

TABLE 1
ROTHE 13-29U WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth (inches bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH ⁽²⁾ (mg/kg)	pH (units)	EC (mmhos/cm)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	23	500	6-9	<4
SS01 @ 3"	2/8/2016	3	0.011	0.013	<0.0050	<0.010	<0.010	<50	7.82	1.17
SS02 @ 3"	2/8/2016	3	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	8.17	1.25
SS03 @ 3"	2/8/2016	3	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	7.86	1.43
SS04 @ 3"	2/8/2016	3	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	8.19	1.31
SS05 @ 3"	2/8/2016	3	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	8.07	1.59

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

EC = Electrical conductivity

mmhos/cm = millimhos per centimeter

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

February 09, 2016

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Rothe 13-29U Wellhead

Enclosed are the results of analyses for samples received by Summit Scientific on 02/08/16 18:05. 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: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@3"	1602042-01	Soil	02/08/16 15:45	02/08/16 18:05
SS02@0.25'	1602042-02	Soil	02/08/16 15:48	02/08/16 18:05
SS03@0.25'	1602042-03	Soil	02/08/16 15:51	02/08/16 18:05
SS04@0.25'	1602042-04	Soil	02/08/16 15:54	02/08/16 18:05
SS05@0.25'	1602042-05	Soil	02/08/16 15:57	02/08/16 18:05

Case Narrative

Client: PDC Energy

Project: Rothe 13-29U Wellhead

Report Number 1602042

Per client request via email dated 2/9/16 from Christine Wasko, the sample ID and project name in this report have been changed in the following manner:

SS01@0.25' to SS01@3"

Rothe 13-29V Wellhead to Rothe 13-29U Wellhead

Summit Scientific

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

Project: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS01@3"
1602042-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/08/16 15:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1602071	02/08/16	02/08/16	8015M	

Date Sampled: 02/08/16 15:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 02/08/16 15:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1602070	"	02/08/16	EPA 8260B	
Benzene	0.011	0.0020	"	"	"	"	"	"	
Toluene	0.013	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 02/08/16 15:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.6 %	21-167		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 02/08/16 15:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.17	0.0100	mmhos/cm	1	1602073	02/08/16	02/08/16	SM 2510B	

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

Project: Rothe 13-29U Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS01@3"
1602042-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/08/16 15:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.82	0.100	pH Units	1	1602072	02/08/16	02/08/16	EPA 9045	

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

Project: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS02@0.25'
1602042-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/08/16 15:48

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1602071	02/08/16	02/09/16	8015M	

Date Sampled: 02/08/16 15:48

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		90.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 02/08/16 15:48

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1602070	"	02/09/16	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: 02/08/16 15:48

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 02/08/16 15:48

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.25	0.0100	mmhos/cm	1	1602073	02/08/16	02/08/16	SM 2510B	

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

Project: Rothe 13-29U Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS02@0.25'
1602042-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/08/16 15:48**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.17	0.100	pH Units	1	1602072	02/08/16	02/08/16	EPA 9045	

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS03@0.25'
1602042-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/08/16 15:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1602071	02/08/16	02/09/16	8015M	

Date Sampled: **02/08/16 15:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		92.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/08/16 15:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1602070	"	02/09/16	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: **02/08/16 15:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/08/16 15:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.43	0.0100	mmhos/cm	1	1602073	02/08/16	02/08/16	SM 2510B	

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

Project: Rothe 13-29U Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS03@0.25'
1602042-03 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/08/16 15:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.86	0.100	pH Units	1	1602072	02/08/16	02/08/16	EPA 9045	

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Denver CO, 80203

Project: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS04@0.25'
1602042-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/08/16 15:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1602071	02/08/16	02/09/16	8015M	

Date Sampled: **02/08/16 15:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		90.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/08/16 15:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1602070	"	02/09/16	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: **02/08/16 15:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/08/16 15:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.31	0.0100	mmhos/cm	1	1602073	02/08/16	02/08/16	SM 2510B	

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

Project: Rothe 13-29U Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS04@0.25'
1602042-04 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/08/16 15:54**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.19	0.100	pH Units	1	1602072	02/08/16	02/08/16	EPA 9045	

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

Project: Rothe 13-29U Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS05@0.25'
1602042-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/08/16 15:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1602071	02/08/16	02/09/16	8015M	

