

TABLE 1
MILLER GJ 33-24
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth (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@7'	10/27/2014	7	0.021	<0.0050	<0.0050	<0.010	<0.010	<50
SS02@7'	10/27/2014	7	0.0032	<0.0050	<0.0050	<0.010	<0.010	<50
SS03@7'	10/29/2014	7	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS04@7'	10/29/2014	7	0.019	<0.0050	<0.0050	<0.010	<0.010	<50
SS05@7'	10/29/2014	7	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS06@7'	10/29/2014	7	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS07@7'	10/29/2014	7	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS08@7'	10/29/2014	7	0.048	<0.0050	<0.0050	<0.010	<0.010	0.59

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

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

TABLE 2
MILLER GJ 33-24
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
COGCC Table 910-1 Groundwater Standard (ug/L) ⁽¹⁾		5	560	700	1,400
GW01	11/3/2014	310	84	8.2	180
BH01	4/9/2015	3.0	<1.0	<1.0	<1.0
BH02	4/9/2015	<1.0	<1.0	<1.0	<1.0
BH03	4/9/2015	<1.0	<1.0	<1.0	<1.0
BH04	4/9/2015	<1.0	<1.0	<1.0	<1.0
BH05	4/9/2015	<1.0	<1.0	<1.0	1.0

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

COGCC = Colorado Oil and Gas Conservation Commission

ug/L = Micrograms per liter

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

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

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 28, 2014

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Miller GJ 33-24

Enclosed are the results of analyses for samples received by Summit Scientific on 10/27/14 18:12. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/28/14 06:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@7'	1410239-01	Soil	10/27/14 11:30	10/27/14 18:12
SS02@7'	1410239-02	Soil	10/27/14 11:40	10/27/14 18:12

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/28/14 06:43

Summit Scientific 1410239

S₂

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

Page (of)

Client: PDC Energy Project Manager: Brandon Bruns
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Miller GJ 33-24
Sampler Name: C. W. G. S. D. 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)	8260BTEX	NAT. GAS	8015 DO-D	
1	SS01 @ 7'	10/27/14	1130	1			X			X			X	X		
2	SS02 @ 7'	10/27/14	1140	1			X			X			X	X		
3																
4																
5																
6																
7																
8																
9																
10																

Relinquished by: <u>[Signature]</u>	Date/Time: <u>10/27/14 5:22</u>	Received by: <u>MD</u>	Date/Time: <u>10/27/14 1548</u>	Turn Around Time (Check)	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	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"/>	
				Sample Integrity: <u>From please!</u>	
				Temperature Upon Receipt: <u>4°C</u>	
				Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/28/14 06:43

SS01@7'
1410239-01 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **10/27/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1410295	10/27/14	10/28/14	8015 DRO	

Date Sampled: **10/27/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		83.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/27/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1410294	10/27/14	10/27/14	EPA 8260B	
Benzene	0.021	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/27/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/28/14 06:43

SS02@7'
1410239-02 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **10/27/14 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1410295	10/27/14	10/28/14	8015 DRO	

Date Sampled: **10/27/14 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		74.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/27/14 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1410294	10/27/14	10/27/14	EPA 8260B	
Benzene	0.0032	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/27/14 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 10/28/14 06:43

Total Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1410295 - EPA 3550A

Blank (1410295-BLK1)				Prepared: 10/27/14 Analyzed: 10/28/14							
C10-C28 (DRO)	ND	50	mg/kg								
LCS (1410295-BS1)				Prepared: 10/27/14 Analyzed: 10/28/14							
C10-C28 (DRO)	516	50	mg/kg	501		103	73-134				
LCS (1410295-BS2)				Prepared: 10/27/14 Analyzed: 10/28/14							
C10-C28 (DRO)	564	50	mg/kg	501		113	73-134				
Matrix Spike (1410295-MS1)				Source: 1410236-01		Prepared: 10/27/14 Analyzed: 10/28/14					
C10-C28 (DRO)	620	50	mg/kg	471	ND	132	50-148				
Matrix Spike (1410295-MS2)				Source: 1410236-02		Prepared: 10/27/14 Analyzed: 10/28/14					
C10-C28 (DRO)	601	50	mg/kg	489	ND	123	50-148				
Matrix Spike Dup (1410295-MSD1)				Source: 1410236-01		Prepared: 10/27/14 Analyzed: 10/28/14					
C10-C28 (DRO)	596	50	mg/kg	467	ND	127	50-148	4.05		13	
Matrix Spike Dup (1410295-MSD2)				Source: 1410236-02		Prepared: 10/27/14 Analyzed: 10/28/14					
C10-C28 (DRO)	590	50	mg/kg	484	ND	122	50-148	1.83		13	

