

TABLE 1
SANDIN 24V DRILL PAD
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 @ 6"	3/23/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	950
SS02 @ 6"	3/23/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	280
SS03 @ 6"	3/23/2018	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	12
SS04 @ 1'	3/27/2018	1	<0.0020	<0.0050	<0.0050	<0.010	<0.010	3.5

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 25, 2018

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Sandin V24

Enclosed are the results of analyses for samples received by Summit Scientific on 03/23/18 13:50. 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: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@6"	1803299-01	Soil	03/23/18 10:58	03/23/18 13:50
SS02@6"	1803299-02	Soil	03/23/18 11:03	03/23/18 13:50
SS03@6"	1803299-03	Soil	03/23/18 11:04	03/23/18 13:50

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: Sandin V24

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

Summit Scientific

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

(803275)

Page 1 of 1

Client:	PDC
Address:	
City/State/Zip:	
Phone:	Fax:
Sampler Name:	Tyler Blessing

Project Manager:	Mark Longhurst
E-Mail:	Mark.Longhurst@pdce.com
Project Name:	Sandin V24
Project Number:	

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix			Analyze For:								Special Instructions
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	GBTEXN (8260)	DRO (TPH)					
SS01 @ 6"	3/23/2018	10:58	1		X			X			X	X						
SS02 @ 6"	3/23/2018	11:03	1		X			X			X	X						
SS03 @ 6"	3/23/2018	11:04	1		X			X			X	X						
Relinquished by: _____ Date/Time: _____				Received by: _____ Date/Time: _____				Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input type="checkbox"/>										
Relinquished by: _____ Date/Time: _____				Received by: _____ Date/Time: _____														
Relinquished by: _____ Date/Time: _____				Received in Lab by: _____ Date/Time: _____				Sample Integrity: Temperature Upon Receipt: _____ .2 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>										

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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

Sample Receipt Checklist

S2 Work Order: 1803299
Client: PDC Client Project ID: Sandin V24
Shipped Via: PU Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Matrix (check all that apply): Air ☒ Soil/Solid Water Other: _____
(Describe)

Temp (°C) -2

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ^{(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 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 with 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, etc.			<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.

Mark Longhurst
Custodian Printed Name or Initials

MD 3-23-18
Signature of Custodian

17:15
Date/Time



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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

SS01@6"
1803299-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/23/18 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	930	50	mg/kg	1	1803289	03/23/18	03/24/18	8015M	

Date Sampled: **03/23/18 10:58**

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: **03/23/18 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1803288	03/23/18	03/24/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	20	0.50	"	"	"	"	"	"	

Date Sampled: **03/23/18 10:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		95.0 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		93.8 %	20-170		"	"	03/24/18	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.8 %	21-167		"	"	03/24/18	"	

Summit Scientific

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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

SS02@6"
1803299-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/23/18 11:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	260	50	mg/kg	1	1803289	03/23/18	03/24/18	8015M	

Date Sampled: **03/23/18 11:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/23/18 11:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1803288	03/23/18	03/24/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	20	0.50	"	"	"	"	"	"	

Date Sampled: **03/23/18 11:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.1 %	23-173		"	"	03/24/18	"	
Surrogate: Toluene-d8		95.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.2 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

SS03@6"
1803299-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/23/18 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1803289	03/23/18	03/24/18	8015M	

Date Sampled: **03/23/18 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/23/18 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1803288	03/23/18	03/24/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	12	0.50	"	"	"	"	"	"	

Date Sampled: **03/23/18 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

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 1803289 - EPA 3550A

Blank (1803289-BLK1)

Prepared: 03/23/18 Analyzed: 03/24/18

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 12.8 " 12.5 102 30-150

LCS (1803289-BS1)

Prepared: 03/23/18 Analyzed: 03/24/18

C10-C28 (DRO) 459 50 mg/kg 499 92.1 73-134

Surrogate: o-Terphenyl 13.3 " 12.5 106 30-150

Matrix Spike (1803289-MS1)

Source: 1803304-01

Prepared: 03/23/18 Analyzed: 03/24/18

C10-C28 (DRO) 536 50 mg/kg 499 20.8 103 50-148

Surrogate: o-Terphenyl 14.4 " 12.5 115 30-150

Matrix Spike Dup (1803289-MSD1)

