

**PDC Energy, Inc.**  
First Quarter 2019 Groundwater Monitoring Summary

March 18, 2019

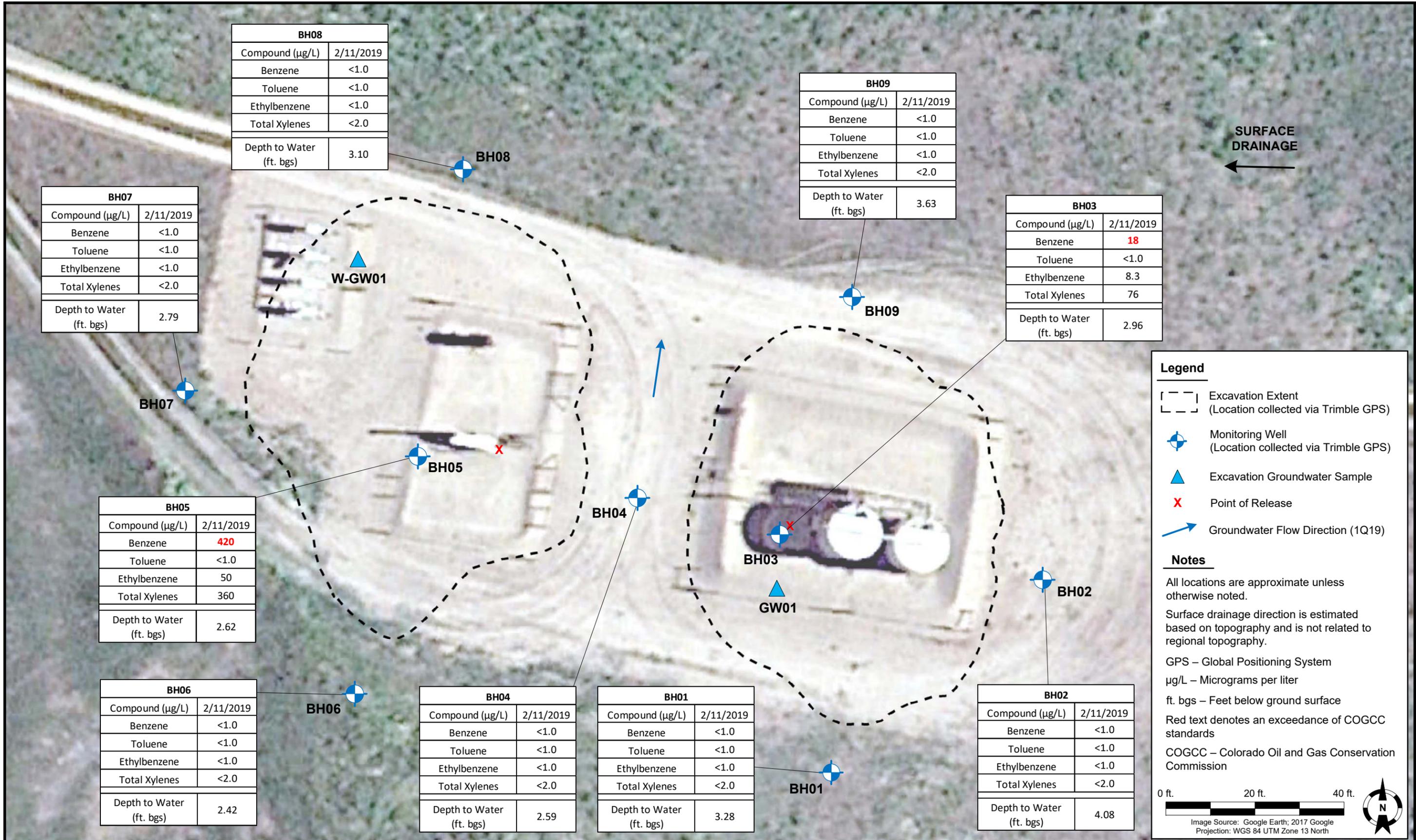
Former Mark 11, 12, 14-35 Tank Battery  
NWSW Section 35 T4N R65W  
Facility ID # 326785  
Remediation # 12170

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the former Mark 11, 12, 14-35 tank battery. On January 23, 2019, nine monitoring wells (BH01 – BH09) were installed to delineate the extent of dissolved phase hydrocarbons associated with the release discovered on November 7, 2018. On February 11, 2019, 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) by USEPA Method 8260B.

First quarter 2019 analytical results indicate that benzene concentrations were above the applicable COGCC Table 910-1 groundwater standards in monitoring wells BH03 and BH05. BTEX concentrations were below regulatory standards in seven monitoring well locations.