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/28/14 06:43

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

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

Batch 1410294 - EPA 5030 Soil MS

Blank (1410294-BLK1)

Prepared & Analyzed: 10/27/14

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>0.0329</i>		<i>"</i>	<i>0.0396</i>		<i>83.2</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0395</i>		<i>"</i>	<i>0.0400</i>		<i>98.8</i>	<i>21-167</i>			

LCS (1410294-BS1)

Prepared & Analyzed: 10/27/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.115	0.0020	"	0.100		115	58-130			
Toluene	0.127	0.0050	"	0.100		127	61-134			
Ethylbenzene	0.127	0.0050	"	0.0992		128	74-139			
m,p-Xylene	0.251	0.010	"	0.200		126	73-137			
o-Xylene	0.126	0.0050	"	0.0984		128	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0326</i>		<i>"</i>	<i>0.0396</i>		<i>82.2</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0414</i>		<i>"</i>	<i>0.0400</i>		<i>104</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>			

LCS (1410294-BS2)

Prepared & Analyzed: 10/27/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.116	0.0020	"	0.100		116	58-130			
Toluene	0.126	0.0050	"	0.100		126	61-134			
Ethylbenzene	0.128	0.0050	"	0.0992		129	74-139			
m,p-Xylene	0.252	0.010	"	0.200		126	73-137			
o-Xylene	0.127	0.0050	"	0.0984		129	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0330</i>		<i>"</i>	<i>0.0396</i>		<i>83.3</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.6</i>	<i>21-167</i>			

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/28/14 06:43

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

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

Batch 1410294 - EPA 5030 Soil MS

Matrix Spike (1410294-MS1)

Source: 1410236-01

Prepared & Analyzed: 10/27/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.104	0.0020	"	0.0924	ND	113	30-131			
Toluene	0.114	0.0050	"	0.0924	ND	123	30-134			
Ethylbenzene	0.120	0.0050	"	0.0917	ND	131	22-153			
m,p-Xylene	0.235	0.010	"	0.184	ND	127	10-159			
o-Xylene	0.117	0.0050	"	0.0909	ND	129	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0297		"	0.0366		81.1	23-173			
Surrogate: Toluene-d8	0.0361		"	0.0370		97.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0350		"	0.0370		94.7	21-167			

Matrix Spike (1410294-MS2)

Source: 1410236-02

Prepared & Analyzed: 10/27/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.112	0.0020	"	0.0960	ND	117	30-131			
Toluene	0.121	0.0050	"	0.0960	ND	126	30-134			
Ethylbenzene	0.123	0.0050	"	0.0952	ND	129	22-153			
m,p-Xylene	0.240	0.010	"	0.192	ND	125	10-159			
o-Xylene	0.120	0.0050	"	0.0944	ND	128	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0324		"	0.0380		85.2	23-173			
Surrogate: Toluene-d8	0.0383		"	0.0384		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0384		95.2	21-167			

Matrix Spike Dup (1410294-MSD1)

Source: 1410236-01

Prepared & Analyzed: 10/27/14

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.108	0.0020	"	0.0945	ND	115	30-131	3.67	34	
Toluene	0.118	0.0050	"	0.0945	ND	125	30-134	3.74	30	
Ethylbenzene	0.122	0.0050	"	0.0938	ND	130	22-153	1.48	24	
m,p-Xylene	0.240	0.010	"	0.189	ND	127	10-159	2.18	68	
o-Xylene	0.120	0.0050	"	0.0930	ND	129	31-151	2.50	38	
Surrogate: 1,2-Dichloroethane-d4	0.0303		"	0.0374		80.8	23-173			
Surrogate: Toluene-d8	0.0374		"	0.0378		99.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0373		"	0.0378		98.7	21-167			

