



**PDC Energy, Inc.**  
**Third Quarter 2022 Groundwater Monitoring Summary**

July 25, 2022

Former Loloff 35-5 Tank Battery  
NENE Section 35 T5N R64W  
Remediation # 19818

This groundwater monitoring summary has been prepared by Tasman, Inc. for the former Loloff 35-5 tank battery.

### **Site History and Background**

On October 15, 2021, a historic hydrocarbon release was discovered beneath the former separator during decommissioning activities. Following the discovery, mitigation activities were initiated and between October 15, and December 3, 2021, approximately 980 cubic yards of impacted material were removed from the former excavation. During excavation activities, groundwater was encountered in the excavation at approximately 3 feet below ground surface (bgs). Groundwater vacuum recovery was conducted concurrent with excavation activities and approximately 220 barrels (bbls) of groundwater were removed from location. On April 14, and April 15, 2022, seventeen (17) monitoring wells (BH01 – BH17) were installed to confirm the absence of dissolved-phase hydrocarbon impacts within and adjacent to the former excavation extent.

### **Groundwater Monitoring Activities**

On July 15, 2022, groundwater monitoring was conducted at all 17 monitoring wells (BH01 – BH17). Seventeen groundwater samples were submitted to Summit Scientific Laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260B, chloride and sulfate anions by EPA Method 300.0 and total dissolved solids (TDS) by Method SM 2540C.

Third quarter 2022 analytical results indicated that organic compound concentrations were in compliance with the applicable COGCC Table 915-1 groundwater standards in all 17 monitoring well locations. Additionally, inorganic parameters were in compliance with the applicable COGCC Table 915-1 regulatory standards or within 1.25x the background concentration of the up- and cross-gradient monitoring wells (BH15 and BH17) in all 17 monitoring well locations. Sample locations and corresponding analytical results are illustrated on Figures 1 and 2. Groundwater

elevation data is illustrated on Figure 3. Groundwater analytical results are summarized in Tables 1 and 2. The laboratory analytical report is included as Attachment A.

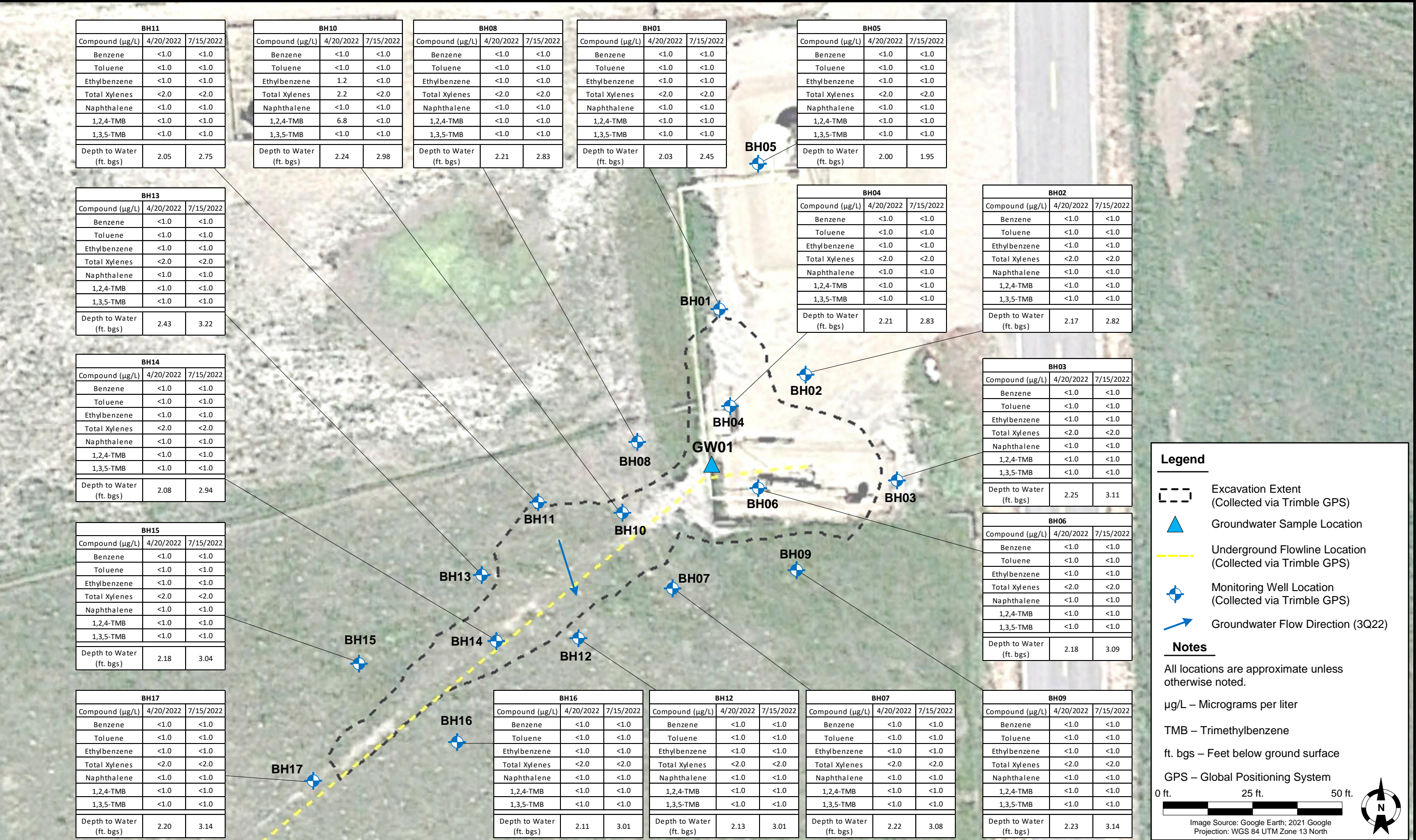
### **Current Remediation Activities and Path Forward**