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the first quarter 2019 and will remain the selected remediation strategy for the second quarter 2019.

Second quarter 2019 groundwater sampling will be conducted during May 2019. Analytical results are summarized in Table 1 and the laboratory report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. Groundwater elevation data is summarized in Figure 2.



BH08	
Compound (µg/L)	2/11/2019
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Depth to Water (ft. bgs)	3.10

BH09	
Compound (µg/L)	2/11/2019
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Depth to Water (ft. bgs)	3.63

BH03	
Compound (µg/L)	2/11/2019
Benzene	<b>18</b>
Toluene	<1.0
Ethylbenzene	8.3
Total Xylenes	76
Depth to Water (ft. bgs)	2.96

BH07	
Compound (µg/L)	2/11/2019
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Depth to Water (ft. bgs)	2.79

BH05	
Compound (µg/L)	2/11/2019
Benzene	<b>420</b>
Toluene	<1.0
Ethylbenzene	50
Total Xylenes	360
Depth to Water (ft. bgs)	2.62

BH06	
Compound (µg/L)	2/11/2019
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Depth to Water (ft. bgs)	2.42

BH04	
Compound (µg/L)	2/11/2019
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Depth to Water (ft. bgs)	2.59

BH01	
Compound (µg/L)	2/11/2019
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Depth to Water (ft. bgs)	3.28

BH02	
Compound (µg/L)	2/11/2019
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Depth to Water (ft. bgs)	4.08