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 10/28/14 06:43

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

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

Batch 1410294 - EPA 5030 Soil MS

Matrix Spike Dup (1410294-MSD2)	Source: 1410236-02			Prepared & Analyzed: 10/27/14						
Naphthalene	ND	0.010	mg/kg	ND	ND	10-158			42	
Benzene	0.114	0.0020	"	0.0951	ND	120	30-131	1.81	34	
Toluene	0.123	0.0050	"	0.0951	ND	129	30-134	1.42	30	
Ethylbenzene	0.122	0.0050	"	0.0943	ND	130	22-153	0.184	24	
m,p-Xylene	0.242	0.010	"	0.190	ND	128	10-159	1.09	68	
o-Xylene	0.122	0.0050	"	0.0935	ND	130	31-151	0.892	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0324</i>		<i>"</i>	<i>0.0376</i>		<i>86.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0385</i>		<i>"</i>	<i>0.0380</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0370</i>		<i>"</i>	<i>0.0380</i>		<i>97.2</i>	<i>21-167</i>			

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/28/14 06:43

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

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.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 30, 2014

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Miller GJ 33-24

Enclosed are the results of analyses for samples received by Summit Scientific on 10/29/14 16:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/30/14 06:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS03@7'	1410282-01	Soil	10/29/14 10:00	10/29/14 16:15
SS04@7'	1410282-02	Soil	10/29/14 10:10	10/29/14 16:15
SS05@7'	1410282-03	Soil	10/29/14 10:20	10/29/14 16:15
SS06@7'	1410282-04	Soil	10/29/14 10:30	10/29/14 16:15
SS07@7'	1410282-05	Soil	10/29/14 10:40	10/29/14 16:15
SS08@7'	1410282-06	Soil	10/29/14 10:50	10/29/14 16:15

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/30/14 06:41

Summit Scientific 1410282

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Page 1 of 1

Client: PDC Energy
Address: _____ Project Manager: Brandon Bruns
City/State/Zip: _____ E-Mail: bbruns@petd.com
Phone: _____ Fax: _____ Project Name: Miller GJ 33-24
Sampler Name: C-114520 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)					
8803071	10/29/14	1000	1			X			X							
8804071		1010														
8805071		1020														
8806071		1030														
8807071		1040														
8808071		1050														
Relinquished by: _____ Date/Time: 10/29/14 1000				Received by: M.D. 10/29/14 1615				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:				
Relinquished by: _____ Date/Time: _____				Received by: _____ Date/Time: _____				Sample Integrity: Temperature Upon Receipt: 4°C Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No				7am phase!				

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/30/14 06:41

SS03@7'
1410282-01 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: 10/29/14 10:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1410326	10/29/14	10/29/14	8015 DRO	

Date Sampled: 10/29/14 10:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/29/14 10:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1410327	10/29/14	10/29/14	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: 10/29/14 10:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 10/30/14 06:41

SS04@7'
1410282-02 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **10/29/14 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1410326	10/29/14	10/29/14	8015 DRO	

Date Sampled: **10/29/14 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		99.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/29/14 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1410327	10/29/14	10/29/14	EPA 8260B	
Benzene	0.019	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/29/14 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/30/14 06:41

SS05@7'
1410282-03 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **10/29/14 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1410326	10/29/14	10/29/14	8015 DRO	

Date Sampled: **10/29/14 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/29/14 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1410327	10/29/14	10/29/14	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: **10/29/14 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	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: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/30/14 06:41

SS06@7'
1410282-04 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **10/29/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1410326	10/29/14	10/29/14	8015 DRO	

Date Sampled: **10/29/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/29/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1410327	10/29/14	10/29/14	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: **10/29/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		81.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/30/14 06:41

SS07@7'
1410282-05 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **10/29/14 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1410326	10/29/14	10/29/14	8015 DRO	

Date Sampled: **10/29/14 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/29/14 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1410327	10/29/14	10/29/14	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: **10/29/14 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		83.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.7 %	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: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/30/14 06:41