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

Additionally, based on analytical results received during monitoring well installation activities, further site investigation activities are required to assess pH and EC concentrations in native soil on location.

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





DATE: July 25, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: M. Connolly



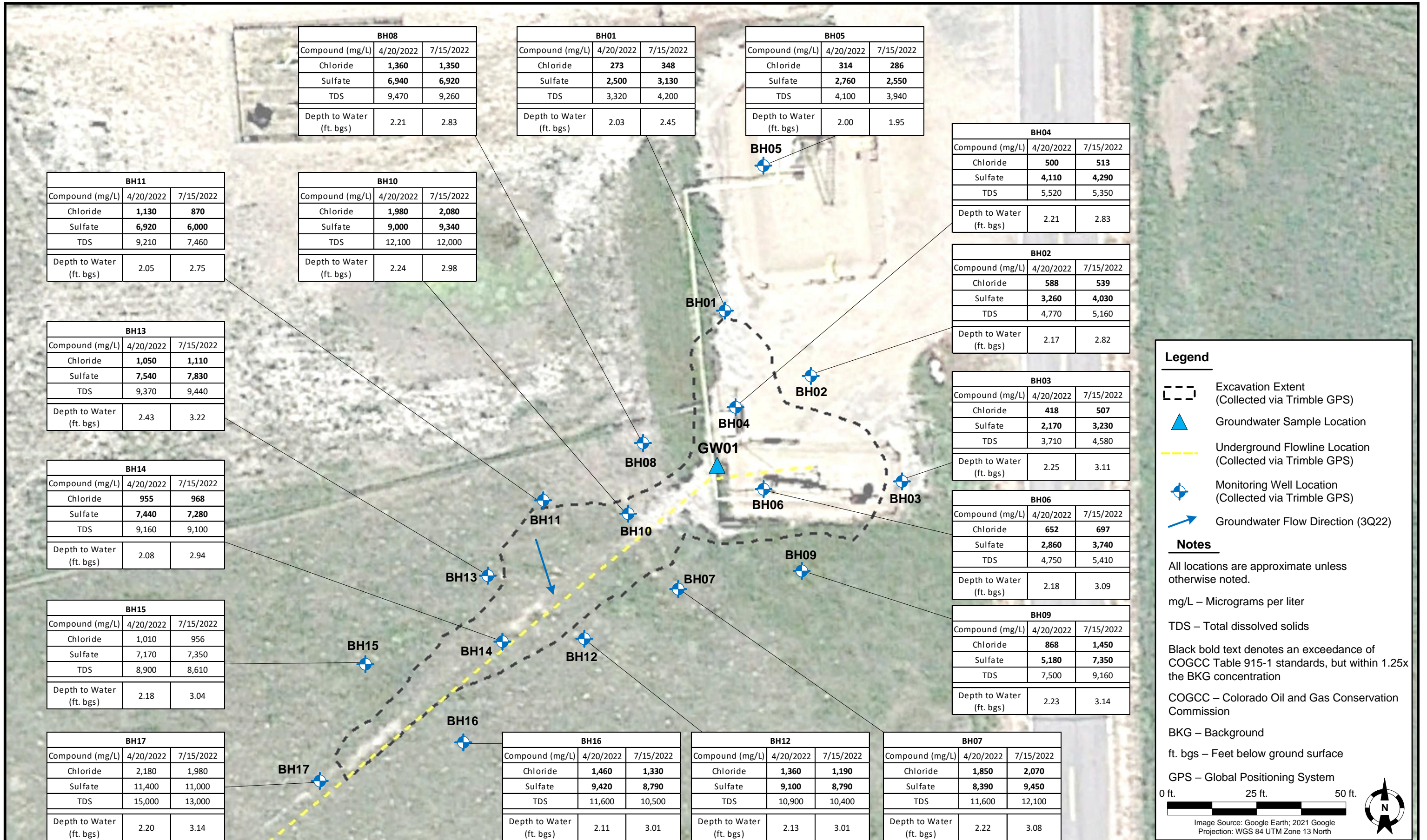
**Tasman, Inc.**  
6855 W. 119<sup>th</sup> Ave.  
Broomfield, CO 80020

