



PDC Energy, Inc.
Second Quarter 2022 Groundwater Monitoring Summary

June 17, 2022

Former Latham 2-31 & Latham Reservoir 1 Tank Battery
SESW SEC 2 T4N R65W
Remediation # 16260

This groundwater monitoring summary has been prepared by Tasman, Inc. for the former Latham 2-31 & Latham Reservoir 1 Tank Battery.

Site History and Background

On September 2, 2020, pre-reclamation site investigation activities were initiated at the former Latham 2-31 & Latham Reservoir 1 tank battery location. Seven boreholes (BH01 – BH07) were advanced to a depth of 10 feet below ground surface (bgs) using direct push methods. Groundwater was encountered within the boreholes at approximately 5 feet bgs. Monitoring wells were installed in each borehole and groundwater monitoring commenced on September 14, 2020. Based on the analytical results received from groundwater monitoring activities, a historic hydrocarbon release was reported on September 23, 2020. Two additional monitoring wells (BH08 and BH09) were installed on October 13, 2020, to assess and delineate dissolved phase hydrocarbon impacts.

Groundwater Monitoring Activities

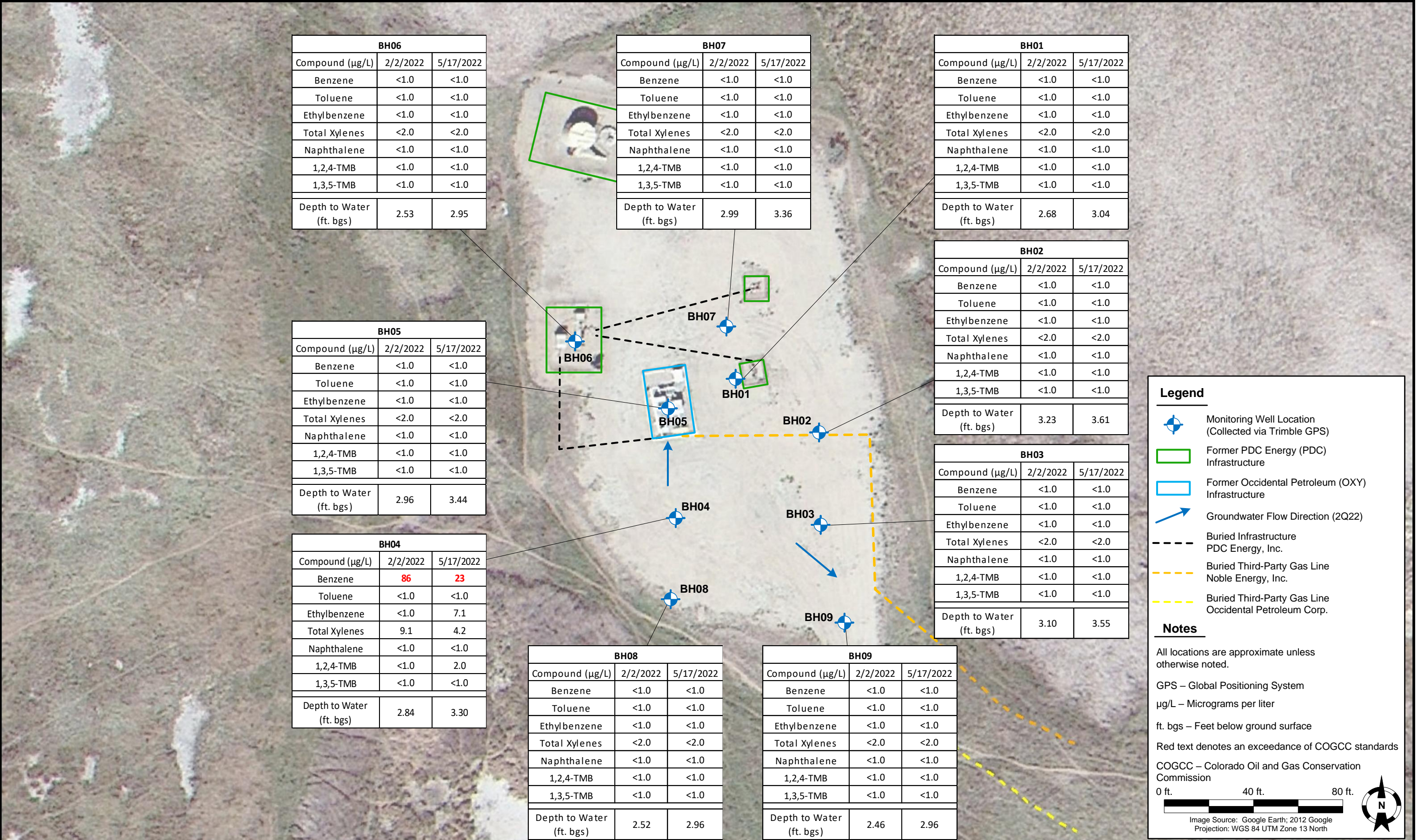
On May 17, 2022, groundwater monitoring was conducted at all 9 monitoring wells (BH01 – BH09). Nine groundwater samples were submitted to Summit Scientific Laboratories (Summit) for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-Trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260B.

