

**TABLE 1**  
**GATEWOOD 4-1, 5 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(2)</sup> (mg/kg)
COGCC standards for soil (mg/kg) <sup>(1)</sup>			0.17	85	100	175	23	500
SS01 @ 24'	4/7/2017	24	<0.0020	<0.0050	0.025	0.59	0.092	760
SS02 @ 21.5'	5/1/2017	21.5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	2.3
SS03 @ 22'	5/1/2017	22	0.084	<0.0050	0.0075	0.016	<0.010	0.63
SS04 @ 22'	5/2/2017	22	0.0090	0.0091	<0.0050	0.019	<0.010	<50
SS05 @ 22'	5/2/2017	22	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50

**Notes:**

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective January 30, 2015.

2. TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

GRO = Total volatile petroleum hydrocarbons - gasoline range organics

DRO = Total extractable petroleum hydrocarbons - diesel range organics

mg/kg = Milligrams per kilogram

bgs = Below ground surface

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

**TABLE 2**  
**GATEWOOD 4-1, 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 (feet bgs) <sup>(2)</sup>
<b>COGCC Table 910-1 Groundwater Standard (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	
GW01	5/24/2017	<1.0	<1.0	<1.0	<2.0	~25

**Notes:**

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

2. Depth to groundwater measured from ground surface.

COGCC = Colorado Oil and Gas Conservation Commission

µg/L= Micrograms per liter

bgs = Below ground surface

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

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

## **ATTACHMENT A**

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 13, 2017

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Gatewood 4-1, 5

Enclosed are the results of analyses for samples received by Summit Scientific on 04/07/17 17:00. 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: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/13/17 07:02

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@24'	1704088-01	Soil	04/07/17 10:57	04/07/17 17:00

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

*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: Gatewood 4-1, 5

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
04/13/17 07:02

### Sample Receipt Checklist

S2 Work Order: 1704088

Client: PDC

Client Project ID: Gatewood 4, 1-5

Shipped Via: P/U

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

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

Cooler ID					
Temp (°C)	<u>0.8</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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) <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
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 <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
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):				

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

Nakita  
Custodian Printed Name

MAA  
Signature or Initials of Custodian

4/17/17 1730  
Date/Time



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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
04/13/17 07:02

SS01@24'  
1704088-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 04/07/17 10:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	540	50	mg/kg	1	1704101	04/10/17	04/11/17	8015M	

Date Sampled: 04/07/17 10:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 04/07/17 10:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.092	0.010	mg/kg	1	1704091	04/10/17	04/12/17	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.025	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.59	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	220	50	"	100	"	"	"	"	

Date Sampled: 04/07/17 10:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/13/17 07:02

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1704101 - EPA 3550A**

**Blank (1704101-BLK1)**

Prepared & Analyzed: 04/10/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	13.0		"	12.5	104	30-150				

**LCS (1704101-BS1)**

Prepared & Analyzed: 04/10/17

C10-C28 (DRO)	473	50	mg/kg	499	94.8	73-134				
Surrogate: o-Terphenyl	12.3		"	12.5	98.7	30-150				

**Matrix Spike (1704101-MS1)**

**Source: 1704069-01**

Prepared & Analyzed: 04/10/17

C10-C28 (DRO)	460	50	mg/kg	499	21.2	87.9	50-148			
Surrogate: o-Terphenyl	12.4		"	12.5	99.2	30-150				

**Matrix Spike Dup (1704101-MSD1)**

**Source: 1704069-01**

Prepared & Analyzed: 04/10/17

C10-C28 (DRO)	475	50	mg/kg	499	21.2	90.9	50-148	3.19	20	
Surrogate: o-Terphenyl	12.6		"	12.5	101	30-150				

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
04/13/17 07:02

**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 1704091 - EPA 5030 Soil MS**

**Blank (1704091-BLK1)**

Prepared: 04/10/17 Analyzed: 04/12/17

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0391		"	0.0400		97.7	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0400		98.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0364		"	0.0400		91.0	21-167			

**LCS (1704091-BS1)**

Prepared: 04/10/17 Analyzed: 04/12/17

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0865	0.0020	"	0.100		86.5	58-130			
Toluene	0.105	0.0050	"	0.100		105	61-134			
Ethylbenzene	0.111	0.0050	"	0.0992		112	74-139			
m,p-Xylene	0.236	0.010	"	0.200		118	73-137			
o-Xylene	0.104	0.0050	"	0.0980		106	73-141			
Xylenes (total)	0.340	0.010	"				0-200			
Gasoline Range Hydrocarbons	2.60	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0409		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0360		"	0.0400		89.9	21-167			