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

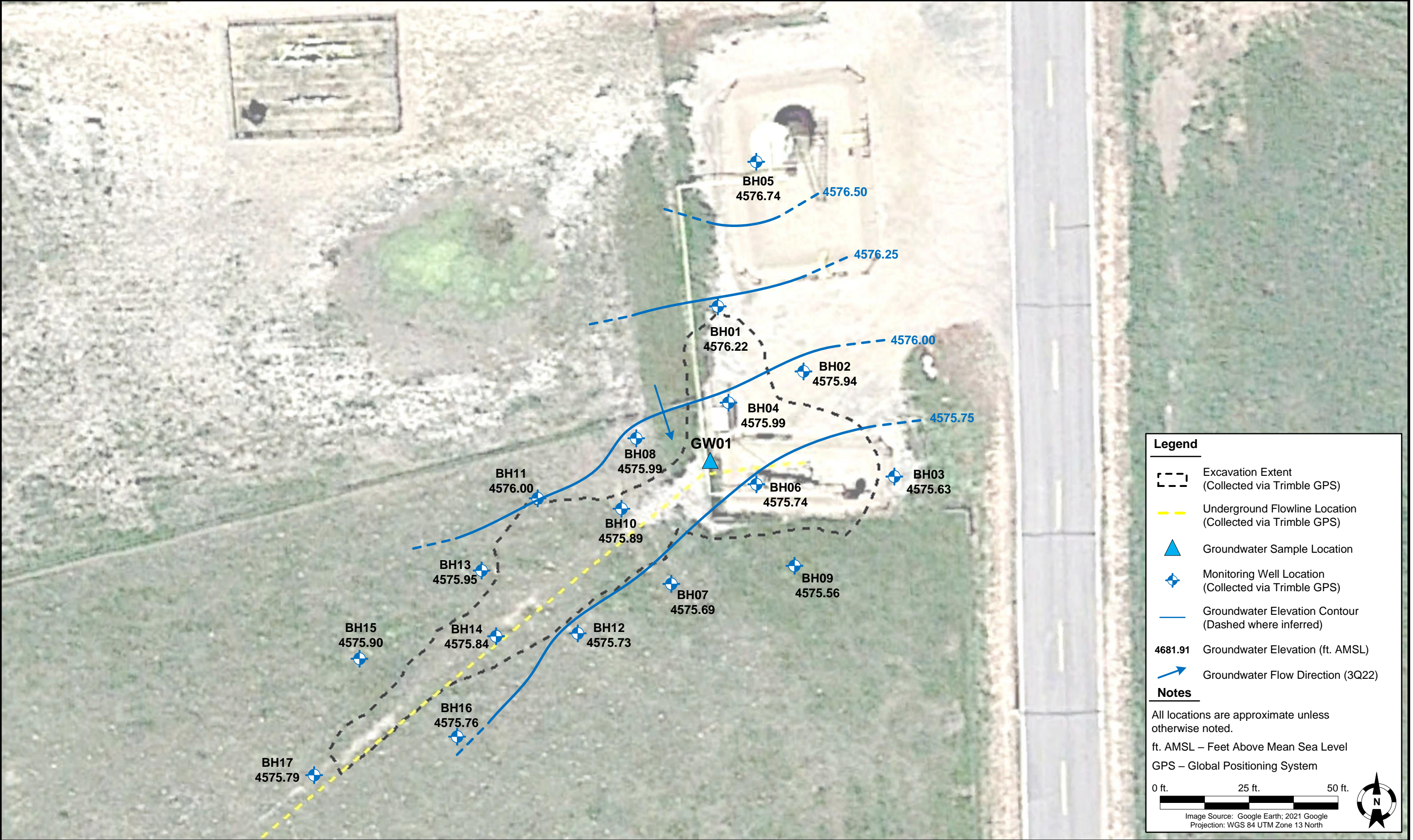
**GROUNDWATER  
ANALYTICAL RESULTS  
MAP**