Second quarter 2022 analytical results indicated that the benzene concentration was in exceedance of the applicable COGCC Table 915-1 groundwater standard in monitoring well BH04. Organic compound concentrations were below applicable regulatory standards in the remaining eight monitoring well locations. Sample locations and corresponding analytical results are illustrated on Figure 1. Groundwater elevation data is illustrated on Figure 2. Groundwater analytical results are summarized in Table 1. The laboratory analytical report is included as Attachment A.

Current Remediation Strategy and Path Forward

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during third quarter 2020 and will remain the selected remediation strategy through the third quarter 2022.

Third quarter 2022 groundwater sampling will be conducted in August 2022.



DATE: June 17, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: R. Aronoff



TASMAN

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

PDC Energy, Inc. – DJ Basin
Former Latham 2-31 & Latham Reservoir 1 Tank Battery
SESW, Section 2, Township 4 North, Range 65 West
Weld County, Colorado

GROUNDWATER
ANALYTICAL RESULTS
MAP

FIGURE
1

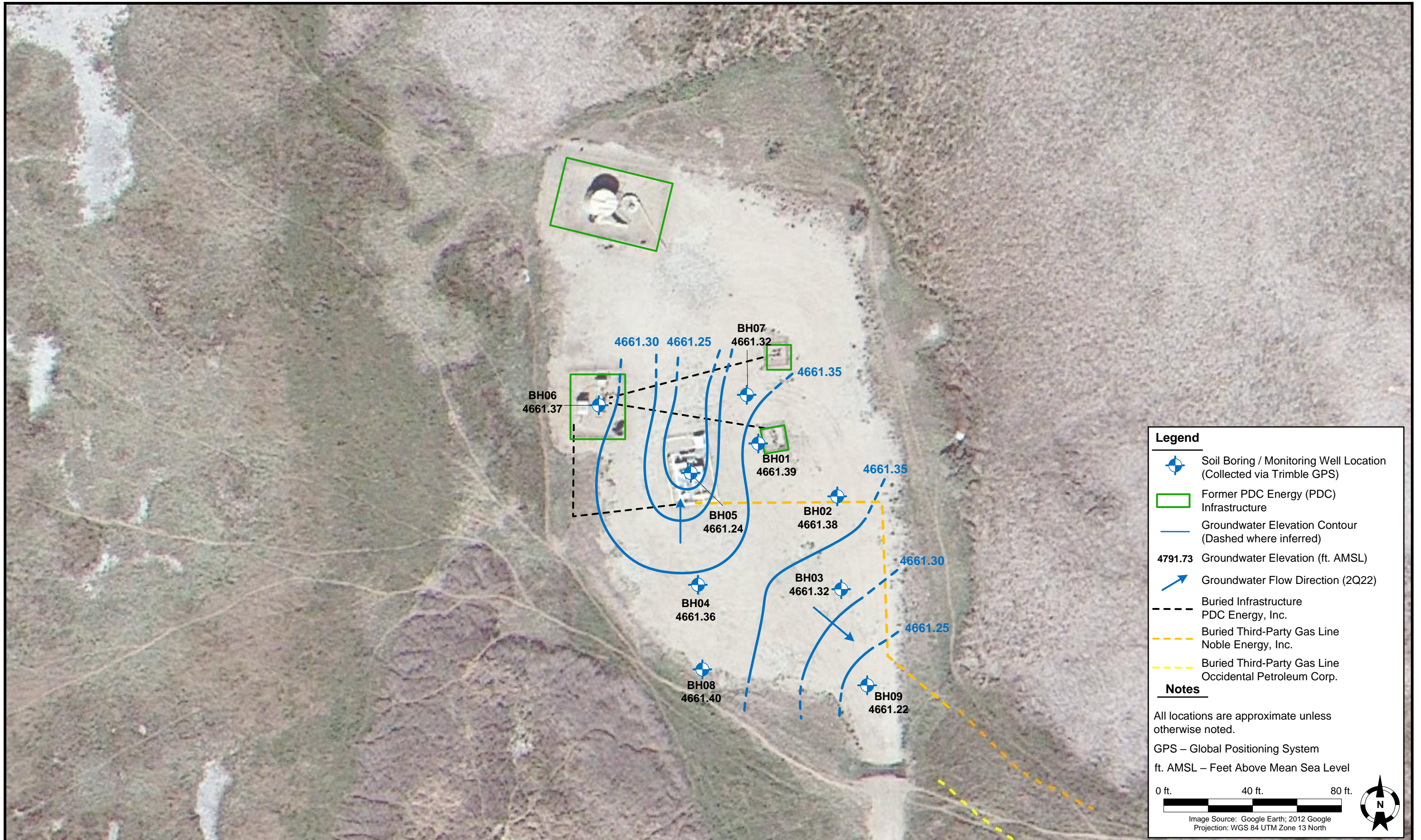


TABLE 1
FORMER LATHAM 2-31; LATHAM RESERVOIR 1 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS

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 ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-	-
BH01	9/14/2020	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	5.20	4659.23
BH01	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.72	4661.71
BH01	5/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.74	4661.69
BH01	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.74	4659.69
BH01	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.97	4661.46
BH01	2/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.68	4661.75
BH01	5/17/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.04	4661.39
BH02	9/14/2020	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	5.75	4659.24
BH02	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.25	4661.74
BH02	5/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.20	4661.79
BH02	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.36	4659.63
BH02	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.51	4661.48
BH02	2/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.23	4661.76
BH02	5/17/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.61	4661.38
BH03	9/14/2020	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	5.60	4659.27
BH03	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.14	4661.73
BH03	5/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.17	4661.70
BH03	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.93	4659.63
BH03	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.36	4661.51
BH03	2/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.10	4661.77
BH03	5/17/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.55	4661.32
BH04	9/14/2020	55	<1.0	6.5	94	NA	NA	NA	5.39	4659.27
BH04	9/22/2020	990	<1.0	110	630	NA	NA	NA	NM	NM
BH04	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	20	2.89	4661.77
BH04	5/19/2021	530	<1.0	<1.0	480	4.9	70	76	2.93	4661.73
