

0 750 1,500 Feet



## Figure 1

Site Location Map  
Waste Management 2L-421  
SESW S2 T2N R64W  
Weld County, Colorado

Drawn By: DBA  
Date: 03/17/2014





Surface  
Drainage



DRAWN BY: CAW


DATE: 3/27/2014

**Facility Diagram**  
PDC Energy, Inc.  
Waste Management 2L-421  
SESW S2 T2N R64W  
Weld County, CO



6899 Pecos Street, Unit C  
Denver, CO 80221

LEGEND

-  Approximate Area of Release  
**X** Soil Sample Location – Collected at 1 foot bgs

**FIGURE 2**

SAMPLE  
LOCATION MAP

**TABLE 1**  
**WASTE MANAGEMENT 2L-421**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth (Feet bgs)	PID Readings (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(2)</sup> (mg/kg)
SS01	3/27/2014	1	7.2	<0.002	<0.005	<0.005	<0.010	<0.010	<50
SS02	3/27/2014	1	3.0	<0.002	<0.005	<0.005	<0.010	<0.010	<50
SS03	3/27/2014	1	1.8	<0.002	<0.005	<0.005	<0.010	<0.010	<50
SS04	3/27/2014	1	6.4	<0.002	<0.005	<0.005	<0.010	<0.010	<50
<b>COGCC standards for soil (mg/kg) <sup>(1)</sup></b>				<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	<b>500</b>

Notes:

1). Standards for Soil are taken from 2 CCR 404-1, Table 910-1, effective April 1, 2009.

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

GRO - Gasoline range organics.

DRO - Diesel range organics.

mg/kg - Milligrams per kilogram.

bgs - Below ground surface.

ppm - Parts per million

**Bold** red values indicate an exceedance of the COGCC soil standards for the Site.

## **ATTACHMENT A**

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 01, 2014

Brandon Bruns

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Waste Management 2L-421

Enclosed are the results of analyses for samples received by Summit Scientific on 03/27/14 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 be 'BS' or 'Shrewsbury', written in a cursive style.

Ben Shrewsbury

President / Laboratory Manager



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

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/01/14 23:32

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@1'	1403242-01	Soil	03/27/14 13:50	03/27/14 17:00
SS02@1'	1403242-02	Soil	03/27/14 13:55	03/27/14 17:00
SS03@1'	1403242-03	Soil	03/27/14 14:00	03/27/14 17:00
SS04@1'	1403242-04	Soil	03/27/14 14:05	03/27/14 17:00

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

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
04/01/14 23:32

Summit Scientific  
341 Corporate Circle Suite 1 • Golden, Colorado 80401  
303.277.9310 • 303.374.9933 Fax

1403242

Page 1 of 1

Client: PDC Energy  
Address:  
City/State/Zip:  
Phone:  
Fax:  
Sample Name: C:\MSR\242

Project Manager: Brandon Bruns  
E-Mail:  
Project Name: Waste Management 2L-421  
Project Number:

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix	Analyze For:	Special Instructions
				HCl	HNO <sub>3</sub>	Zone	Other (Specify)			
880101	4/24/14	1550	1					Soil		
880201	4/24/14	1355	1					Groundwater		
880301	4/24/14	1400	1					Other (Specify)		
880401	4/24/14	1405	1					Air - Canister Serial #		

Other (Specify): 8200 BTEX MW, L.P.

8/21/14 1700

Received by: [Signature] Date/Time: 8/21/14 1700

Received by: [Signature] Date/Time: 8/21/14 1700

Received by: [Signature] Date/Time: 8/21/14 1700

Turn Around Time (Check): ☒ 72 hours ☒ Standard

Simple Integrity: ☒ Temperature Upon Receipt: 2°C

Intact: ☒ No

Relinquished by: [Signature] Date/Time: 8/21/14 1430

Relinquished by: [Signature] Date/Time: 8/21/14 1430

Relinquished by: [Signature] Date/Time: 8/21/14 1430

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[Signature]





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

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
04/01/14 23:32

**SS01@1'**  
**1403242-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/27/14 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403248	03/28/14	03/30/14	8015M	

Date Sampled: **03/27/14 13:50**

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

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

Date Sampled: **03/27/14 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403247	03/28/14	03/28/14	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: **03/27/14 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		89.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.9 %	21-167		"	"	"	"	

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

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/01/14 23:32

**SS02@1'**  
**1403242-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/27/14 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403248	03/28/14	03/30/14	8015M	

Date Sampled: **03/27/14 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		115 %	30-150		"	"	"	"	