**FIGURE  
1**











**TABLE 1**  
**FORMER LOLOFF 35-5 TANK BATTERY**  
**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 <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
<b>COGCC Table 915-1 Groundwater Standard (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	<b>140</b>	<b>67</b>	<b>67</b>	<b>-</b>	<b>-</b>
GW01	10/15/2021	<b>220</b>	<1.0	10	<2.0	39	<b>400</b>	<1.0	~3	NA
BH01	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.03	4576.64
BH01	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.45	4576.22
BH02	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.17	4576.59
BH02	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.82	4575.94
BH03	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.25	4576.49
BH03	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.11	4575.63
BH04	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.21	4576.61
BH04	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.83	4575.99
BH05	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.00	4576.69
BH05	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.95	4576.74
BH06	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.18	4576.65
BH06	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.09	4575.74
BH07	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.22	4576.55
BH07	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.08	4575.69
BH08	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.21	4576.61
BH08	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.83	4575.99
BH09	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.23	4576.47
BH09	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.14	4575.56
BH10	4/20/2022	<1.0	<1.0	1.2	2.2	<1.0	6.8	<1.0	2.24	4576.63
BH10	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.98	4575.89
BH11	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.05	4576.70
BH11	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.75	4576.00
BH12	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.13	4576.61
BH12	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.01	4575.73
BH13	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.43	4576.74
BH13	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.22	4575.95
BH14	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.08	4576.70
BH14	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.94	4575.84
BH15	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.18	4576.76
BH15	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.04	4575.90
BH16	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.11	4576.66
BH16	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.01	4575.76
BH17	4/20/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.20	4576.73
BH17	7/15/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.14	4575.79

**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 is in exceedance of applicable standard.

**TABLE 2**  
**FORMER LOLOFF 35-5 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Depth to Water <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
<b>COGCC Table 915-1 Groundwater Standard (mg/L) <sup>(1)</sup></b>		<b>&lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	<b>-</b>	<b>-</b>
BH01	4/20/2022	3,320	273	2,500	2.03	4576.64
BH01	7/15/2022	4,200	348	3,130	2.45	4576.22
BH02	4/20/2022	4,770	588	3,260	2.17	4576.59
BH02	7/15/2022	5,160	539	4,030	2.82	4575.94
BH03	4/20/2022	3,710	418	2,170	2.25	4576.49
BH03	7/15/2022	4,580	507	3,230	3.11	4575.63
BH04	4/20/2022	5,520	500	4,110	2.21	4576.61
BH04	7/15/2022	5,350	513	4,290	2.83	4575.99
BH05	4/20/2022	4,100	314	2,760	2.00	4576.69
BH05	7/15/2022	3,940	286	2,550	1.95	4576.74
BH06	4/20/2022	4,750	652	2,860	2.18	4576.65
BH06	7/15/2022	5,410	697	3,740	3.09	4575.74
BH07	4/20/2022	11,600	1,850	8,390	2.22	4576.55
BH07	7/15/2022	12,100	2,070	9,450	3.08	4575.69
BH08	4/20/2022	9,470	1,360	6,940	2.21	4576.61
BH08	7/15/2022	9,260	1,350	6,920	2.83	4575.99
BH09	4/20/2022	7,500	868	5,180	2.23	4576.47
BH09	7/15/2022	9,160	1,450	7,350	3.14	4575.56
BH10	4/20/2022	12,100	1,980	9,000	2.24	4576.63
BH10	7/15/2022	12,000	2,080	9,340	2.98	4575.89
BH11	4/20/2022	9,210	1,130	6,920	2.05	4576.70
BH11	7/15/2022	7,460	870	6,000	2.75	4576.00
BH12	4/20/2022	10,900	1,360	9,100	2.13	4576.61
BH12	7/15/2022	10,400	1,190	8,790	3.01	4575.73
BH13	4/20/2022	9,370	1,050	7,540	2.43	4576.74
BH13	7/15/2022	9,440	1,110	7,830	3.22	4575.95
BH14	4/20/2022	9,160	955	7,440	2.08	4576.70
BH14	7/15/2022	9,100	968	7,280	2.94	4575.84
BH15	4/20/2022	8,900	1,010	7,170	2.18	4576.76
BH15	7/15/2022	8,610	956	7,350	3.04	4575.90