SS08@7'
1410282-06 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **10/29/14 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1410326	10/29/14	10/29/14	8015 DRO	

Date Sampled: **10/29/14 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/29/14 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1410327	10/29/14	10/29/14	EPA 8260B	
Benzene	0.048	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.59	0.50	"	"	"	"	"	"	

Date Sampled: **10/29/14 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		84.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	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: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 10/30/14 06:41

Total Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1410326 - EPA 3550A

Blank (1410326-BLK1)					Prepared: 10/29/14 Analyzed: 10/30/14					
C10-C28 (DRO)	ND	50	mg/kg							
LCS (1410326-BS1)					Prepared: 10/29/14 Analyzed: 10/30/14					
C10-C28 (DRO)	391	50	mg/kg	501	78.1	73-134				
LCS (1410326-BS2)					Prepared: 10/29/14 Analyzed: 10/30/14					
C10-C28 (DRO)	475	50	mg/kg	501	94.7	73-134				
Matrix Spike (1410326-MS1)					Prepared: 10/29/14 Analyzed: 10/30/14					
C10-C28 (DRO)	422	50	mg/kg	501	42.7	75.6	50-148			
Matrix Spike Dup (1410326-MSD1)					Prepared: 10/29/14 Analyzed: 10/30/14					
C10-C28 (DRO)	408	50	mg/kg	501	42.7	72.9	50-148	3.29	13	

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/30/14 06:41

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

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

Batch 1410327 - EPA 5030 Soil MS

Blank (1410327-BLK1)

Prepared: 10/29/14 Analyzed: 10/30/14

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>0.0314</i>		<i>"</i>	<i>0.0396</i>		<i>79.3</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0386</i>		<i>"</i>	<i>0.0400</i>		<i>96.5</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0386</i>		<i>"</i>	<i>0.0400</i>		<i>96.4</i>	<i>21-167</i>			

LCS (1410327-BS1)

Prepared: 10/29/14 Analyzed: 10/30/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.118	0.0020	"	0.100		118	58-130			
Toluene	0.125	0.0050	"	0.100		125	61-134			
Ethylbenzene	0.125	0.0050	"	0.0992		126	74-139			
m,p-Xylene	0.247	0.010	"	0.200		124	73-137			
o-Xylene	0.122	0.0050	"	0.0984		124	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0328</i>		<i>"</i>	<i>0.0396</i>		<i>82.7</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0401</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0372</i>		<i>"</i>	<i>0.0400</i>		<i>93.0</i>	<i>21-167</i>			

LCS (1410327-BS2)

Prepared: 10/29/14 Analyzed: 10/30/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.114	0.0020	"	0.100		114	58-130			
Toluene	0.123	0.0050	"	0.100		123	61-134			
Ethylbenzene	0.126	0.0050	"	0.0992		127	74-139			
m,p-Xylene	0.250	0.010	"	0.200		125	73-137			
o-Xylene	0.124	0.0050	"	0.0984		126	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0325</i>		<i>"</i>	<i>0.0396</i>		<i>82.0</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>0.0374</i>		<i>"</i>	<i>0.0400</i>		<i>93.4</i>	<i>21-167</i>			

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/30/14 06:41

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

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

Batch 1410327 - EPA 5030 Soil MS

Matrix Spike (1410327-MS1)

Source: 1410281-01

Prepared: 10/29/14 Analyzed: 10/30/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.114	0.0020	"	0.100	0.00306	111	30-131			
Toluene	0.123	0.0050	"	0.100	0.0163	107	30-134			
Ethylbenzene	0.127	0.0050	"	0.0992	ND	128	22-153			
m,p-Xylene	0.253	0.010	"	0.200	0.00684	124	10-159			
o-Xylene	0.126	0.0050	"	0.0984	ND	128	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0321		"	0.0396		81.0	23-173			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.8	21-167			

Matrix Spike (1410327-MS2)