**Matrix Spike (1704091-MS1)**

Source: 1704053-01

Prepared: 04/10/17 Analyzed: 04/12/17

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0860	0.0020	"	0.100	ND	86.0	30-131			
Toluene	0.105	0.0050	"	0.100	ND	105	30-134			
Ethylbenzene	0.115	0.0050	"	0.0992	ND	116	22-153			
m,p-Xylene	0.249	0.010	"	0.200	ND	125	10-159			
o-Xylene	0.110	0.0050	"	0.0980	ND	112	31-151			
Xylenes (total)	0.358	0.010	"		ND		30-160			
Gasoline Range Hydrocarbons	2.46	0.50	"		ND		30-160			
Surrogate: 1,2-Dichloroethane-d4	0.0388		"	0.0400		97.1	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0400		98.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.0	21-167			

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/13/17 07:02

**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 1704091 - EPA 5030 Soil MS**

Matrix Spike Dup (1704091-MSD1)			Source: 1704053-01		Prepared: 04/10/17		Analyzed: 04/12/17			
Naphthalene	ND	0.010	mg/kg		ND		10-158			42
Benzene	0.0862	0.0020	"	0.100	ND	86.2	30-131	0.244		34
Toluene	0.103	0.0050	"	0.100	ND	103	30-134	2.51		30
Ethylbenzene	0.115	0.0050	"	0.0992	ND	116	22-153	0.157		24
m,p-Xylene	0.249	0.010	"	0.200	ND	125	10-159	0.0362		68
o-Xylene	0.107	0.0050	"	0.0980	ND	109	31-151	3.02		38
Xylenes (total)	0.355	0.010	"		ND		30-160	0.891		30
Gasoline Range Hydrocarbons	2.50	0.50	"		ND		30-160	1.45		30
Surrogate: 1,2-Dichloroethane-d4	0.0435		"	0.0400		109	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0400		97.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0375		"	0.0400		93.8	21-167			

Summit Scientific

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

Project: Gatewood 4-1, 5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/13/17 07:02

### 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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 02, 2017

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Gatewood 4-1, 5

Enclosed are the results of analyses for samples received by Summit Scientific on 05/01/17 17:00. 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: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/02/17 09:08

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS02@21.5'	1705008-01	Soil	05/01/17 11:12	05/01/17 17:00
SS03@22'	1705008-02	Soil	05/01/17 14:12	05/01/17 17:00

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/02/17 09:08

# Summit Scientific *1705008*

*S<sub>2</sub>*

741 Corporate Circle, Suite J ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933

Client: *PDC Energy* Project Manager: *Mark Longhurst* Page *1* of *1*  
Address: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Project Name: *Gatewood 4-1, 5*  
Sampler Name: *Back Alken* Project Number: \_\_\_\_\_

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions
					HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	GBTEK 8260	TPH-D84		
1	SS02@21.5'	5/1/17	1112	1			✓			✓			✓	✓		
2	SS03@22'	5/1/17	1412	1			✓			✓			✓	✓		
3																
4																
5																
6																
7																
8																
9																
10																

Relinquished by: <i>[Signature]</i>	Date/Time: <i>5/1/17 14:55</i>	Received by: <i>[Signature]</i>	Date/Time: <i>5-1-17 14:55</i>	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours — 24 hours — Standard — 48 hours —	Notes:
Relinquished by: <i>[Signature]</i>	Date/Time: <i>5-1-17 17:45</i>	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: <i>20.7</i> Intact: <input checked="" type="checkbox"/> Yes No	
Relinquished by:	Date/Time:	Received by:	Date/Time:		

www.s2scientific.com

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/02/17 09:08

### Sample Receipt Checklist

S2 Work Order: 1705008

Client: PDC

Client Project ID: Gatewood 4-1, 5

Shipped Via: H.D. onice  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

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

Cooler ID					
Temp (°C)	<u>20.1</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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) <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Muril P.  
Custodian Printed Name

MR 5-1-17  
Signature or Initials of Custodian

15:00  
Date/Time





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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/02/17 09:08

**SS02@21.5'**  
**1705008-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/01/17 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1705014	05/01/17	05/01/17	8015M	

Date Sampled: **05/01/17 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		121 %	30-150		"	"	"	"	

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

Date Sampled: **05/01/17 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1705013	05/01/17	05/01/17	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.3</b>	0.50	"	"	"	"	"	"	

Date Sampled: **05/01/17 11:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/02/17 09:08