**TABLE 2**  
**FORMER LOLOFF 35-5 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Depth to Water <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
<b>COGCC Table 915-1 Groundwater Standard (mg/L) <sup>(1)</sup></b>		<b>&lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	-	-
BH16	4/20/2022	11,600	<b>1,460</b>	<b>9,420</b>	2.11	4576.66
BH16	7/15/2022	10,500	<b>1,330</b>	<b>8,790</b>	3.01	4575.76
BH17	4/20/2022	15,000	2,180	11,400	2.20	4576.73
BH17	7/15/2022	13,000	1,980	11,000	3.14	4575.79

**Notes:**

- Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.
- Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

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

(<) = 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 but within 1.25x background concentration.



## Attachment A

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 22, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Loloff 35-5 Tank Battery

Work Order #2207212

Enclosed are the results of analyses for samples received by Summit Scientific on 07/15/22 17:23. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mikayla Axtell".

Mikayla Axtell For Paul Shrewsbury

President





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

Project: Loloff 35-5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2207212-01	Water	07/15/22 08:52	07/15/22 17:23
BH02	2207212-02	Water	07/15/22 08:59	07/15/22 17:23
BH03	2207212-03	Water	07/15/22 09:05	07/15/22 17:23
BH04	2207212-04	Water	07/15/22 09:11	07/15/22 17:23
BH05	2207212-05	Water	07/15/22 09:16	07/15/22 17:23
BH06	2207212-06	Water	07/15/22 10:30	07/15/22 17:23
BH07	2207212-07	Water	07/15/22 10:36	07/15/22 17:23
BH08	2207212-08	Water	07/15/22 10:40	07/15/22 17:23
BH09	2207212-09	Water	07/15/22 10:46	07/15/22 17:23
BH10	2207212-10	Water	07/15/22 10:49	07/15/22 17:23
BH11	2207212-11	Water	07/15/22 12:00	07/15/22 17:23
BH12	2207212-12	Water	07/15/22 12:04	07/15/22 17:23
BH13	2207212-13	Water	07/15/22 12:08	07/15/22 17:23
BH14	2207212-14	Water	07/15/22 12:13	07/15/22 17:23
BH15	2207212-15	Water	07/15/22 12:16	07/15/22 17:23
BH16	2207212-16	Water	07/15/22 12:21	07/15/22 17:23
BH17	2207212-17	Water	07/15/22 12:25	07/15/22 17:23

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

2207212.1

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

Page 1 of 2

Client: PDC / Tasman

Project Manager: Mark Longhurst

Address: 6855 W 119th Ave

E-Mail: mark.longhurst@PDCE.com

City/State/Zip: Broomfield/ CO/ 80020


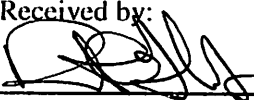
Phone: 303-487-1228

Project Name: Loloff 35-5<sup>st</sup> 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	TDS, U, SO4		
1	BH01	7/15/22	852	4			X		X					X		X				pH, EC, SAR by saturated paste
2	BH02		859																	
3	BH03		905																	
4	BH04		911																	
5	BH05		916																	
6	BH06		1030																	
7	BH07		1036																	
8	BH08		1040																	
9	BH09		1046																	
10	BH10		1049																	

Relinquished by:  Date/Time: 7/15/22 1347	Received by: Tasman's Lock Box Date/Time: 7/15/22 1347	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 4.1 Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box Date/Time: 71522 1723	Received by:  Date/Time: 71522 1723		
Relinquished by: Date/Time:	Received by: Date/Time:		



