

TABLE 1
FORMER SITZMAN 1U 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
SS01 @ 14'	3/7/2018	14	<0.0020	<0.0050	<0.0050	0.018	0.035	720
SS02 @ 12.5'	3/7/2018	12.5	<0.0020	<0.0050	<0.0050	0.02	<0.010	258
SS03 @ 10'	3/12/2018	10	0.14	0.014	9.4	140	2.4	6,600
SS04 @ 18'	3/12/2018	18	0.10	<0.0050	7.5	120	1.7	5,400

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

March 08, 2018

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

Enclosed are the results of analyses for samples received by Summit Scientific on 03/07/18 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: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/08/18 15:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@14'	1803087-01	Soil	03/07/18 11:42	03/07/18 17:00
SS02@12.5'	1803087-02	Soil	03/07/18 11:45	03/07/18 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: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/08/18 15:01

Sample Receipt Checklist

S2 Work Order: 1863087

Client: PDC Energy Client Project ID: Sitzman 1U

Shipped Via: P/U Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Cooler ID					
Temp (°C)	<u>4.7</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⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is waived 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⁾ ?			<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.

M. Longhurst
Custodian Printed Name

ML
Signature or Initials of Custodian

3/7/18 1700
Date/Time



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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/08/18 15:01

SS01@14'
1803087-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/07/18 11:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	390	50	mg/kg	1	1803106	03/07/18	03/08/18	8015M	

Date Sampled: **03/07/18 11:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		105 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/07/18 11:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.035	0.010	mg/kg	1	1803105	03/07/18	03/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.018	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	330	5.0	"	10	"	"	"	"	

Date Sampled: **03/07/18 11:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.8 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		150 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/08/18 15:01

SS02@12.5'
1803087-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/07/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	68	50	mg/kg	1	1803106	03/07/18	03/08/18	8015M	

Date Sampled: **03/07/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		96.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/07/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1803105	03/07/18	03/08/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	190	5.0	"	10	"	"	"	"	

Date Sampled: **03/07/18 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		104 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.6 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		121 %	21-167		"	"	"	"	

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/08/18 15:01

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 1803106 - EPA 3550A

Blank (1803106-BLK1)

Prepared: 03/07/18 Analyzed: 03/08/18

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 12.5 " 12.5 100 30-150

LCS (1803106-BS1)

Prepared: 03/07/18 Analyzed: 03/08/18

C10-C28 (DRO) 377 50 mg/kg 399 94.4 73-134

Surrogate: o-Terphenyl 13.5 " 12.5 108 30-150

Matrix Spike (1803106-MS1)

Source: 1803086-01

Prepared: 03/07/18 Analyzed: 03/08/18

C10-C28 (DRO) 340 50 mg/kg 399 27.2 78.3 50-148

Surrogate: o-Terphenyl 12.3 " 12.5 98.7 30-150

Matrix Spike Dup (1803106-MSD1)

Source: 1803086-01

Prepared: 03/07/18 Analyzed: 03/08/18

C10-C28 (DRO) 342 50 mg/kg 399 27.2 78.9 50-148 0.711 20

Surrogate: o-Terphenyl 13.1 " 12.5 105 30-150

Summit Scientific

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/08/18 15:01

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 1803105 - EPA 5030 Soil MS

Blank (1803105-BLK1)

Prepared: 03/07/18 Analyzed: 03/08/18

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>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>93.9</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.5</i>	<i>21-167</i>			

LCS (1803105-BS1)

Prepared: 03/07/18 Analyzed: 03/08/18

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0999	0.0020	"	0.100		99.9	58-130			
Toluene	0.0994	0.0050	"	0.100		99.4	61-134			
Ethylbenzene	0.115	0.0050	"	0.0992		116	74-139			
m,p-Xylene	0.211	0.010	"	0.200		106	73-137			
o-Xylene	0.102	0.0050	"	0.0980		104	73-141			
Xylenes (total)	0.314	0.010	"				0-200			
Gasoline Range Hydrocarbons	3.26	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0413</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0396</i>		<i>"</i>	<i>0.0400</i>		<i>99.1</i>	<i>21-167</i>			

Matrix Spike (1803105-MS1)