**SS03@22'**  
**1705008-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/01/17 14:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1705014	05/01/17	05/02/17	8015M	

Date Sampled: **05/01/17 14:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		122 %	30-150		"	"	"	"	

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

Date Sampled: **05/01/17 14:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1705013	05/01/17	05/01/17	EPA 8260B	
<b>Benzene</b>	<b>0.084</b>	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.0075</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.016</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.63</b>	0.50	"	"	"	"	"	"	

Date Sampled: **05/01/17 14:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.2 %	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: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/02/17 09:08

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1705014 - EPA 3550A**

**Blank (1705014-BLK1)**

Prepared & Analyzed: 05/01/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	15.6		"	12.5		125	30-150			

**LCS (1705014-BS1)**

Prepared & Analyzed: 05/01/17

C10-C28 (DRO)	523	50	mg/kg	499		105	73-134			
Surrogate: o-Terphenyl	15.2		"	12.5		122	30-150			

**Matrix Spike (1705014-MS1)**

**Source: 1705006-03**

Prepared & Analyzed: 05/01/17

C10-C28 (DRO)	550	50	mg/kg	499	ND	110	50-148			
Surrogate: o-Terphenyl	15.2		"	12.5		122	30-150			

**Matrix Spike Dup (1705014-MSD1)**

**Source: 1705006-03**

Prepared & Analyzed: 05/01/17

C10-C28 (DRO)	550	50	mg/kg	499	ND	110	50-148	0.125	20	
Surrogate: o-Terphenyl	14.9		"	12.5		119	30-150			

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/02/17 09:08

**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 1705013 - EPA 5030 Soil MS**

**Blank (1705013-BLK1)**

Prepared & Analyzed: 05/01/17

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0424</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>98.1</i>	<i>21-167</i>			

**LCS (1705013-BS1)**

Prepared & Analyzed: 05/01/17

Naphthalene	0.00984	0.010	mg/kg				66-138			
Benzene	0.0762	0.0020	"	0.100		76.2	58-130			
Toluene	0.0790	0.0050	"	0.100		79.0	61-134			
Ethylbenzene	0.0876	0.0050	"	0.0992		88.3	74-139			
m,p-Xylene	0.159	0.010	"	0.200		79.6	73-137			
o-Xylene	0.0824	0.0050	"	0.0980		84.1	73-141			
Xylenes (total)	0.241	0.010	"				0-200			
Gasoline Range Hydrocarbons	1.83	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0402</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>21-167</i>			

**Matrix Spike (1705013-MS1)**

Source: 1705006-03

Prepared & Analyzed: 05/01/17

Naphthalene	0.0103	0.010	mg/kg		ND		10-158			
Benzene	0.0788	0.0020	"	0.100	ND	78.8	30-131			
Toluene	0.0827	0.0050	"	0.100	ND	82.7	30-134			
Ethylbenzene	0.0860	0.0050	"	0.0992	ND	86.6	22-153			
m,p-Xylene	0.157	0.010	"	0.200	0.00369	76.8	10-159			
o-Xylene	0.0826	0.0050	"	0.0980	ND	84.3	31-151			
Xylenes (total)	0.240	0.010	"		ND		30-160			
Gasoline Range Hydrocarbons	1.86	0.50	"		ND		30-160			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0447</i>		<i>"</i>	<i>0.0400</i>		<i>112</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0409</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0389</i>		<i>"</i>	<i>0.0400</i>		<i>97.4</i>	<i>21-167</i>			

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/02/17 09:08

**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 1705013 - EPA 5030 Soil MS**

Matrix Spike Dup (1705013-MSD1)		Source: 1705006-03			Prepared & Analyzed: 05/01/17					
Naphthalene	0.0101	0.010	mg/kg		ND		10-158	2.06	42	
Benzene	0.0771	0.0020	"	0.100	ND	77.1	30-131	2.19	34	
Toluene	0.0802	0.0050	"	0.100	ND	80.2	30-134	3.10	30	
Ethylbenzene	0.0844	0.0050	"	0.0992	ND	85.1	22-153	1.80	24	
m,p-Xylene	0.155	0.010	"	0.200	0.00369	75.8	10-159	1.31	68	
o-Xylene	0.0818	0.0050	"	0.0980	ND	83.4	31-151	1.06	38	
Xylenes (total)	0.237	0.010	"		ND		30-160	1.22	30	
Gasoline Range Hydrocarbons	1.87	0.50	"		ND		30-160	0.518	30	
Surrogate: 1,2-Dichloroethane-d4	0.0462		"	0.0400		115	23-173			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.1	21-167			

