

PDC Energy, Inc.
Third Quarter 2021 Groundwater Monitoring Summary

August 30, 2021

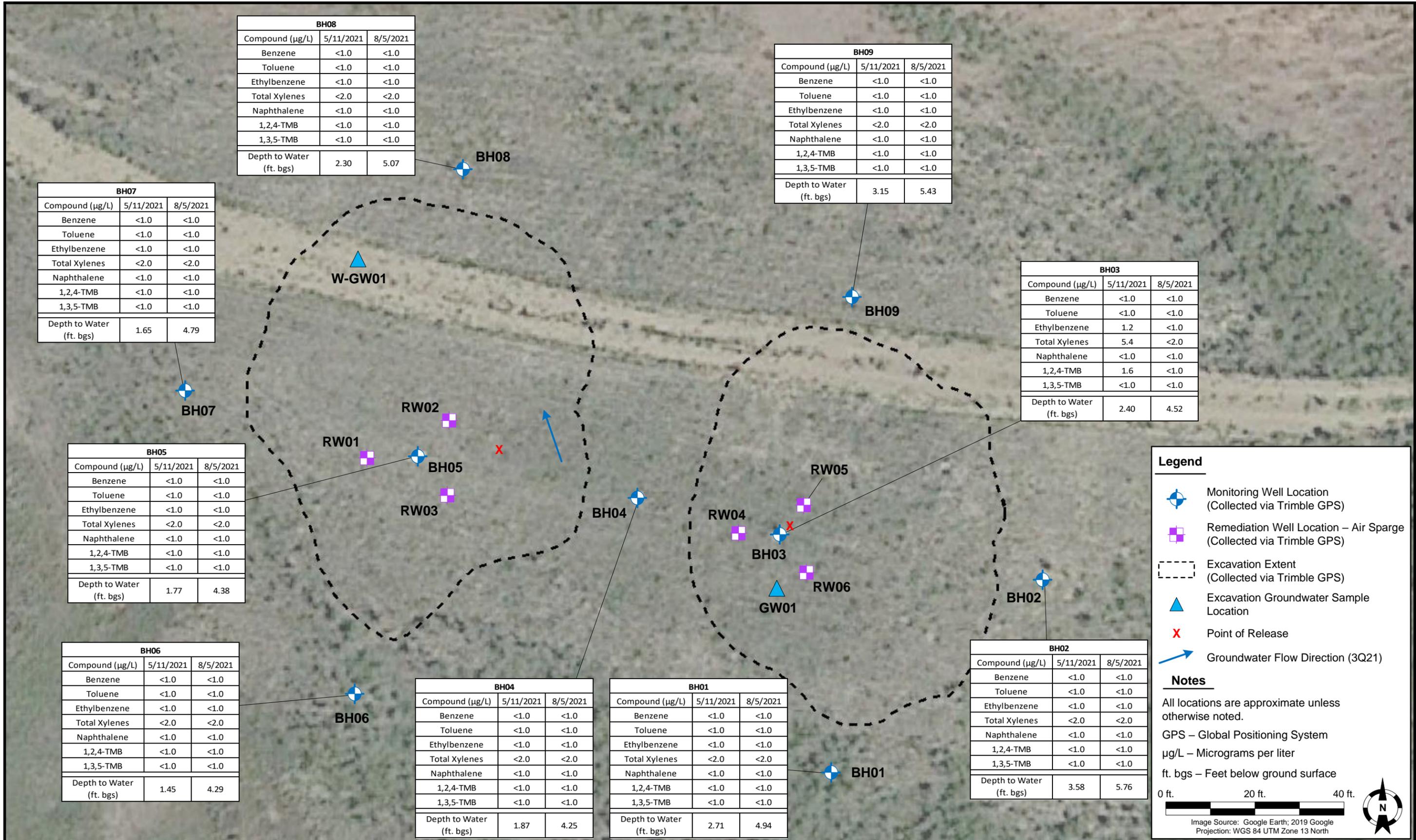
Former Mark 11, 12, 14-35 Tank Battery
NWSW Section 35 T4N R65W
Remediation # 12170

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the former Mark 11, 12, 14-35 tank battery. On August 5, 2021, groundwater monitoring was conducted at all nine monitoring well locations (BH01 – BH09). Nine groundwater samples were submitted to Summit Scientific Laboratory for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260B.

Third quarter 2021 analytical results indicated that organic compound concentrations were below the applicable COGCC Table 915-1 groundwater standards in all nine monitoring well locations. Groundwater analytical results are summarized in Table 1. Sample locations and corresponding analytical results are illustrated on Figure 1. Groundwater elevation data is illustrated on Figure 2. The laboratory analytical report is included in Attachment A.