Source: 1410281-01

Prepared: 10/29/14 Analyzed: 10/30/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.117	0.0020	"	0.100	0.00306	114	30-131			
Toluene	0.125	0.0050	"	0.100	0.0163	109	30-134			
Ethylbenzene	0.126	0.0050	"	0.0992	ND	127	22-153			
m,p-Xylene	0.251	0.010	"	0.200	0.00684	122	10-159			
o-Xylene	0.125	0.0050	"	0.0984	ND	128	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0331		"	0.0396		83.5	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400		96.4	21-167			

Matrix Spike Dup (1410327-MSD1)

Source: 1410281-01

Prepared: 10/29/14 Analyzed: 10/30/14

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.117	0.0020	"	0.100	0.00306	114	30-131	2.18	34	
Toluene	0.126	0.0050	"	0.100	0.0163	109	30-134	2.00	30	
Ethylbenzene	0.125	0.0050	"	0.0992	ND	126	22-153	1.59	24	
m,p-Xylene	0.248	0.010	"	0.200	0.00684	121	10-159	2.17	68	
o-Xylene	0.125	0.0050	"	0.0984	ND	127	31-151	0.787	38	
Surrogate: 1,2-Dichloroethane-d4	0.0329		"	0.0396		83.2	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0376		"	0.0400		94.1	21-167			

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 10/30/14 06:41

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

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

Batch 1410327 - EPA 5030 Soil MS

Matrix Spike Dup (1410327-MSD2)	Source: 1410281-01			Prepared: 10/29/14	Analyzed: 10/30/14					
Naphthalene	ND	0.010	mg/kg	ND	10-158					42
Benzene	0.120	0.0020	"	0.100	0.00306	117	30-131	2.31		34
Toluene	0.125	0.0050	"	0.100	0.0163	109	30-134	0.0240		30
Ethylbenzene	0.128	0.0050	"	0.0992	ND	129	22-153	1.16		24
m,p-Xylene	0.253	0.010	"	0.200	0.00684	124	10-159	1.08		68
o-Xylene	0.126	0.0050	"	0.0984	ND	128	31-151	0.453		38
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0332</i>		<i>"</i>	<i>0.0396</i>		<i>83.9</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>0.0381</i>		<i>"</i>	<i>0.0400</i>		<i>95.2</i>	<i>21-167</i>			

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/30/14 06:41

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

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.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 03, 2014

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Miller GJ 33-24

Enclosed are the results of analyses for samples received by Summit Scientific on 11/03/14 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/03/14 21:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	1411007-01	Water	11/03/14 10:00	11/03/14 17:00

Summit Scientific 1411007

741 Corporate Circle Suite 1 • Golden, Colorado 80401
303-277-9310 • 303-374-5933 Fax

Page 1 of 1

Client: PDC/Tasman
Address: 6899 Beacon St W.F.C
City/State/Zip: Denver, CO 80221
Phone: 970 303 487 1228 Fax:
Sampler Name: Andrew T. Fisher

Project Manager: BRANDON BRUNS
E-Mail: BRANDON.BRUNS@pdc.com
Project Name: MILLER GJ 33-24
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)	8260 BTEX	8260B GBTEXN		8015 DRO	
GW01	11/3/14	10:00	3	<input checked="" type="checkbox"/>												
Relinquished by: <u>[Signature]</u>	Date/Time: <u>11/3/14 13:36</u>	Received by: <u>[Signature]</u>	Date/Time: <u>11/3/14 1700</u>	Turn Around Time (Check)			Notes:									
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day	<input checked="" type="checkbox"/>	72 Hours		<input type="checkbox"/>								
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	24 Hours	<input type="checkbox"/>	Standard		<input type="checkbox"/>								
				Sample Integrity:												
				Temperature Upon Receipt: <u>1°C</u>												
				Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 11/03/14 21:42

GW01
1411007-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 11/03/14 10:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	310	1.0	ug/l	1	1411018	11/03/14	11/03/14	EPA 8260B	
Toluene	84	1.0	"	"	"	"	"	"	
Ethylbenzene	8.2	1.0	"	"	"	"	"	"	
Xylenes (total)	180	1.0	"	"	"	"	"	"	

Date Sampled: 11/03/14 10:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		108 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		111 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
11/03/14 21:42

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1411018 - EPA 5030 Water MS

Blank (1411018-BLK1)