Summit Scientific

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

Project: Gatewood 4-1, 5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/02/17 09:08

### 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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 03, 2017

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Gatewood 4-1, 5

Enclosed are the results of analyses for samples received by Summit Scientific on 05/02/17 17:17. 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: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/03/17 06:37

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS04@22'	1705020-01	Soil	05/02/17 09:59	05/02/17 17:17
SS05@22'	1705020-02	Soil	05/02/17 10:46	05/02/17 17:17

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/03/17 06:37

#### Sample Receipt Checklist

S2 Work Order: 1705020

Client: PDC Energy

Client Project ID: Gatewood 4-1, 5

Shipped Via: P2U

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

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

Cooler ID					
Temp (°C)	<u>8.8</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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) <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
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 <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
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):				

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

Nakita  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

5/2/17 1730  
Date/Time



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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/03/17 06:37

**SS04@22'**  
**1705020-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/02/17 09:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1705026	05/02/17	05/03/17	8015M	

Date Sampled: **05/02/17 09:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		125 %	30-150		"	"	"	"	

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

Date Sampled: **05/02/17 09:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1705028	05/02/17	05/02/17	EPA 8260B	
<b>Benzene</b>	<b>0.0090</b>	0.0020	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.0091</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.019</b>	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/02/17 09:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/03/17 06:37

SS05@22'  
1705020-02 (Soil)

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 05/02/17 10:46

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1705026	05/02/17	05/03/17	8015M	

Date Sampled: 05/02/17 10:46

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		119 %	30-150		"	"	"	"	

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

Date Sampled: 05/02/17 10:46

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1705028	05/02/17	05/02/17	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 05/02/17 10:46

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/03/17 06:37

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1705026 - EPA 3550A**

**Blank (1705026-BLK1)**

Prepared & Analyzed: 05/02/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	14.9		"	12.5		120	30-150			

**LCS (1705026-BS1)**

Prepared & Analyzed: 05/02/17

C10-C28 (DRO)	552	50	mg/kg	499		111	73-134			
Surrogate: o-Terphenyl	15.1		"	12.5		121	30-150			

**Matrix Spike (1705026-MS1)**

Source: 1705018-01

Prepared & Analyzed: 05/02/17

C10-C28 (DRO)	580	50	mg/kg	499	42.7	108	50-148			
Surrogate: o-Terphenyl	15.1		"	12.5		121	30-150			

**Matrix Spike Dup (1705026-MSD1)**

Source: 1705018-01

Prepared & Analyzed: 05/02/17

C10-C28 (DRO)	568	50	mg/kg	499	42.7	105	50-148	2.04	20	
Surrogate: o-Terphenyl	14.9		"	12.5		119	30-150			

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: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/03/17 06:37

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

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

**Batch 1705028 - EPA 5030 Soil MS**

**Blank (1705028-BLK1)**

Prepared & Analyzed: 05/02/17

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.6</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0389</i>		<i>"</i>	<i>0.0400</i>		<i>97.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.7</i>	<i>21-167</i>			

**LCS (1705028-BS1)**

Prepared & Analyzed: 05/02/17

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.105	0.0020	"	0.100		105	58-130			
Toluene	0.116	0.0050	"	0.100		116	61-134			
Ethylbenzene	0.124	0.0050	"	0.0992		125	74-139			
m,p-Xylene	0.226	0.010	"	0.200		113	73-137			
o-Xylene	0.116	0.0050	"	0.0980		119	73-141			
Xylenes (total)	0.342	0.010	"				0-200			
Gasoline Range Hydrocarbons	2.72	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>	<i>21-167</i>			

**Matrix Spike (1705028-MS1)**

Source: 1705020-01

Prepared & Analyzed: 05/02/17

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.117	0.0020	"	0.100	0.00903	108	30-131			
Toluene	0.130	0.0050	"	0.100	0.00909	121	30-134			
Ethylbenzene	0.126	0.0050	"	0.0992	ND	127	22-153			
m,p-Xylene	0.245	0.010	"	0.200	0.0125	117	10-159			
o-Xylene	0.126	0.0050	"	0.0980	0.00666	121	31-151			
Xylenes (total)	0.371	0.010	"		0.0191		30-160			
Gasoline Range Hydrocarbons	2.97	0.50	"		0.256		30-160			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0427</i>		<i>"</i>	<i>0.0400</i>		<i>107</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.3</i>	<i>21-167</i>			