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the first quarter 2019 and continued through fourth quarter 2019. Due to persisting benzene concentrations, one air sparge (AS) and enhanced fluid recovery (EFR) event was conducted in November 2019. On February 20, 2020, six remediation wells (RW01 – RW06) were installed within the former source area to assist in remedial efforts and address remaining dissolved-phase hydrocarbon impacts. Based on the data collected during the event, EFR/AS was selected as the remediation strategy for this location between April 2020 and second quarter 2021. MNA was selected as the remediation strategy for this site during the third quarter 2021 and will remain the selected remediation strategy through the fourth quarter 2021.

Fourth quarter 2021 groundwater sampling will be conducted during November 2021.



BH08		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	2.30	5.07

BH09		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	3.15	5.43

BH03		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	1.2	<1.0
Total Xylenes	5.4	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	1.6	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	2.40	4.52

BH07		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	1.65	4.79

BH05		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	1.77	4.38

BH06		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	1.45	4.29

BH04		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	1.87	4.25

BH01		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	2.71	4.94

BH02		
Compound (µg/L)	5/11/2021	8/5/2021
Benzene	<1.0	<1.0
Toluene	<1.0	<1.0
Ethylbenzene	<1.0	<1.0
Total Xylenes	<2.0	<2.0
Naphthalene	<1.0	<1.0
1,2,4-TMB	<1.0	<1.0
1,3,5-TMB	<1.0	<1.0
Depth to Water (ft. bgs)	3.58	5.76