Prepared & Analyzed: 11/03/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	10.8		"	13.2		82.1	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		96.9	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.9	45-146			

LCS (1411018-BS1)

Prepared & Analyzed: 11/03/14

Benzene	37.0	1.0	ug/l	33.3		111	51-132			
Toluene	40.1	1.0	"	33.3		120	51-138			
Ethylbenzene	41.4	1.0	"	33.1		125	58-146			
m,p-Xylene	81.9	2.0	"	66.5		123	57-144			
o-Xylene	41.2	1.0	"	32.8		126	53-146			
Surrogate: 1,2-Dichloroethane-d4	10.5		"	13.2		79.4	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		96.6	45-149			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		97.0	45-146			

Matrix Spike (1411018-MS1)

Source: 1411007-01

Prepared & Analyzed: 11/03/14

Benzene	193	1.0	ug/l	33.3	308	NR	34-141			QM-07
Toluene	82.4	1.0	"	33.3	83.5	NR	27-151			QM-07
Ethylbenzene	60.9	1.0	"	33.1	8.23	159	29-160			
m,p-Xylene	261	2.0	"	66.5	138	186	20-166			QM-07
o-Xylene	91.4	1.0	"	32.8	44.3	144	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.2		"	13.2		85.2	37-154			
Surrogate: Toluene-d8	14.0		"	13.3		105	45-149			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		96.4	45-146			

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 11/03/14 21:42

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

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

Batch 1411018 - EPA 5030 Water MS

Matrix Spike Dup (1411018-MSD1)	Source: 1411007-01			Prepared & Analyzed: 11/03/14						
Benzene	181	1.0	ug/l	33.3	308	NR	34-141	6.19	32	QM-07
Toluene	80.1	1.0	"	33.3	83.5	NR	27-151	2.90	25	QM-07
Ethylbenzene	59.7	1.0	"	33.1	8.23	156	29-160	1.96	50	
m,p-Xylene	250	2.0	"	66.5	138	169	20-166	4.37	36	QM-07
o-Xylene	88.2	1.0	"	32.8	44.3	134	33-159	3.52	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>11.0</i>		<i>"</i>	<i>13.2</i>		<i>83.6</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>14.2</i>		<i>"</i>	<i>13.3</i>		<i>106</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.4</i>	<i>45-146</i>			

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/03/14 21:42

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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

April 16, 2015

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Miller GJ 33-24

Enclosed are the results of analyses for samples received by Summit Scientific on 04/09/15 16:30. 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', written in a cursive style.

Paul Shrewsbury
President



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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/16/15 14:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1504099-01	Water	04/09/15 11:00	04/09/15 16:30
BH02	1504099-02	Water	04/09/15 11:05	04/09/15 16:30
BH03	1504099-03	Water	04/09/15 11:10	04/09/15 16:30
BH04	1504099-04	Water	04/09/15 11:15	04/09/15 16:30
BH05	1504099-05	Water	04/09/15 11:20	04/09/15 16:30

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/16/15 14:16

Summit Scientific

1504099

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

Page 1 of 1

Client: PDC Energy
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____
Sampler Name: Elliott Diller-Herzog

Project Manager: Brandon Bruns
E-Mail: brandon.bruns@pdce.com
Project Name: Miller GJ 33-24
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)					
BH01	04/09/15	11:00	3	X				X								
BH02		11:05	3													
BH03		11:10	2													
BH04		11:15	3													
BH05		11:20	3					X								

Relinquished by: [Signature] Date/Time: 04/09/15 16:00 Received by: [Signature] Date/Time: 4/9/15 1430 Turn Around Time (Check): Same Day 24 Hours 48 Hours 72 Hours Standard Notes: on ice

Relinquished by: [Signature] Date/Time: 4/9/15 1800 Received by: A-G Date/Time: 1800 Sample Integrity: Temperature Upon Receipt: 5.9°C Intact: Yes No