# Summit Scientific


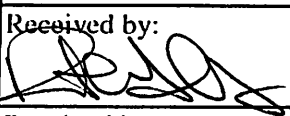
2207212.2

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

Page 2 of 2

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: Loloff 35-5, <sup>94</sup> Tonic Battery  
Sampler Name: *San Andresen* 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	YDS, Cl, SO4		
1	BH11	7/15/22	1200	4			X		X					X		X				pH, EC, SAR by saturated paste
2	BH12		1204				X							X						
3	BH13		1208				X													
4	BH14		1213				X													
5	BH15		1216				X													
6	BH16		1221				X													
7	BH17		1225				X													
8																				
9																				
10																				

Relinquished by: 	Date/Time: 7/15/22 1347	Received by: Tasman's Lock Box	Date/Time: 7/15/22 1347	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 7/15/22 1723	Received by: 	Date/Time: 7/15/22 1723	Sample Integrity: Temperature Upon Receipt: 4.1 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S<sub>2</sub>2/2  
Sample Receipt Checklist

S2 Work Order# 2207212

Client: POC/Tasman

Client Project ID:

Loloff 35-S 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)

Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C <sup>(1)</sup> ? <b>NOTE:</b> 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 <sup>(1)</sup> ?	-			
Was adequate sample volume provided <sup>(1)</sup> ?	-			
If custody seals are present, are they intact <sup>(1)</sup> ?	-			
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 <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , 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 <sup>(1)</sup> ?	-			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	-			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	-			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	-			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>		-		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any):				

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

  
 Custodian Printed Name

 71522  
 Date/Time





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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH01**  
**2207212-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 08:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 08:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 08:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	348	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	3130	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 08:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	4200	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH02**  
**2207212-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 08:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 08:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		102 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 08:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	539	12.0		mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	4030	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 08:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	5160	10.0		mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH03**  
**2207212-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 09:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 09:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		64.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 09:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>507</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>3230</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 09:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>4580</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH04**  
**2207212-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 09:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 09:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 09:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>513</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>4290</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 09:11**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>5350</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH05**  
**2207212-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 09:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 09:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 09:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>286</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>2550</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 09:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>3940</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH06**  
**2207212-06 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		121 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>697</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>3740</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>5410</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH07**  
**2207212-07 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 10:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 10:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 10:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>2070</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>9450</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 10:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>12100</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH08**  
**2207212-08 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>1350</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>6920</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 10:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>9260</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH09**  
**2207212-09 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 10:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 10:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 10:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>1450</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>7350</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 10:46**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>9160</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH10**  
**2207212-10 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 10:49**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 10:49**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		118 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 10:49**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>2080</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>9340</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 10:49**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>12000</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH11**  
**2207212-11 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>870</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>6000</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>7460</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH12**  
**2207212-12 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 12:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/20/22	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: **07/15/22 12:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		113 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 12:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>1190</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>8790</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 12:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>10400</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH13**  
**2207212-13 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 12:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFG0316	07/19/22	07/21/22	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: **07/15/22 12:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		105 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		116 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 12:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>1110</b>	12.0		mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>7830</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 12:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	<b>9440</b>	10.0		mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH14**  
**2207212-14 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 12:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/21/22	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: **07/15/22 12:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 12:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>968</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>7280</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 12:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>9100</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH15**  
**2207212-15 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 12:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/21/22	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: **07/15/22 12:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 12:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>956</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>7350</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 12:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>8610</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH16**  
**2207212-16 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 12:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFG0316	07/19/22	07/21/22	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: **07/15/22 12:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		111 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 12:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	1330	12.0		mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	8790	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 12:21**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	10500	10.0		mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**BH17**  
**2207212-17 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **07/15/22 12:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFG0316	07/19/22	07/21/22	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: **07/15/22 12:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/15/22 12:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>1980</b>	12.0	mg/L	200	BFG0392	07/21/22	07/21/22	EPA 300.0	
Sulfate	<b>11000</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/15/22 12:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>13000</b>	10.0	mg/L	1	BFG0313	07/18/22	07/18/22	SM2540C	

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

## 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 BFG0316 - EPA 5030 Water MS

##### Blank (BFG0316-BLK1)

Prepared: 07/19/22 Analyzed: 07/20/22

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	11.6		"	13.3		87.4	23-173			
Surrogate: Toluene-d8	14.0		"	13.3		105	20-170			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108	21-167			

