"	100	ND	88.8	20-166			
o-Xylene	29.1	1.0	"	50.0	ND	58.3	33-159			
Naphthalene	42.3	1.0	"	50.0	ND	84.7	70-130			
1,2,4-Trimethylbenzene	44.9	1.0	"	50.0	ND	89.8	70-130			
1,3,5-Trimethylbenzene	44.4	1.0	"	50.0	ND	88.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.3		103	23-173			
Surrogate: Toluene-d8	15.6		"	13.3		117	20-170			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	21-167			

Summit Scientific

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

Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

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 BGE0537 - EPA 5030 Water MS

Matrix Spike Dup (BGE0537-MSD1)	Source: 2305329-01			Prepared & Analyzed: 05/16/23						
Benzene	34.3	1.0	ug/l	50.0	ND	68.5	34-141	12.6	30	
Toluene	43.9	1.0	"	50.0	ND	87.7	27-151	12.9	30	
Ethylbenzene	41.1	1.0	"	50.0	ND	82.2	29-160	19.2	30	
m,p-Xylene	81.7	2.0	"	100	ND	81.7	20-166	8.27	30	
o-Xylene	36.3	1.0	"	50.0	ND	72.6	33-159	21.9	30	
Naphthalene	45.6	1.0	"	50.0	ND	91.2	70-130	7.44	30	
1,2,4-Trimethylbenzene	41.1	1.0	"	50.0	ND	82.1	70-130	8.95	30	
1,3,5-Trimethylbenzene	39.2	1.0	"	50.0	ND	78.3	70-130	12.6	30	
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.3		102	23-173			
Surrogate: Toluene-d8	15.5		"	13.3		116	20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		96.5	21-167			



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Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

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 BGE0680 - General Preparation

Blank (BGE0680-BLK1)

Prepared & Analyzed: 05/19/23

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

LCS (BGE0680-BS1)

Prepared & Analyzed: 05/19/23

Chloride	2.79	0.0600	mg/L	3.00	93.0	90-110
Sulfate	13.5	0.300	"	15.0	90.1	90-110

Duplicate (BGE0680-DUP1)

Source: 2305350-01

Prepared & Analyzed: 05/19/23

Chloride	45.8	12.0	mg/L	44.0	4.01	20
Sulfate	114	60.0	"	129	12.3	20

Matrix Spike (BGE0680-MS1)

Source: 2305350-01

Prepared & Analyzed: 05/19/23

Chloride	640	12.0	mg/L	600	44.0	99.3	80-120
Sulfate	3130	60.0	"	3000	129	100	80-120



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Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

Total Dissolved Solids by SM2540C - Quality Control
Summit Scientific

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

Batch BGE0629 - General Preparation

Blank (BGE0629-BLK1)

Prepared & Analyzed: 05/18/23

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BGE0629-DUP1)

Source: 2305350-01

Prepared & Analyzed: 05/18/23

Total Dissolved Solids 669 10.0 mg/L 590 12.6 20



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

Project: PDC - Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/24/23 16:25

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