Source: 1803086-01

Prepared: 03/07/18 Analyzed: 03/08/18

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0994	0.0020	"	0.100	ND	99.4	30-131			
Toluene	0.101	0.0050	"	0.100	ND	101	30-134			
Ethylbenzene	0.117	0.0050	"	0.0992	ND	117	22-153			
m,p-Xylene	0.212	0.010	"	0.200	ND	106	10-159			
o-Xylene	0.106	0.0050	"	0.0980	ND	108	31-151			
Xylenes (total)	0.317	0.010	"		ND		30-160			
Gasoline Range Hydrocarbons	3.28	0.50	"		ND		30-160			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0389</i>		<i>"</i>	<i>0.0400</i>		<i>97.3</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.3</i>	<i>21-167</i>			

Summit Scientific

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/08/18 15:01

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 1803105 - EPA 5030 Soil MS

Matrix Spike Dup (1803105-MSD1)			Source: 1803086-01		Prepared: 03/07/18		Analyzed: 03/08/18			
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.101	0.0020	"	0.100	ND	101	30-131	1.56	34	
Toluene	0.102	0.0050	"	0.100	ND	102	30-134	0.831	30	
Ethylbenzene	0.117	0.0050	"	0.0992	ND	117	22-153	0.0257	24	
m,p-Xylene	0.212	0.010	"	0.200	ND	106	10-159	0.0566	68	
o-Xylene	0.105	0.0050	"	0.0980	ND	107	31-151	0.857	38	
Xylenes (total)	0.316	0.010	"		ND		30-160	0.322	30	
Gasoline Range Hydrocarbons	3.37	0.50	"		ND		30-160	2.61	30	
Surrogate: 1,2-Dichloroethane-d4	0.0414		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0386		"	0.0400		96.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

Summit Scientific

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/08/18 15:01

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

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 13, 2018

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

Enclosed are the results of analyses for samples received by Summit Scientific on 03/12/18 15:09. 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: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/13/18 06:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS03@10'	1803137-01	Soil	03/12/18 14:02	03/12/18 15:09
SS04@18'	1803137-02	Soil	03/12/18 14:31	03/12/18 15:09

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: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/13/18 06:14

Sample Receipt Checklist

S2 Work Order: 1803137
Client: PDC Energy Client Project ID: Sitzman 1U
Shipped Via: Hand (UPS, FedEx, Hand Delivered, Pick-up, etc.) Airbill #: _____
Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Cooler ID					
Temp (°C)	<u>9.7</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.	✓			
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?				
Are short holding time analytes or samples with HTs due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			✓	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			✓	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

⁽¹⁾ 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

3/12/18 1350
Date/Time



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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/13/18 06:14

SS03@10'
1803137-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/12/18 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1400	50	mg/kg	1	1803143	03/12/18	03/13/18	8015M	

Date Sampled: **03/12/18 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		131 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/12/18 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	2.4	1.0	mg/kg	100	1803145	03/12/18	03/12/18	EPA 8260B	
Benzene	0.14	0.0020	"	1	"	"	"	"	
Toluene	0.014	0.0050	"	"	"	"	"	"	
Ethylbenzene	9.4	0.50	"	100	"	"	"	"	
Xylenes (total)	140	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	5200	50	"	"	"	"	"	"	

Date Sampled: **03/12/18 14:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		176 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/13/18 06:14

SS04@18'
1803137-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/12/18 14:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1300	50	mg/kg	1	1803143	03/12/18	03/13/18	8015M	

Date Sampled: **03/12/18 14:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		142 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/12/18 14:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	1.7	1.0	mg/kg	100	1803145	03/12/18	03/13/18	EPA 8260B	
Benzene	0.10	0.0020	"	1	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	7.5	0.50	"	100	"	"	"	"	
Xylenes (total)	120	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	4100	50	"	"	"	"	"	"	

Date Sampled: **03/12/18 14:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		112 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.1 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		161 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/13/18 06:14

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 1803143 - EPA 3550A

Blank (1803143-BLK1)

Prepared: 03/12/18 Analyzed: 03/13/18

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 12.3 " 12.5 98.7 30-150

LCS (1803143-BS1)