BH04	8/23/2021	250	<1.0	26	110	<1.0	18	12	5.08	4659.58
BH04	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.14	4661.52
BH04	2/2/2022	86	<1.0	<1.0	9.1	<1.0	<1.0	<1.0	2.84	4661.82
BH04	5/17/2022	23	<1.0	7.1	4.2	<1.0	2.0	<1.0	3.30	4661.36
BH05	9/14/2020	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	5.44	4659.24
BH05	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.98	4661.70
BH05	5/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.00	4661.68
BH05	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.14	4659.54
BH05	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.18	4661.50
BH05	2/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.96	4661.72
BH05	5/17/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.44	4661.24
BH06	9/14/2020	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	5.10	4659.22
BH06	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.54	4661.78
BH06	5/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.65	4661.67
BH06	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.83	4659.49
BH06	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.81	4661.51
BH06	2/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.53	4661.79
BH06	5/17/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.95	4661.37
BH07	9/14/2020	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	5.45	4659.23
BH07	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.02	4661.66
BH07	5/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.02	4661.66
BH07	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.12	4659.56
BH07	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.20	4661.48
BH07	2/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.99	4661.69
BH07	5/17/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.36	4661.32

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ORGANIC COMPOUNDS

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COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-	-
BH08	10/22/2020	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	4.60	4659.76
BH08	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.62	4661.74
BH08	5/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.63	4661.73
BH08	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.73	4659.63
BH08	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.89	4661.47
BH08	2/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.52	4661.84
BH08	5/17/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.96	4661.40
BH09	10/22/2020	<1.0	<1.0	<1.0	<2.0	NA	NA	NA	4.44	4659.74
BH09	2/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.52	4661.66
BH09	5/19/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.53	4661.65
BH09	8/23/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.62	4659.56
BH09	11/15/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.75	4661.43
BH09	2/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.46	4661.72
BH09	5/17/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.96	4661.22

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

NA = Constituent not analyzed

NM = Not measured

AMSL = Above Mean Sea Level

BOLD = Analytical result is in exceedance of applicable standard.