DATE: March 18, 2019

DESIGNED BY: C. Hamlin

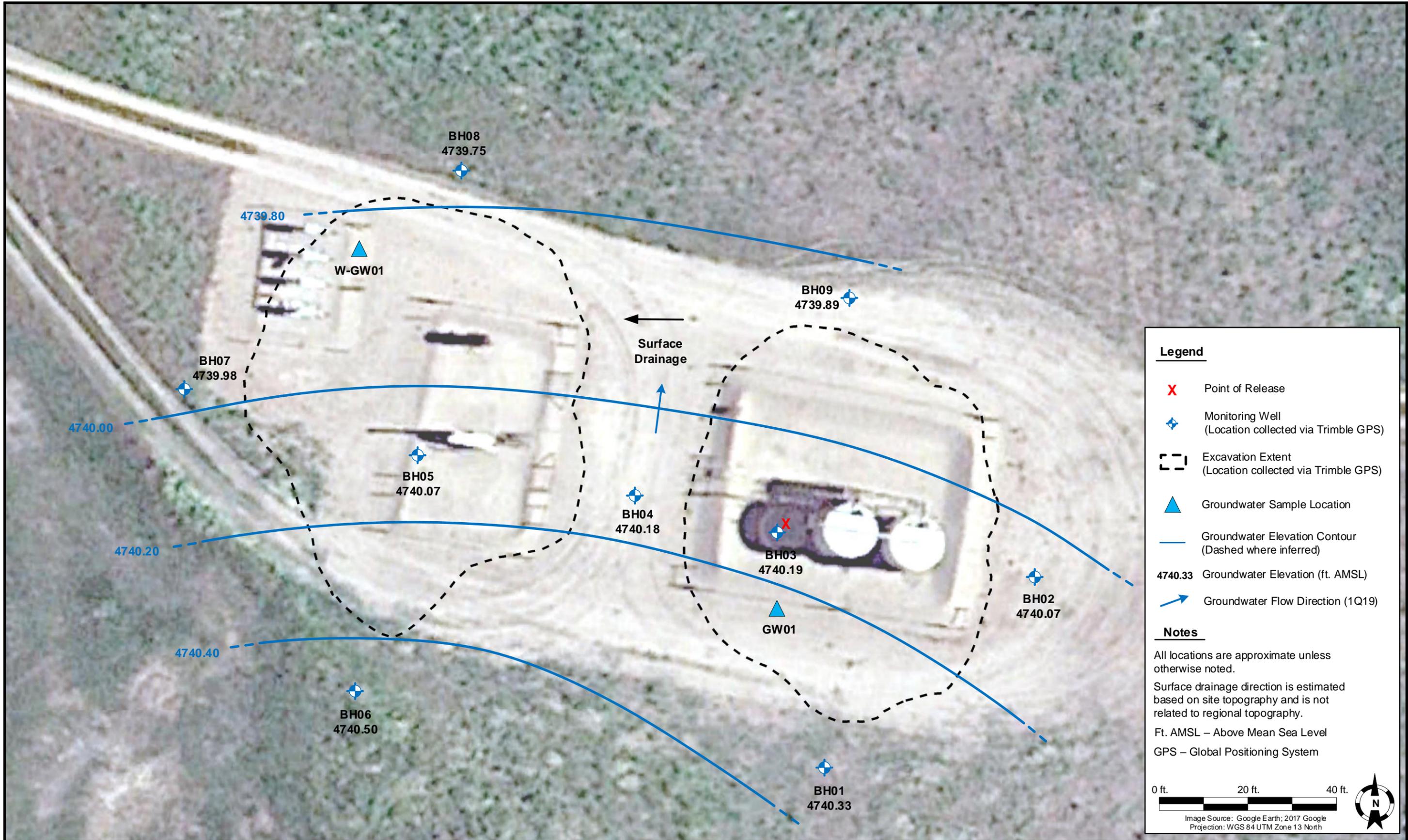
DRAWN BY: B. Nelson

**TASMAN**  
 GEOSCIENCES  
 Tasman Geosciences, Inc.  
 6899 Pecos Street – Unit C  
 Denver, CO 80221

**PDC Energy, Inc. – DJ Basin**  
**Former Mark 11, 12, 14-35 Tank Battery**  
 SESW, Section 6, Township 4 North, Range 65 West  
 Weld County, Colorado

**GROUNDWATER**  
**ANALYTICAL RESULTS**  
**MAP**

**FIGURE**  
**1**



DATE: March 6, 2019

DESIGNED BY: C. Hamlin

DRAWN BY: D. Cavinder



**Tasman Geosciences, Inc.**  
6899 Pecos Street – Unit C  
Denver, CO 80221

**PDC Energy, Inc. – DJ Basin**  
**Former Mark 11, 12, 14-35 Tank Battery**  
SESW, Section 6, Township 4 North, Range 65 West  
Weld County, Colorado

GROUNDWATER  
CONTOUR MAP

FIGURE  
2

**TABLE 1**  
**FORMER MARK 11, 12, 14-35 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water <sup>(2)</sup> (feet)	Groundwater Elevation (ft AMSL)
COGCC Table 910-1 Groundwater Standard (µg/L) <sup>(1)</sup>		5	560	700	1,400		
GW01	11/19/2018	<b>21</b>	4.5	3.6	710	~ 7	NM
W-GW01	11/27/2018	2.9	<1.0	<1.0	22	~ 7	NM
BH01	2/11/2019	<1.0	<1.0	<1.0	<2.0	3.28	4740.33
BH02	2/11/2019	<1.0	<1.0	<1.0	<2.0	4.08	4740.07
BH03	2/11/2019	<b>18</b>	<1.0	8.3	76	2.96	4740.19
BH04	2/11/2019	<1.0	<1.0	<1.0	<2.0	2.59	4740.18
BH05	2/11/2019	<b>420</b>	<1.0	50	360	2.62	4740.07
BH06	2/11/2019	<1.0	<1.0	<1.0	<2.0	2.42	4740.50
BH07	2/11/2019	<1.0	<1.0	<1.0	<2.0	2.79	4739.98
BH08	2/11/2019	<1.0	<1.0	<1.0	<2.0	3.10	4739.75
BH09	2/11/2019	<1.0	<1.0	<1.0	<2.0	3.63	4739.89

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
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.

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

ft AMSL = Feet Above Mean Sea Level

**BOLD** = Analytical result is in exceedance of COGCC groundwater standards.

# **ATTACHMENT A**

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 04, 2019

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Mark E Mark 11-35 - Mark 11, 12, 14-35

Enclosed are the results of analyses for samples received by Summit Scientific on 02/11/19 17:10. 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 initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury

President



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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/04/19 11:59

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1902099-01	Water	02/11/19 14:55	02/11/19 17:10
BH02	1902099-02	Water	02/11/19 15:00	02/11/19 17:10
BH03	1902099-03	Water	02/11/19 15:05	02/11/19 17:10
BH04	1902099-04	Water	02/11/19 15:10	02/11/19 17:10
BH05	1902099-05	Water	02/11/19 15:15	02/11/19 17:10
BH06	1902099-06	Water	02/11/19 15:22	02/11/19 17:10
BH07	1902099-07	Water	02/11/19 15:14	02/11/19 17:10
BH08	1902099-08	Water	02/11/19 14:58	02/11/19 17:10
BH09	1902099-09	Water	02/11/19 15:06	02/11/19 17:10

Summit Scientific

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**Sample Receipt Checklist**

S2 Work Order 1902099

Client: PDC/TASMAN Client Project ID: MARK E MARK 11-35

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

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

Temp (°C)	.2
-----------	----

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	X			
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
If custody seals are present, are they intact <sup>(1)</sup> ?			X	
Are samples with holding times due within 48 hours sample due within 48 hours present?			X	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	X			HCl (Some)
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	

Additional Comments (if any):