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/03/17 06:37

**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 1705028 - EPA 5030 Soil MS**

Matrix Spike Dup (1705028-MSD1)			Source: 1705020-01		Prepared & Analyzed: 05/02/17					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.118	0.0020	"	0.100	0.00903	109	30-131	1.12	34	
Toluene	0.130	0.0050	"	0.100	0.00909	121	30-134	0.0924	30	
Ethylbenzene	0.128	0.0050	"	0.0992	ND	129	22-153	1.20	24	
m,p-Xylene	0.246	0.010	"	0.200	0.0125	117	10-159	0.208	68	
o-Xylene	0.125	0.0050	"	0.0980	0.00666	121	31-151	0.191	38	
Xylenes (total)	0.371	0.010	"		0.0191		30-160	0.0728	30	
Gasoline Range Hydrocarbons	2.94	0.50	"		0.256		30-160	0.998	30	
Surrogate: 1,2-Dichloroethane-d4	0.0434		"	0.0400		108	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.0	21-167			

Summit Scientific

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

Project: Gatewood 4-1, 5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/03/17 06:37

### 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



# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 25, 2017

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Gatewood 4-1, 5

Enclosed are the results of analyses for samples received by Summit Scientific on 05/24/17 17:45. 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: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/25/17 06:42

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	1705238-01	Water	05/24/17 12:38	05/24/17 17:45

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/25/17 06:42

#### Sample Receipt Checklist

S2 Work Order: 1705238  
Client: PDC Client Project ID: Gatewood 4-1, 5  
Shipped Via: plu Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)  
Matrix (check all that apply): ☐ Air ☐ Soil/Solid ☒ Water ☐ Other: \_\_\_\_\_  
(Describe)

Cooler ID					
Temp (°C)	<u>10.2</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?				
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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) <sup>(1)</sup> ?				
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 <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
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):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Cassandra Shrawsbury  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

5/24/17 5:40p  
Date/Time

[Signature]



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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/25/17 06:42

**GW01**  
**1705238-01 (Water)**

**Summit Scientific**

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

Date Sampled: **05/24/17 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1705253	05/24/17	05/24/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/24/17 12:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.2 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/25/17 06:42

## 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 1705253 - EPA 5030 Water MS

##### Blank (1705253-BLK1)

Prepared & Analyzed: 05/24/17

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.3		102	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.7	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.2	45-146			

##### LCS (1705253-BS1)

Prepared & Analyzed: 05/24/17

Benzene	29.1	1.0	ug/l	33.3		87.2	51-132			
Toluene	33.3	1.0	"	33.3		100	51-138			
Ethylbenzene	38.5	1.0	"	33.1		116	58-146			
m,p-Xylene	74.0	2.0	"	66.5		111	57-144			
o-Xylene	35.9	1.0	"	32.7		110	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.3		105	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		99.5	45-149			
Surrogate: 4-Bromofluorobenzene	15.0		"	13.3		113	45-146			

##### Matrix Spike (1705253-MS1)

Source: 1705233-24

Prepared & Analyzed: 05/24/17

Benzene	30.1	1.0	ug/l	33.3	ND	90.2	34-141			
Toluene	32.7	1.0	"	33.3	ND	98.1	27-151			
Ethylbenzene	38.6	1.0	"	33.1	ND	117	29-160			
m,p-Xylene	74.3	2.0	"	66.5	ND	112	20-166			
o-Xylene	35.5	1.0	"	32.7	ND	109	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.2		"	13.3		107	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.8	45-149			
Surrogate: 4-Bromofluorobenzene	13.6		"	13.3		102	45-146			

Summit Scientific

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

Project: Gatewood 4-1, 5  
Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
05/25/17 06:42

**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 1705253 - EPA 5030 Water MS**

Matrix Spike Dup (1705253-MSD1)	Source: 1705233-24			Prepared & Analyzed: 05/24/17						
Benzene	29.8	1.0	ug/l	33.3	ND	89.4	34-141	0.935	32	
Toluene	33.6	1.0	"	33.3	ND	101	27-151	2.66	25	
Ethylbenzene	38.9	1.0	"	33.1	ND	118	29-160	0.878	50	
m,p-Xylene	75.0	2.0	"	66.5	ND	113	20-166	0.831	36	
o-Xylene	36.6	1.0	"	32.7	ND	112	33-159	2.88	26	
Surrogate: 1,2-Dichloroethane-d4	14.9		"	13.3		112	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	45-149			
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		101	45-146			

Summit Scientific

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

Project: Gatewood 4-1, 5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
05/25/17 06:42

### 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