

TABLE 1
FORMER SETH 1, 5 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 ⁽²⁾ (feet)
COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
GW01	10/12/2017	<1.0	<1.0	<1.0	<2.0	~5
BH01	1/23/2018	<1.0	<1.0	<1.0	<2.0	11.09
BH02	1/23/2018	<1.0	<1.0	<1.0	<2.0	10.99
BH03	1/23/2018	<1.0	<1.0	<1.0	<2.0	10.56
BH04	1/23/2018	<1.0	<1.0	<1.0	<2.0	10.87
BH05	1/23/2018	<1.0	<1.0	<1.0	<2.0	11.03

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective January 30, 2015.
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 and product thickness 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.

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

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 30, 2018

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Seth 1, 5

Enclosed are the results of analyses for samples received by Summit Scientific on 01/23/18 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



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

Project: Seth 1, 5

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
01/30/18 07:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1801241-01	Water	01/23/18 14:15	01/23/18 16:30
BH02	1801241-02	Water	01/23/18 14:22	01/23/18 16:30
BH03	1801241-03	Water	01/23/18 14:05	01/23/18 16:30
BH04	1801241-04	Water	01/23/18 14:07	01/23/18 16:30
BH05	1801241-05	Water	01/23/18 14:14	01/23/18 16:30

Summit Scientific

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

Project: Seth 1, 5

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
01/30/18 07:31

Sample Receipt Checklist

S2 Work Order: 1801241
Client: PDC Client Project ID: Seth 1,5
Shipped Via: P.O. Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Cooler ID					
Temp (°C)	<u>5.3</u>				

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"/>			
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		<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 checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Messip
Custodian Printed Name

KL 1-23-18
Signature or Initials of Custodian

17:00
Date/Time



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

Project: Seth 1, 5
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/30/18 07:31

BH01
1801241-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/23/18 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801254	01/28/18	01/28/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/23/18 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	45-146		"	"	"	"	

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PDC Energy
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 Denver CO, 80203

Project: Seth 1, 5
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/30/18 07:31

BH02
1801241-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/23/18 14:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801254	01/28/18	01/28/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/23/18 14:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.1 %	45-146		"	"	"	"	

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

Project: Seth 1, 5
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/30/18 07:31

BH03
1801241-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/23/18 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801254	01/28/18	01/28/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/23/18 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	45-146		"	"	"	"	

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PDC Energy
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 Denver CO, 80203

Project: Seth 1, 5
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/30/18 07:31

BH04
1801241-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/23/18 14:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801254	01/28/18	01/28/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/23/18 14:07**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	45-146		"	"	"	"	

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

Project: Seth 1, 5
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/30/18 07:31

BH05
1801241-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/23/18 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1801254	01/28/18	01/28/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **01/23/18 14:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	45-146		"	"	"	"	

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Seth 1, 5

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
01/30/18 07:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1801254 - EPA 5030 Water MS

Blank (1801254-BLK1)

Prepared & Analyzed: 01/26/18

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	2.0	"								
Surrogate: 1,2-Dichloroethane-d4	11.6		"	13.3		87.2	37-154				
Surrogate: Toluene-d8	12.6		"	13.3		94.4	45-149				
Surrogate: 4-Bromofluorobenzene	11.7		"	13.3		87.8	45-146				

LCS (1801254-BS1)

Prepared & Analyzed: 01/26/18

Benzene	31.4	1.0	ug/l	33.3		94.2	51-132				
Toluene	33.5	1.0	"	33.3		100	51-138				
Ethylbenzene	36.2	1.0	"	33.1		109	58-146				
m,p-Xylene	71.4	2.0	"	66.5		107	57-144				
o-Xylene	34.9	1.0	"	32.7		107	53-146				
Surrogate: 1,2-Dichloroethane-d4	12.2		"	13.3		91.3	37-154				
Surrogate: Toluene-d8	12.7		"	13.3		95.6	45-149				
Surrogate: 4-Bromofluorobenzene	12.3		"	13.3		92.3	45-146				

Matrix Spike (1801254-MS1)

Source: 1801237-01

Prepared & Analyzed: 01/26/18

Benzene	30.7	1.0	ug/l	33.3	ND	92.0	34-141				
Toluene	32.7	1.0	"	33.3	ND	98.2	27-151				
Ethylbenzene	36.0	1.0	"	33.1	ND	109	29-160				
m,p-Xylene	71.4	2.0	"	66.5	ND	107	20-166				
o-Xylene	34.6	1.0	"	32.7	ND	106	33-159				
Surrogate: 1,2-Dichloroethane-d4	11.6		"	13.3		86.9	37-154				
Surrogate: Toluene-d8	12.4		"	13.3		93.3	45-149				
Surrogate: 4-Bromofluorobenzene	11.9		"	13.3		89.4	45-146				

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 Denver CO, 80203

Project: Seth 1, 5
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 01/30/18 07:31

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

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

Batch 1801254 - EPA 5030 Water MS

Matrix Spike Dup (1801254-MSD1)	Source: 1801237-01			Prepared & Analyzed: 01/26/18					
Benzene	31.4	1.0	ug/l	33.3	ND	94.3	34-141	2.48	32
Toluene	33.4	1.0	"	33.3	ND	100	27-151	2.03	25
Ethylbenzene	35.3	1.0	"	33.1	ND	107	29-160	2.05	50
m,p-Xylene	69.2	2.0	"	66.5	ND	104	20-166	3.12	36
o-Xylene	34.2	1.0	"	32.7	ND	105	33-159	1.31	26
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.6</i>	<i>37-154</i>		
<i>Surrogate: Toluene-d8</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>95.9</i>	<i>45-149</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>11.9</i>		<i>"</i>	<i>13.3</i>		<i>89.3</i>	<i>45-146</i>		

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Project: Seth 1, 5
Project Number: [none]
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Reported:
01/30/18 07:31

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