

TABLE 1
SLW RANCH 24, 34, 44-7 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 ⁽²⁾ (mg/kg)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	23	500
SB01 @ 8'	4/7/2017	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SB02 @ 8'	4/7/2017	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SB03 @ 8'	4/7/2017	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SB04 @ 8'	4/7/2017	8	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SB05 @ 8'	4/7/2017	8	<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.

Attachment A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 14, 2017

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: SLW Ranch 24, 34, 44-7

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: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@8'	1704090-01	Soil	04/07/17 12:06	04/07/17 17:00
SB02@8'	1704090-02	Soil	04/07/17 12:13	04/07/17 17:00
SB03@8'	1704090-03	Soil	04/07/17 12:21	04/07/17 17:00
SB04@8'	1704090-04	Soil	04/07/17 12:29	04/07/17 17:00
SB05@8'	1704090-05	Soil	04/07/17 12:37	04/07/17 17:00

Summit Scientific

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

Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

Sample Receipt Checklist

S2 Work Order: 1704090

Client: PDC Client Project ID: SLW Ranch 24, 34, 44-7

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

Nakita Signature or Initials of Custodian 4/7/17 1730
Custodian Printed Name Date/Time



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

Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

SB01@8'
1704090-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/07/17 12:06**

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

Date Sampled: **04/07/17 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		113 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/07/17 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1704092	04/11/17	04/11/17	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: **04/07/17 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.7 %	21-167		"	"	"	"	

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PDC Energy
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Denver CO, 80203

Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

SB02@8'
1704090-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/07/17 12:13**

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

Date Sampled: **04/07/17 12:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		110 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/07/17 12:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1704092	04/11/17	04/11/17	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: **04/07/17 12:13**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.7 %	21-167		"	"	"	"	

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Denver CO, 80203

Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

SB03@8'
1704090-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/07/17 12:21**

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

Date Sampled: **04/07/17 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/07/17 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1704092	04/11/17	04/11/17	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: **04/07/17 12:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.6 %	21-167		"	"	"	"	

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Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

SB04@8'
1704090-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/07/17 12:29**

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

Date Sampled: **04/07/17 12:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/07/17 12:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1704092	04/11/17	04/11/17	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: **04/07/17 12:29**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.6 %	21-167		"	"	"	"	

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Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

SB05@8'
1704090-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/07/17 12:37**

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

Date Sampled: **04/07/17 12:37**

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 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1704092	04/11/17	04/12/17	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: **04/07/17 12:37**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.6 %	21-167		"	"	"	"	

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

Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

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: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

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 1704092 - EPA 5030 Soil MS

Blank (1704092-BLK1)

Prepared & Analyzed: 04/11/17

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>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.6</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0377</i>		<i>"</i>	<i>0.0400</i>		<i>94.2</i>	<i>21-167</i>			

LCS (1704092-BS1)

Prepared & Analyzed: 04/11/17

Naphthalene	0.0171	0.010	mg/kg				66-138			
Benzene	0.0871	0.0020	"	0.100		87.1	58-130			
Toluene	0.102	0.0050	"	0.100		102	61-134			
Ethylbenzene	0.114	0.0050	"	0.0992		115	74-139			
m,p-Xylene	0.246	0.010	"	0.200		123	73-137			
o-Xylene	0.111	0.0050	"	0.0980		113	73-141			
Xylenes (total)	0.356	0.010	"				0-200			
Gasoline Range Hydrocarbons	2.38	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0412</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0365</i>		<i>"</i>	<i>0.0400</i>		<i>91.3</i>	<i>21-167</i>			

Matrix Spike (1704092-MS1)

Source: 1704090-01

Prepared & Analyzed: 04/11/17

Naphthalene	0.0168	0.010	mg/kg		ND		10-158			
Benzene	0.0821	0.0020	"	0.100	ND	82.1	30-131			
Toluene	0.0988	0.0050	"	0.100	ND	98.8	30-134			
Ethylbenzene	0.116	0.0050	"	0.0992	ND	117	22-153			
m,p-Xylene	0.250	0.010	"	0.200	ND	125	10-159			
o-Xylene	0.111	0.0050	"	0.0980	ND	113	31-151			
Xylenes (total)	0.361	0.010	"		ND		30-160			
Gasoline Range Hydrocarbons	2.51	0.50	"		ND		30-160			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0375</i>		<i>"</i>	<i>0.0400</i>		<i>93.8</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0379</i>		<i>"</i>	<i>0.0400</i>		<i>94.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>97.1</i>	<i>21-167</i>			

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

Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

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 1704092 - EPA 5030 Soil MS

Matrix Spike Dup (1704092-MSD1)		Source: 1704090-01			Prepared & Analyzed: 04/11/17					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0830	0.0020	"	0.100	ND	83.0	30-131	1.05	34	
Toluene	0.0988	0.0050	"	0.100	ND	98.8	30-134	0.00	30	
Ethylbenzene	0.114	0.0050	"	0.0992	ND	115	22-153	1.96	24	
m,p-Xylene	0.248	0.010	"	0.200	ND	124	10-159	1.07	68	
o-Xylene	0.110	0.0050	"	0.0980	ND	112	31-151	1.03	38	
Xylenes (total)	0.357	0.010	"		ND		30-160	1.06	30	
Gasoline Range Hydrocarbons	2.47	0.50	"		ND		30-160	1.44	30	
Surrogate: 1,2-Dichloroethane-d4	0.0396		"	0.0400		99.1	23-173			
Surrogate: Toluene-d8	0.0385		"	0.0400		96.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0373		"	0.0400		93.3	21-167			

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

Project: SLW Ranch 24, 34, 44-7

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/14/17 10:19

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