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 04/16/15 14:16

Sample Receipt Checklist

S2 Work Order: 1504099

Client: PDC Client Project ID: Miller GJ 33-24

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

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

Cooler ID					
Temp (°C)	<u>5.9</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.	X			
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
If custody seals are present, are they intact ⁽¹⁾ ?			X	
Are short holding time analytes or samples with HTs due within 48 hours present?			X	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, etc.	X			HCl
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			X	
Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				

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

Ben Shrawsbury
 Custodian Printed Name

Signature or Initials of Custodian

4/16/15 1950
 Date/Time



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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 04/16/15 14:16

BH01
1504099-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/09/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	3.0	1.0	ug/l	1	1504123	04/15/15	04/15/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/09/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.6 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.7 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		110 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 04/16/15 14:16

BH02
1504099-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/09/15 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1504123	04/15/15	04/15/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/09/15 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		96.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		112 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Bruns

Reported:
 04/16/15 14:16

BH03
1504099-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/09/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1504123	04/15/15	04/15/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/09/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.8 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.1 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		110 %	45-146		"	"	"	"	

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 04/16/15 14:16

BH04
1504099-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/09/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1504123	04/16/15	04/16/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/09/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.8 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.5 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		110 %	45-146		"	"	"	"	

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 04/16/15 14:16

BH05
1504099-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/09/15 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1504123	04/16/15	04/16/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	1.0	1.0	"	"	"	"	"	"	

Date Sampled: **04/09/15 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		97.9 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.5 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		112 %	45-146		"	"	"	"	

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

Project: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/16/15 14:16

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1504123 - EPA 5030 Water MS

Blank (1504123-BLK1)

Prepared & Analyzed: 04/11/15

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	1.0	"								
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.2		97.4	37-154				
Surrogate: Toluene-d8	13.0		"	13.3		97.7	45-149				
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.3	45-146				

LCS (1504123-BS1)

Prepared & Analyzed: 04/11/15

Benzene	46.1	1.0	ug/l	50.0		92.2	51-132				
Toluene	47.2	1.0	"	50.0		94.5	51-138				
Ethylbenzene	47.4	1.0	"	50.0		94.9	58-146				
m,p-Xylene	96.8	2.0	"	100		96.8	57-144				
o-Xylene	48.6	1.0	"	50.0		97.1	53-146				
Surrogate: 1,2-Dichloroethane-d4	11.8		"	13.2		89.8	37-154				
Surrogate: Toluene-d8	13.2		"	13.3		98.7	45-149				
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.6	45-146				

Matrix Spike (1504123-MS1)

Source: 1504047-01

Prepared & Analyzed: 04/11/15

Benzene	47.2	1.0	ug/l	50.0	ND	94.3	34-141				
Toluene	48.0	1.0	"	50.0	ND	95.9	27-151				
Ethylbenzene	48.7	1.0	"	50.0	ND	97.4	29-160				
m,p-Xylene	99.3	2.0	"	100	ND	99.3	20-166				
o-Xylene	50.1	1.0	"	50.0	ND	100	33-159				
Surrogate: 1,2-Dichloroethane-d4	11.7		"	13.2		88.9	37-154				
Surrogate: Toluene-d8	13.2		"	13.3		99.2	45-149				
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.1	45-146				

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

Project: Miller GJ 33-24

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 04/16/15 14:16

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

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

Batch 1504123 - EPA 5030 Water MS

Matrix Spike Dup (1504123-MSD1)	Source: 1504047-01			Prepared & Analyzed: 04/11/15						
Benzene	48.3	1.0	ug/l	50.0	ND	96.7	34-141	2.47	32	
Toluene	49.6	1.0	"	50.0	ND	99.3	27-151	3.46	25	
Ethylbenzene	49.8	1.0	"	50.0	ND	99.7	29-160	2.29	50	
m,p-Xylene	101	2.0	"	100	ND	101	20-166	1.96	36	
o-Xylene	51.5	1.0	"	50.0	ND	103	33-159	2.72	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>11.9</i>		<i>"</i>	<i>13.2</i>		<i>90.5</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.2</i>		<i>"</i>	<i>13.3</i>		<i>99.0</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>13.1</i>		<i>"</i>	<i>13.3</i>		<i>98.3</i>	<i>45-146</i>			

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: Miller GJ 33-24

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/16/15 14:16

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