Prepared: 03/12/18 Analyzed: 03/13/18

C10-C28 (DRO) 436 50 mg/kg 499 87.4 73-134

Surrogate: o-Terphenyl 14.8 " 12.5 118 30-150

Matrix Spike (1803143-MS1)

Source: 1803119-05

Prepared: 03/12/18 Analyzed: 03/13/18

C10-C28 (DRO) 787 50 mg/kg 499 350 87.5 50-148

Surrogate: o-Terphenyl 17.6 " 12.5 140 30-150

Matrix Spike Dup (1803143-MSD1)

Source: 1803119-05

Prepared: 03/12/18 Analyzed: 03/13/18

C10-C28 (DRO) 802 50 mg/kg 499 350 90.6 50-148 1.97 20

Surrogate: o-Terphenyl 17.3 " 12.5 138 30-150

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/13/18 06:14

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 1803145 - EPA 5030 Soil MS

Blank (1803145-BLK1)

Prepared: 03/12/18 Analyzed: 03/13/18

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>0.0417</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0360</i>		<i>"</i>	<i>0.0400</i>		<i>90.0</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0380</i>		<i>"</i>	<i>0.0400</i>		<i>94.9</i>	<i>21-167</i>			

LCS (1803145-BS1)

Prepared: 03/12/18 Analyzed: 03/13/18

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0967	0.0020	"	0.100		96.7	58-130			
Toluene	0.0963	0.0050	"	0.100		96.3	61-134			
Ethylbenzene	0.111	0.0050	"	0.0992		112	74-139			
m,p-Xylene	0.205	0.010	"	0.200		103	73-137			
o-Xylene	0.102	0.0050	"	0.0980		104	73-141			
Xylenes (total)	0.307	0.010	"				0-200			
Gasoline Range Hydrocarbons	3.35	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0415</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0383</i>		<i>"</i>	<i>0.0400</i>		<i>95.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0385</i>		<i>"</i>	<i>0.0400</i>		<i>96.2</i>	<i>21-167</i>			

Matrix Spike (1803145-MS1)

Source: 1803119-05

Prepared: 03/12/18 Analyzed: 03/13/18

Naphthalene	0.0443	0.010	mg/kg		0.0462		10-158			
Benzene	0.0966	0.0020	"	0.100	ND	96.6	30-131			
Toluene	0.0964	0.0050	"	0.100	ND	96.4	30-134			
Ethylbenzene	0.117	0.0050	"	0.0992	0.00360	114	22-153			
m,p-Xylene	0.217	0.010	"	0.200	0.00801	105	10-159			
o-Xylene	0.102	0.0050	"	0.0980	ND	104	31-151			
Xylenes (total)	0.319	0.010	"		0.00801		30-160			
Gasoline Range Hydrocarbons	20.9	0.50	"		55.7		30-160			
<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>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>94.1</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0711</i>		<i>"</i>	<i>0.0400</i>		<i>178</i>	<i>21-167</i>			

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/13/18 06:14

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 1803145 - EPA 5030 Soil MS

Matrix Spike Dup (1803145-MSD1)	Source: 1803119-05			Prepared: 03/12/18		Analyzed: 03/13/18				
Naphthalene	0.0540	0.010	mg/kg		0.0462		10-158	19.8	42	
Benzene	0.0963	0.0020	"	0.100	ND	96.3	30-131	0.280	34	
Toluene	0.0966	0.0050	"	0.100	ND	96.6	30-134	0.187	30	
Ethylbenzene	0.117	0.0050	"	0.0992	0.00360	115	22-153	0.667	24	
m,p-Xylene	0.214	0.010	"	0.200	0.00801	103	10-159	1.32	68	
o-Xylene	0.102	0.0050	"	0.0980	ND	104	31-151	0.235	38	
Xylenes (total)	0.316	0.010	"		0.00801		30-160	0.973	30	
Gasoline Range Hydrocarbons	22.0	0.50	"		55.7		30-160	5.25	30	
Surrogate: 1,2-Dichloroethane-d4	0.0432		"	0.0400		108	23-173			
Surrogate: Toluene-d8	0.0375		"	0.0400		93.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0773		"	0.0400		193	21-167			

Summit Scientific

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

Project: Sitzman 1U
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/13/18 06:14

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