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 23, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Latham 2-31, Latham Reservoir 1

Work Order #2205272

Enclosed are the results of analyses for samples received by Summit Scientific on 05/17/22 17:52. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President



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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2205272-01	Water	05/17/22 13:15	05/17/22 17:52
BH02	2205272-02	Water	05/17/22 13:06	05/17/22 17:52
BH03	2205272-03	Water	05/17/22 12:59	05/17/22 17:52
BH04	2205272-04	Water	05/17/22 13:20	05/17/22 17:52
BH05	2205272-05	Water	05/17/22 13:00	05/17/22 17:52
BH06	2205272-06	Water	05/17/22 12:53	05/17/22 17:52
BH07	2205272-07	Water	05/17/22 13:07	05/17/22 17:52
BH08	2205272-08	Water	05/17/22 13:14	05/17/22 17:52
BH09	2205272-09	Water	05/17/22 12:52	05/17/22 17:52

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Summit Scientific

S₂

7205272

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

Page 1 of 1

Client: PDC / Tasman Geosciences

Project Manager: Mark Longhurst

Address: 6855 W. 119th Ave.

E-Mail: Mark.Longhurst@PDCE.com

City/State/Zip: Broomfield / CO/ 80020

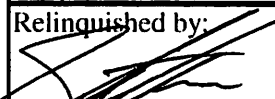
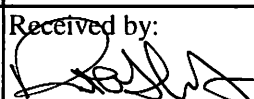
Phone: 303-487-1228

Project Name: Latham 2-31 & Latham Reservoir 1

Sampler Name: Patrick Kline

Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	1,2,4-TMB	1,3,5-TMB	TDS	Chloride	Sulfate		
1	BH01	5/17/22	1315	3	3					X				X	X	X	X				
2	BH02		1306		3					X											
3	BH03		1259		3																
4	BH04		1320		3																
5	BH05		1300				3														
6	BH06		1253		3																
7	BH07		1307				3														
8	BH08		1314		3																
9	BH09		1252		3																
10																					

Relinquished by: 	Date/Time: 5/17/22 1300	Received by: Tasman's Lock Box	Date/Time: 5/17/22 1300	Turn Around Time (Check) ___ Same Day ___ 24 hours <u>X</u> ___ 48 hours Sample Integrity: Temperature Upon Receipt: <u>1.7</u> Samples Intact: <u>(Yes)</u> No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 5/17/22 1752	Received by: 	Date/Time: 5/17/22 1752		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Client: Poc/TasmanClient Project ID: Latham 2-31 & Latham Res#1

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

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


Temp (°C)

1.7

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature $< 6^{\circ}\text{C}$ ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			on ICE
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe^{2+}), Hexavalent Chromium (Cr^{6+} , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		-		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the comments column – HCl, H_2SO_4 , NaOH, HNO_3 , etc.	-			HCl
If samples are acid preserved for metals, is the $\text{pH} \leq 2$ ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any):				

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


Custodian Printed Name

5.17.22

Date/Time



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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH01
2205272-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BFE0398	05/18/22	05/20/22	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: **05/17/22 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	12.8	95.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.2	99.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.7	87.5 %	21-167		"	"	"	"	

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.



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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH02
2205272-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 13:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFE0398	05/18/22	05/21/22	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: **05/17/22 13:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	13.3	99.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.4	101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.9	89.3 %	21-167		"	"	"	"	

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.