##### LCS (BFG0316-BS1)

Prepared: 07/19/22 Analyzed: 07/20/22

Benzene	37.8	1.0	ug/l	41.7		90.7	51-132			
Toluene	37.7	1.0	"	41.7		90.4	51-138			
Ethylbenzene	41.0	1.0	"	41.7		98.4	58-146			
m,p-Xylene	81.2	2.0	"	83.3		97.5	57-144			
o-Xylene	39.9	1.0	"	41.7		95.7	53-146			
Naphthalene	30.2	1.0	"	41.7		72.5	70-130			
1,2,4-Trimethylbenzene	42.3	1.0	"	41.7		102	70-130			
1,3,5-Trimethylbenzene	41.9	1.0	"	41.7		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	11.1		"	13.3		83.0	23-173			
Surrogate: Toluene-d8	13.9		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	14.7		"	13.3		110	21-167			

##### Matrix Spike (BFG0316-MS1)

Source: 2207212-02

Prepared: 07/19/22 Analyzed: 07/20/22

Benzene	38.9	1.0	ug/l	41.7	ND	93.5	34-141			
Toluene	39.4	1.0	"	41.7	ND	94.4	27-151			
Ethylbenzene	45.6	1.0	"	41.7	ND	109	29-160			
m,p-Xylene	89.1	2.0	"	83.3	ND	107	20-166			
o-Xylene	42.2	1.0	"	41.7	ND	101	33-159			
Naphthalene	32.8	1.0	"	41.7	ND	78.6	70-130			
1,2,4-Trimethylbenzene	46.5	1.0	"	41.7	ND	112	70-130			
1,3,5-Trimethylbenzene	46.4	1.0	"	41.7	ND	111	70-130			
Surrogate: 1,2-Dichloroethane-d4	10.6		"	13.3		79.9	23-173			
Surrogate: Toluene-d8	13.9		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	14.5		"	13.3		109	21-167			

Summit Scientific

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

Project: Loloff 35-5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**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 BFG0316 - EPA 5030 Water MS**

Matrix Spike Dup (BFG0316-MSD1)	Source: 2207212-02			Prepared: 07/19/22 Analyzed: 07/20/22						
Benzene	40.8	1.0	ug/l	41.7	ND	98.0	34-141	4.74	30	
Toluene	41.4	1.0	"	41.7	ND	99.2	27-151	4.96	30	
Ethylbenzene	45.4	1.0	"	41.7	ND	109	29-160	0.439	30	
m,p-Xylene	90.0	2.0	"	83.3	ND	108	20-166	1.02	30	
o-Xylene	41.8	1.0	"	41.7	ND	100	33-159	0.858	30	
Naphthalene	32.7	1.0	"	41.7	ND	78.4	70-130	0.275	30	
1,2,4-Trimethylbenzene	47.1	1.0	"	41.7	ND	113	70-130	1.28	30	
1,3,5-Trimethylbenzene	47.1	1.0	"	41.7	ND	113	70-130	1.46	30	
Surrogate: 1,2-Dichloroethane-d4	11.3		"	13.3		84.5	23-173			
Surrogate: Toluene-d8	14.3		"	13.3		107	20-170			
Surrogate: 4-Bromofluorobenzene	14.7		"	13.3		110	21-167			

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**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 BFG0392 - General Preparation**

**Blank (BFG0392-BLK1)**

Prepared & Analyzed: 07/21/22

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

**LCS (BFG0392-BS1)**

Prepared & Analyzed: 07/21/22

Chloride	3.32	0.0600	mg/L	3.00	110	90-110
Sulfate	15.4	0.300	"	15.0	102	90-110

**Duplicate (BFG0392-DUP1)**

Source: 2207212-01

Prepared & Analyzed: 07/21/22

Chloride	351	12.0	mg/L	348	0.744	20
Sulfate	3240	60.0	"	3130	3.45	20

**Matrix Spike (BFG0392-MS1)**

Source: 2207212-01

Prepared & Analyzed: 07/21/22

Chloride	984	12.0	mg/L	600	348	106	80-120
Sulfate	6520	60.0	"	3000	3130	113	80-120

Summit Scientific

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

Project: Loloff 35-5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

**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 BFG0313 - General Preparation**

**Blank (BFG0313-BLK1)**

Prepared & Analyzed: 07/18/22

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BFG0313-DUP1)**

Source: 2207212-01

Prepared & Analyzed: 07/18/22

Total Dissolved Solids 4210 10.0 mg/L 4200 0.190 20

Summit Scientific

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

Project: Loloff 35-5 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
07/22/22 12:57

### 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