Source: 1803304-01

Prepared: 03/23/18 Analyzed: 03/24/18

C10-C28 (DRO) 511 50 mg/kg 499 20.8 98.2 50-148 4.78 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: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

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 1803288 - EPA 5030 Soil MS

Blank (1803288-BLK1)

Prepared & Analyzed: 03/23/18

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>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>94.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0379</i>		<i>"</i>	<i>0.0400</i>		<i>94.8</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 (1803288-BS1)

Prepared: 03/23/18 Analyzed: 03/24/18

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0985	0.0020	"	0.100		98.5	58-130			
Toluene	0.100	0.0050	"	0.100		100	61-134			
Ethylbenzene	0.113	0.0050	"	0.0992		114	74-139			
m,p-Xylene	0.209	0.010	"	0.200		105	73-137			
o-Xylene	0.102	0.0050	"	0.0980		104	73-141			
Xylenes (total)	0.311	0.010	"				0-200			
Gasoline Range Hydrocarbons	5.10	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>93.9</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0386</i>		<i>"</i>	<i>0.0400</i>		<i>96.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.5</i>	<i>21-167</i>			

Matrix Spike (1803288-MS1)

Source: 1803304-01

Prepared: 03/23/18 Analyzed: 03/24/18

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0975	0.0020	"	0.100	ND	97.5	30-131			
Toluene	0.0987	0.0050	"	0.100	ND	98.7	30-134			
Ethylbenzene	0.114	0.0050	"	0.0992	ND	115	22-153			
m,p-Xylene	0.212	0.010	"	0.200	ND	106	10-159			
o-Xylene	0.105	0.0050	"	0.0980	ND	107	31-151			
Xylenes (total)	0.317	0.010	"		ND		30-160			
Gasoline Range Hydrocarbons	5.37	0.50	"		0.195		30-160			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0371</i>		<i>"</i>	<i>0.0400</i>		<i>92.8</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0378</i>		<i>"</i>	<i>0.0400</i>		<i>94.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0383</i>		<i>"</i>	<i>0.0400</i>		<i>95.8</i>	<i>21-167</i>			

Summit Scientific

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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

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 1803288 - EPA 5030 Soil MS

Matrix Spike Dup (1803288-MSD1)			Source: 1803304-01		Prepared: 03/23/18		Analyzed: 03/24/18			
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0973	0.0020	"	0.100	ND	97.3	30-131	0.216	34	
Toluene	0.100	0.0050	"	0.100	ND	100	30-134	1.63	30	
Ethylbenzene	0.113	0.0050	"	0.0992	ND	114	22-153	0.869	24	
m,p-Xylene	0.211	0.010	"	0.200	ND	106	10-159	0.808	68	
o-Xylene	0.104	0.0050	"	0.0980	ND	106	31-151	0.717	38	
Xylenes (total)	0.315	0.010	"		ND		30-160	0.778	30	
Gasoline Range Hydrocarbons	5.08	0.50	"		0.195		30-160	5.47	30	
Surrogate: 1,2-Dichloroethane-d4	0.0372		"	0.0400		92.9	23-173			
Surrogate: Toluene-d8	0.0380		"	0.0400		95.0	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: Sandin V24

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/18 14:35

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 28, 2018

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Sandin V24

Enclosed are the results of analyses for samples received by Summit Scientific on 03/27/18 14:00. 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: Sandin V24

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/28/18 06:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS04@1'	1803323-01	Soil	03/27/18 09:22	03/27/18 14:00

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: Sandin V24

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/28/18 06:38

Summit Scientific

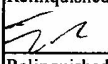
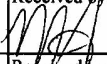
S₂

741 Corporate Circle, Suite J ♦ Golden, Colorado 80401 / 803323
303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: PDC / Tugman Project Manager: Mark Longhurst
Address: E-Mail: mark.longhurst@PDC.com
City/State/Zip:
Phone: Fax: Project Name: Sandin 242
Sampler Name: Tyler Blessing Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions	
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	LOTEX [®] (860)	DRD (TPH)			
1	SS04 @ 1'	3/27/18	09:22	1			X			X			X	X			
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Relinquished by: 	Date/Time: 3/27/18 1400	Received by: 	Date/Time: 3/27/18 1400	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/>	Notes: on ice
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: 0.5°C	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

www.s2scientific.com

Summit Scientific

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

Project: Sandin V24

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/28/18 06:38

Sample Receipt Checklist

S2 Work Order: 1903323
Client: PDC/Tasman Client Project ID: Sandin 2401
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>0.5</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