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

Date Sampled: **03/27/14 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403247	03/28/14	03/28/14	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: **03/27/14 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.8 %	21-167		"	"	"	"	

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

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
04/01/14 23:32

**SS03@1'**  
**1403242-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/27/14 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403248	03/28/14	03/30/14	8015M	

Date Sampled: **03/27/14 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

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

Date Sampled: **03/27/14 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403247	03/28/14	03/29/14	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: **03/27/14 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		89.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.9 %	21-167		"	"	"	"	

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1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
04/01/14 23:32

**SS04@1'**  
**1403242-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **03/27/14 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403248	03/28/14	03/30/14	8015M	

Date Sampled: **03/27/14 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

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

Date Sampled: **03/27/14 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403247	03/28/14	03/29/14	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: **03/27/14 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.7 %	21-167		"	"	"	"	

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

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/01/14 23:32

**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 1403248 - EPA 3550A**

**Blank (1403248-BLK1)**

Prepared: 03/28/14 Analyzed: 03/30/14

C10-C28 (DRO) ND 50 mg/kg

**LCS (1403248-BS1)**

Prepared: 03/28/14 Analyzed: 03/30/14

C10-C28 (DRO) 515 50 mg/kg 495 104 73-134

**Matrix Spike (1403248-MS1)**

**Source: 1403242-01**

Prepared: 03/28/14 Analyzed: 03/30/14

C10-C28 (DRO) 440 50 mg/kg 488 ND 90.0 50-148

**Matrix Spike Dup (1403248-MSD1)**

**Source: 1403242-01**

Prepared: 03/28/14 Analyzed: 03/30/14

C10-C28 (DRO) 429 50 mg/kg 483 ND 88.9 50-148 2.39 13

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

Project: Waste Management 2L-421  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
04/01/14 23:32

**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 1403247 - EPA 5030 Soil MS**

**Blank (1403247-BLK1)**

Prepared & Analyzed: 03/28/14

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0228		"	0.0387	59.0	23-173				
Surrogate: Toluene-d8	0.0390		"	0.0390	100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0361		"	0.0390	92.7	21-167				

**LCS (1403247-BS1)**

Prepared & Analyzed: 03/28/14

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.101	0.0020	"	0.0977	104	58-130				
Toluene	0.108	0.0050	"	0.0977	111	61-134				
Ethylbenzene	0.125	0.0050	"	0.0977	128	74-139				
m,p-Xylene	0.259	0.010	"	0.195	132	73-137				
o-Xylene	0.125	0.0050	"	0.0977	128	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0342		"	0.0388	88.3	23-173				
Surrogate: Toluene-d8	0.0377		"	0.0391	96.5	20-170				
Surrogate: 4-Bromofluorobenzene	0.0340		"	0.0391	87.1	21-167				

**Matrix Spike (1403247-MS1)**

Source: 1403241-01

Prepared: 03/28/14 Analyzed: 03/29/14

Naphthalene	ND	0.010	mg/kg		ND	10-158				
Benzene	0.109	0.0020	"	0.0952	ND	114	30-131			
Toluene	0.105	0.0050	"	0.0952	ND	110	30-134			
Ethylbenzene	0.109	0.0050	"	0.0952	ND	114	22-153			
m,p-Xylene	0.216	0.010	"	0.190	ND	114	10-159			
o-Xylene	0.108	0.0050	"	0.0952	ND	113	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0378	112	23-173				
Surrogate: Toluene-d8	0.0383		"	0.0381	100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0381	102	21-167				

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

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/01/14 23:32

**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 1403247 - EPA 5030 Soil MS**

Matrix Spike Dup (1403247-MSD1)				Source: 1403241-01		Prepared: 03/28/14		Analyzed: 03/29/14		
Naphthalene	ND	0.010	mg/kg		ND		10-158			42
Benzene	0.0880	0.0020	"	0.0962	ND	91.5	30-131	21.3		34
Toluene	0.0829	0.0050	"	0.0962	ND	86.3	30-134	23.4		30
Ethylbenzene	0.0807	0.0050	"	0.0962	ND	83.9	22-153	29.6		24
m,p-Xylene	0.160	0.010	"	0.192	ND	83.0	10-159	30.2		68
o-Xylene	0.0817	0.0050	"	0.0962	ND	84.9	31-151	27.8		38
Surrogate: 1,2-Dichloroethane-d4	0.0445		"	0.0382		117	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0385		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0385		107	21-167			

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

Project: Waste Management 2L-421

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/01/14 23:32

### 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

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