DATE: August 26, 2021

DESIGNED BY: C. Hamlin

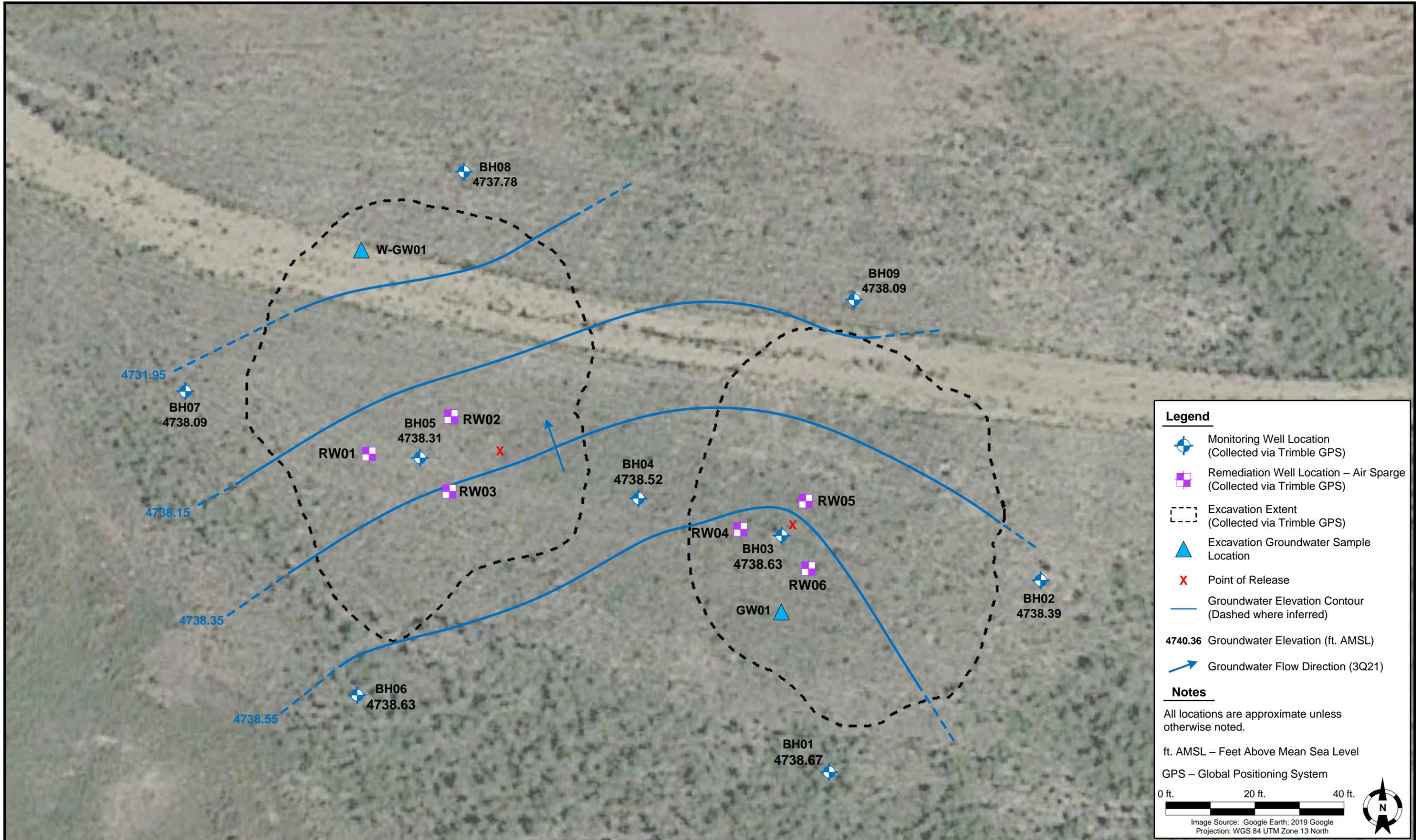
DRAWN BY: C. Ambler

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

PDC Energy, Inc. – DJ Basin
Former Mark 11, 12, 14-35 Tank Battery
 NWSW, Section 35, Township 4 North, Range 65 West
 Weld County, Colorado

GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 1



DATE: August 8, 2021

DESIGNED BY: C. Hamlin

DRAWN BY: C. Ambler



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

PDC Energy, Inc. – DJ Basin
Former Mark 11, 12, 14-35 Tank Battery
NWSW, Section 35, Township 4 North, Range 65 West
Weld County, Colorado

GROUNDWATER ELEVATION CONTOUR MAP (08/05/2021)

FIGURE 2

TABLE 1
FORMER MARK 11, 12, 14-35 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	2/9/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.45	4740.16
BH01	5/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.71	4740.90
BH01	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.94	4738.67
BH02	2/9/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.29	4739.86
BH02	5/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.58	4740.57
BH02	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.76	4738.39
BH03	2/9/2021	<1.0	<1.0	1.6	6.9	<1.0	2.9	<1.0	3.14	4740.01
BH03	5/11/2021	<1.0	<1.0	1.2	5.4	<1.0	1.6	<1.0	2.40	4740.75
BH03	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.52	4738.63
BH04	2/9/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.71	4740.06
BH04	5/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.87	4740.90
BH04	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.25	4738.52
BH05	2/9/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.78	4739.91
BH05	5/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.77	4740.92
BH05	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.38	4738.31
BH06	2/9/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.64	4740.28
BH06	5/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.45	4741.47
BH06	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.29	4738.63
BH07	2/9/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.00	4739.77
BH07	5/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.65	4741.12
BH07	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.79	4737.98
BH08	2/9/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.32	4739.53
BH08	5/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.30	4740.55
BH08	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.07	4737.78
BH09	2/9/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.83	4739.69
BH09	5/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.15	4740.37
BH09	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.43	4738.09

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

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 17, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Mark 11,12,14-35

Work Order #2108078

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/21 17:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large, stylized initial "M".

Muri Premer For Paul Shrewsbury

President



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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
08/17/21 09:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2108078-01	Water	08/05/21 12:12	08/05/21 17:50
BH02	2108078-02	Water	08/05/21 12:02	08/05/21 17:50
BH03	2108078-03	Water	08/05/21 12:26	08/05/21 17:50
BH04	2108078-04	Water	08/05/21 12:20	08/05/21 17:50
BH05	2108078-05	Water	08/05/21 12:16	08/05/21 17:50
BH06	2108078-06	Water	08/05/21 12:06	08/05/21 17:50
BH07	2108078-07	Water	08/05/21 11:58	08/05/21 17:50
BH08	2108078-08	Water	08/05/21 11:49	08/05/21 17:50
BH09	2108078-09	Water	08/05/21 11:51	08/05/21 17:50

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.

2108078

Summit Scientific

S₂

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

Page 1 of 1

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: Marks 11, 12, 14-35
 Sampler Name: Ben Wagner Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	1,2,4 TMB		1,3,5 TMB
1	BH01	8/5/21	1212	3					X				X	X	X	X	
2	BH02		1202														
3	BH03		1226														
4	BH04		1220														
5	BH05		1216														
6	BH06		1206														
7	BH07		1158														
8	BH08		1149														
9	BH09		1151														
10																	

Relinquished by: <u>[Signature]</u> Date/Time: <u>8/5/21 1500</u>	Received by: <u>Tasman Lock</u> Date/Time: <u>8/5/21 1500</u>	Turn Around Time (Check) Same Day <u>---</u> 72 hours 24 hours <u>---</u> Standard <u>X</u> 48 hours <u>---</u>	Notes:
Relinquished by: <u>Tasman Lock</u> Date/Time: <u>8/5/21 1750</u>	Received by: <u>Will Salin</u> Date/Time: <u>8/5/21 1750</u>	Sample Integrity: Temperature Upon Receipt: <u>10.2</u> Samples Intact: <u>(Yes)</u> No	
Relinquished by:	Received by:		