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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH03
2205272-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 12:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFE0398	05/18/22	05/21/22	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: **05/17/22 12:59**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	13.3	99.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.2	99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.0	97.1 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH04
2205272-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 13:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	23	1.0		ug/l	1	BFE0398	05/18/22	05/21/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	7.1	1.0		"	"	"	"	"	"	
Xylenes (total)	4.2	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	2.0	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **05/17/22 13:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	12.2	91.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.2	99.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.9	96.5 %		21-167		"	"	"	"	

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH05
2205272-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFE0398	05/18/22	05/21/22	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: **05/17/22 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	12.7	95.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.5	101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.1	90.6 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH06
2205272-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 12:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFE0398	05/18/22	05/21/22	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: **05/17/22 12:53**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	12.4	93.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.2	99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.6	86.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH07
2205272-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 13:07**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFE0398	05/18/22	05/21/22	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: **05/17/22 13:07**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	12.7	95.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.8	96.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.2	91.7 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH08
2205272-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFE0398	05/18/22	05/21/22	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: **05/17/22 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	4.85	36.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.6	94.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.7	95.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

BH09
2205272-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/22 12:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFE0398	05/18/22	05/21/22	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: **05/17/22 12:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	13.8	104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.2	99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.9	89.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

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 BFE0398 - EPA 5030 Water MS

Blank (BFE0398-BLK1)

Prepared: 05/18/22 Analyzed: 05/20/22

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	13.9		"	13.3		104	23-173			
Surrogate: Toluene-d8	14.2		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	21-167			

LCS (BFE0398-BS1)

Prepared: 05/18/22 Analyzed: 05/20/22

Benzene	33.1	1.0	ug/l	33.3		99.2	51-132			
Toluene	36.0	1.0	"	33.3		108	51-138			
Ethylbenzene	44.3	1.0	"	33.3		133	58-146			
m,p-Xylene	84.1	2.0	"	66.7		126	57-144			
o-Xylene	39.2	1.0	"	33.3		118	53-146			
Naphthalene	33.0	1.0	"	33.3		99.0	70-130			
1,2,4-Trimethylbenzene	36.0	1.0	"	33.3		108	70-130			
1,3,5-Trimethylbenzene	40.7	1.0	"	33.3		122	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.3		104	23-173			
Surrogate: Toluene-d8	14.4		"	13.3		108	20-170			
Surrogate: 4-Bromofluorobenzene	15.4		"	13.3		116	21-167			

Matrix Spike (BFE0398-MS1)

Source: 2205271-01

Prepared: 05/18/22 Analyzed: 05/20/22

Benzene	45.5	1.0	ug/l	33.3	13.6	95.6	34-141			
Toluene	36.5	1.0	"	33.3	ND	109	27-151			
Ethylbenzene	59.3	1.0	"	33.3	14.1	135	29-160			
m,p-Xylene	341	2.0	"	66.7	273	102	20-166			
o-Xylene	50.0	1.0	"	33.3	7.15	128	33-159			
Naphthalene	39.3	1.0	"	33.3	13.6	77.3	70-130			
1,2,4-Trimethylbenzene	320	1.0	"	33.3	120	600	70-130			QM-07
1,3,5-Trimethylbenzene	283	1.0	"	33.3	115	504	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	28.6		"	13.3		214	23-173			S-02
Surrogate: Toluene-d8	14.2		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	19.7		"	13.3		148	21-167			

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

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 BFE0398 - EPA 5030 Water MS

Matrix Spike Dup (BFE0398-MSD1)		Source: 2205271-01			Prepared: 05/18/22 Analyzed: 05/20/22					
Benzene	41.4	1.0	ug/l	33.3	13.6	83.4	34-141	9.35	30	
Toluene	32.7	1.0	"	33.3	ND	98.2	27-151	10.9	30	
Ethylbenzene	56.3	1.0	"	33.3	14.1	127	29-160	5.14	30	
m,p-Xylene	297	2.0	"	66.7	273	35.4	20-166	13.9	30	
o-Xylene	49.2	1.0	"	33.3	7.15	126	33-159	1.61	30	
Naphthalene	39.8	1.0	"	33.3	13.6	78.8	70-130	1.26	30	
1,2,4-Trimethylbenzene	283	1.0	"	33.3	120	488	70-130	12.4	30	QM-07
1,3,5-Trimethylbenzene	262	1.0	"	33.3	115	442	70-130	7.63	30	QM-07
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	33.2		"	13.3		249	23-173			S-02
Surrogate: Toluene-d8	13.0		"	13.3		97.5	20-170			
Surrogate: 4-Bromofluorobenzene	21.4		"	13.3		160	21-167			

Summit Scientific

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

Project: Latham 2-31, Latham Reservoir 1

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/23/22 15:34

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
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