3/27/18 10:15
Date/Time



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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/28/18 06:38

SS04@1'
1803323-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/27/18 09:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1803303	03/27/18	03/27/18	8015M	

Date Sampled: **03/27/18 09:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/27/18 09:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1803304	03/27/18	03/27/18	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3.5	0.50	"	"	"	"	"	"	

Date Sampled: **03/27/18 09:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	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: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/28/18 06:38

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 1803303 - EPA 3550A

Blank (1803303-BLK1)

Prepared & Analyzed: 03/26/18

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 12.8 " 12.5 102 30-150

LCS (1803303-BS1)

Prepared & Analyzed: 03/26/18

C10-C28 (DRO) 553 50 mg/kg 499 111 73-134

Surrogate: o-Terphenyl 15.8 " 12.5 126 30-150

Matrix Spike (1803303-MS1)

Source: 1803297-01

Prepared & Analyzed: 03/26/18

C10-C28 (DRO) 478 50 mg/kg 499 37.8 88.1 50-148

Surrogate: o-Terphenyl 14.2 " 12.5 114 30-150

Matrix Spike Dup (1803303-MSD1)

Source: 1803297-01

Prepared & Analyzed: 03/26/18

C10-C28 (DRO) 532 50 mg/kg 499 37.8 99.1 50-148 10.8 20

Surrogate: o-Terphenyl 16.0 " 12.5 128 30-150

Summit Scientific

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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/28/18 06:38

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 1803304 - EPA 5030 Soil MS

Blank (1803304-BLK1)

Prepared & Analyzed: 03/27/18

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0409		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0390		"	0.0400		97.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.3	21-167			

LCS (1803304-BS1)

Prepared & Analyzed: 03/27/18

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0920	0.0020	"	0.100		92.0	58-130			
Toluene	0.0973	0.0050	"	0.100		97.3	61-134			
Ethylbenzene	0.112	0.0050	"	0.0992		113	74-139			
m,p-Xylene	0.214	0.010	"	0.200		107	73-137			
o-Xylene	0.103	0.0050	"	0.0980		105	73-141			
Xylenes (total)	0.317	0.010	"				0-200			
Gasoline Range Hydrocarbons	5.09	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0400		"	0.0400		99.9	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	21-167			

Matrix Spike (1803304-MS1)

Source: 1803306-01

Prepared & Analyzed: 03/27/18

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0949	0.0020	"	0.100	ND	94.9	30-131			
Toluene	0.0976	0.0050	"	0.100	ND	97.6	30-134			
Ethylbenzene	0.113	0.0050	"	0.0992	ND	114	22-153			
m,p-Xylene	0.218	0.010	"	0.200	ND	109	10-159			
o-Xylene	0.105	0.0050	"	0.0980	ND	107	31-151			
Xylenes (total)	0.323	0.010	"		ND		30-160			
Gasoline Range Hydrocarbons	5.19	0.50	"		ND		30-160			
Surrogate: 1,2-Dichloroethane-d4	0.0408		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	21-167			

Summit Scientific

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

Project: Sandin V24
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/28/18 06:38

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 1803304 - EPA 5030 Soil MS

Matrix Spike Dup (1803304-MSD1)		Source: 1803306-01			Prepared & Analyzed: 03/27/18					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0937	0.0020	"	0.100	ND	93.7	30-131	1.30	34	
Toluene	0.0992	0.0050	"	0.100	ND	99.2	30-134	1.52	30	
Ethylbenzene	0.114	0.0050	"	0.0992	ND	115	22-153	1.00	24	
m,p-Xylene	0.220	0.010	"	0.200	ND	110	10-159	0.768	68	
o-Xylene	0.104	0.0050	"	0.0980	ND	106	31-151	0.459	38	
Xylenes (total)	0.324	0.010	"		ND		30-160	0.371	30	
Gasoline Range Hydrocarbons	5.13	0.50	"		ND		30-160	1.18	30	
Surrogate: 1,2-Dichloroethane-d4	0.0408		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.1	21-167			

Summit Scientific

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

Project: Sandin V24

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/28/18 06:38

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