Sample Receipt Checklist

S2 Work Order 2108078

Client: PDC/TASMAN Client Project ID: Mark 11, 12, 14-35

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

Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Temp (°C)	10.2
-----------	------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
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"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽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 type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

NG
Custodian Printed Name or Initials

Will Palin
Signature of Custodian

8/5/21
Date/Time



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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH01
2108078-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		74.7 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		97.7 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.7 %		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: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH02
2108078-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		80.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.4 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH03
2108078-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 12:26**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 12:26**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		80.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.5 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH04
2108078-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 12:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 12:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		80.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH05
2108078-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 12:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 12:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		79.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.1 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH06
2108078-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 12:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 12:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		78.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.2 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH07
2108078-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 11:58**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 11:58**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		81.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.1 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH08
2108078-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 11:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 11:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		80.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.2 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

BH09
2108078-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/21 11:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0130	08/09/21	08/10/21	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: **08/05/21 11:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		79.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/17/21 09:44

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEH0130 - EPA 5030 Water MS

Blank (BEH0130-BLK1)

Prepared: 08/09/21 Analyzed: 08/10/21

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	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	10.4		"	13.3		77.8		23-173			
<i>Surrogate: Toluene-d8</i>	13.0		"	13.3		97.9		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	11.8		"	13.3		88.4		21-167			

LCS (BEH0130-BS1)

Prepared: 08/09/21 Analyzed: 08/10/21

Benzene	36.3	1.0	ug/l	41.7		87.0		51-132			
Toluene	41.5	1.0	"	41.7		99.6		51-138			
Ethylbenzene	45.8	1.0	"	41.7		110		58-146			
m,p-Xylene	96.4	2.0	"	83.3		116		57-144			
o-Xylene	48.6	1.0	"	41.7		117		53-146			
Naphthalene	51.9	1.0	"	41.7		124		70-130			
1,2,4-Trimethylbenzene	42.2	1.0	"	41.7		101		70-130			
1,3,5-Trimethylbenzene	51.2	1.0	"	41.7		123		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	10.3		"	13.3		77.2		23-173			
<i>Surrogate: Toluene-d8</i>	13.2		"	13.3		99.2		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	12.2		"	13.3		91.8		21-167			

Matrix Spike (BEH0130-MS1)

Source: 2108078-01

Prepared: 08/09/21 Analyzed: 08/10/21

Benzene	37.0	1.0	ug/l	41.7	ND	88.7		34-141			
Toluene	41.2	1.0	"	41.7	ND	98.9		27-151			
Ethylbenzene	45.8	1.0	"	41.7	ND	110		29-160			
m,p-Xylene	95.0	2.0	"	83.3	ND	114		20-166			
o-Xylene	48.0	1.0	"	41.7	ND	115		33-159			
Naphthalene	43.0	1.0	"	41.7	ND	103		70-130			
1,2,4-Trimethylbenzene	42.4	1.0	"	41.7	ND	102		70-130			
1,3,5-Trimethylbenzene	52.0	1.0	"	41.7	ND	125		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	10.7		"	13.3		80.3		23-173			
<i>Surrogate: Toluene-d8</i>	13.1		"	13.3		98.4		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	12.2		"	13.3		91.4		21-167			

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 08/17/21 09:44

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEH0130 - EPA 5030 Water MS

Matrix Spike Dup (BEH0130-MSD1)	Source: 2108078-01			Prepared: 08/09/21 Analyzed: 08/10/21					
Benzene	36.6	1.0	ug/l	41.7	ND	87.9	34-141	0.870	30
Toluene	40.6	1.0	"	41.7	ND	97.5	27-151	1.42	30
Ethylbenzene	44.3	1.0	"	41.7	ND	106	29-160	3.20	30
m,p-Xylene	92.6	2.0	"	83.3	ND	111	20-166	2.53	30
o-Xylene	46.5	1.0	"	41.7	ND	112	33-159	3.15	30
Naphthalene	40.9	1.0	"	41.7	ND	98.2	70-130	5.07	30
1,2,4-Trimethylbenzene	40.1	1.0	"	41.7	ND	96.3	70-130	5.62	30
1,3,5-Trimethylbenzene	49.0	1.0	"	41.7	ND	117	70-130	5.95	30
Surrogate: 1,2-Dichloroethane-d4	11.7		"	13.3		87.8	23-173		
Surrogate: Toluene-d8	13.2		"	13.3		99.0	20-170		
Surrogate: 4-Bromofluorobenzene	12.0		"	13.3		89.6	21-167		

Summit Scientific

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

Project: Mark 11,12,14-35

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/17/21 09:44

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