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

Muri  
Custodian Printed Name or Initials

MA 2-11-19  
Signature of Custodian

17:50  
Date/Time



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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH01**  
**1902099-01 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **02/11/19 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.9 %	21-167		"	"	"	"	

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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH02**  
**1902099-02 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 15:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/11/19 15:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		85.4 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		89.5 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.7 %		21-167		"	"	"	"	

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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH03**  
**1902099-03 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>18</b>	1.0	ug/l	1	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>8.3</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>76</b>	2.0	"	"	"	"	"	"	

Date Sampled: **02/11/19 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		87.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %	21-167		"	"	"	"	

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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH04**  
**1902099-04 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 15:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/11/19 15:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		86.1 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		89.6 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.5 %		21-167		"	"	"	"	

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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH05**  
**1902099-05 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>420</b>	10		ug/l	10	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0		"	1	"	"	"	"	
<b>Ethylbenzene</b>	<b>50</b>	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>360</b>	2.0		"	"	"	"	"	"	

Date Sampled: **02/11/19 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		89.6 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		93.8 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %		21-167		"	"	"	"	

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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH06**  
**1902099-06 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 15:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/11/19 15:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		87.5 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		91.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.6 %		21-167		"	"	"	"	

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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH07**  
**1902099-07 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 15:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/11/19 15:14**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		84.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		89.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.0 %		21-167		"	"	"	"	

Summit Scientific



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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH08**  
**1902099-08 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 14:58**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/11/19 14:58**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		84.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		91.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.7 %		21-167		"	"	"	"	

Summit Scientific



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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**BH09**  
**1902099-09 (Water)**

**Summit Scientific**

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

Date Sampled: **02/11/19 15:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1902154	02/12/19	02/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **02/11/19 15:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		83.0 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		87.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.0 %		21-167		"	"	"	"	

Summit Scientific



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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/04/19 11:59

### Volatile Organic Compounds by EPA Method 8260B - Quality Control

#### Summit Scientific

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

#### Batch 1902154 - EPA 5030 Water MS

##### Blank (1902154-BLK1)

Prepared: 02/12/19 Analyzed: 02/13/19

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.3		103		23-173		
Surrogate: Toluene-d8	12.4		"	13.3		93.2		20-170		
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.0		21-167		

##### LCS (1902154-BS1)

Prepared: 02/12/19 Analyzed: 02/13/19

Benzene	26.5	1.0	ug/l	33.3		79.4		70-130		
Toluene	27.2	1.0	"	33.3		81.5		70-130		
Ethylbenzene	32.1	1.0	"	33.3		96.2		70-130		
m,p-Xylene	53.9	2.0	"	66.7		80.8		70-130		
o-Xylene	29.4	1.0	"	33.3		88.3		70-130		
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.3		112		23-173		
Surrogate: Toluene-d8	12.4		"	13.3		93.3		20-170		
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		101		21-167		

##### Matrix Spike (1902154-MS1)

Source: 1902098-06

Prepared: 02/12/19 Analyzed: 02/13/19

Benzene	25.4	1.0	ug/l	33.3	ND	76.1		70-130		
Toluene	26.5	1.0	"	33.3	ND	79.4		70-130		
Ethylbenzene	31.7	1.0	"	33.3	ND	95.0		70-130		
m,p-Xylene	54.2	2.0	"	66.7	ND	81.2		70-130		
o-Xylene	29.1	1.0	"	33.3	ND	87.3		70-130		
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.3		104		23-173		
Surrogate: Toluene-d8	11.9		"	13.3		89.0		20-170		
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		98.7		21-167		

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

Project: Mark E Mark 11-35 - Mark 11, 12, 14-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 03/04/19 11:59

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

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

**Batch 1902154 - EPA 5030 Water MS**

<b>Matrix Spike Dup (1902154-MSD1)</b>	<b>Source: 1902098-06</b>			Prepared: 02/12/19 Analyzed: 02/13/19						
Benzene	26.2	1.0	ug/l	33.3	ND	78.5	70-130	3.03	30	
Toluene	27.3	1.0	"	33.3	ND	81.8	70-130	3.01	30	
Ethylbenzene	32.5	1.0	"	33.3	ND	97.5	70-130	2.56	30	
m,p-Xylene	55.8	2.0	"	66.7	ND	83.6	70-130	2.89	30	
o-Xylene	30.3	1.0	"	33.3	ND	90.9	70-130	4.07	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.8</i>		<i>"</i>	<i>13.3</i>		<i>118</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.5</i>		<i>"</i>	<i>13.3</i>		<i>93.5</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.2</i>		<i>"</i>	<i>13.3</i>		<i>106</i>	<i>21-167</i>			

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Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
03/04/19 11:59

### 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