Date Sampled: 02/08/16 15:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 02/08/16 15:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1602070	"	02/09/16	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: 02/08/16 15:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 02/08/16 15:57

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.59	0.0100	mmhos/cm	1	1602073	02/08/16	02/08/16	SM 2510B	

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

Project: Rothe 13-29U Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

SS05@0.25'
1602042-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/08/16 15:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.07	0.100	pH Units	1	1602072	02/08/16	02/08/16	EPA 9045	

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

Project: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1602071 - EPA 3550A

Blank (1602071-BLK1)

Prepared & Analyzed: 02/08/16

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.0		"	12.5		96.0	30-150			

LCS (1602071-BS1)

Prepared & Analyzed: 02/08/16

C10-C28 (DRO)	442	50	mg/kg	499		88.5	73-134			
Surrogate: o-Terphenyl	11.5		"	12.5		91.8	30-150			

Matrix Spike (1602071-MS1)

Source: 1602039-01

Prepared & Analyzed: 02/08/16

C10-C28 (DRO)	433	50	mg/kg	459	25.3	88.7	50-148			
Surrogate: o-Terphenyl	10.9		"	11.5		94.6	30-150			

Matrix Spike Dup (1602071-MSD1)

Source: 1602039-01

Prepared & Analyzed: 02/08/16

C10-C28 (DRO)	437	50	mg/kg	481	25.3	85.5	50-148	0.809	13	
Surrogate: o-Terphenyl	11.0		"	12.0		91.2	30-150			

Summit Scientific

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

Project: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

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

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

Batch 1602070 - EPA 5030 Soil MS

Blank (1602070-BLK1)

Prepared & Analyzed: 02/08/16

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>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>97.9</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0392</i>		<i>"</i>	<i>0.0400</i>		<i>97.9</i>	<i>21-167</i>			

LCS (1602070-BS1)

Prepared & Analyzed: 02/08/16

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.127	0.0020	"	0.100		127	58-130			
Toluene	0.129	0.0050	"	0.100		129	61-134			
Ethylbenzene	0.139	0.0050	"	0.0992		140	74-139			
m,p-Xylene	0.255	0.010	"	0.200		128	73-137			
o-Xylene	0.127	0.0050	"	0.0984		129	73-141			
Xylenes (total)	0.382	0.010	"				0-200			
Gasoline Range Hydrocarbons	2.10	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>21-167</i>			

Matrix Spike (1602070-MS1)

Source: 1602039-01

Prepared & Analyzed: 02/08/16

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.118	0.0020	"	0.0935	ND	126	30-131			
Toluene	0.122	0.0050	"	0.0935	ND	130	30-134			
Ethylbenzene	0.130	0.0050	"	0.0927	ND	141	22-153			
m,p-Xylene	0.241	0.010	"	0.187	ND	129	10-159			
o-Xylene	0.121	0.0050	"	0.0920	ND	132	31-151			
Xylenes (total)	0.362	0.010	"		ND		30-160			
Gasoline Range Hydrocarbons	2.46	0.50	"		ND		30-160			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0393</i>		<i>"</i>	<i>0.0374</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0379</i>		<i>"</i>	<i>0.0374</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0370</i>		<i>"</i>	<i>0.0374</i>		<i>98.9</i>	<i>21-167</i>			

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

Project: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

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

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

Batch 1602070 - EPA 5030 Soil MS

Matrix Spike Dup (1602070-MSD1)		Source: 1602039-01			Prepared & Analyzed: 02/08/16					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.115	0.0020	"	0.0901	ND	128	30-131	2.25	34	
Toluene	0.120	0.0050	"	0.0901	ND	133	30-134	1.73	30	
Ethylbenzene	0.127	0.0050	"	0.0894	ND	142	22-153	2.81	24	
m,p-Xylene	0.236	0.010	"	0.180	ND	131	10-159	2.01	68	
o-Xylene	0.117	0.0050	"	0.0886	ND	132	31-151	3.35	38	
Xylenes (total)	0.353	0.010	"		ND		30-160	2.45	30	
Gasoline Range Hydrocarbons	2.53	0.50	"		ND		30-160	2.98	30	
Surrogate: 1,2-Dichloroethane-d4	0.0379		"	0.0360		105	23-173			
Surrogate: Toluene-d8	0.0364		"	0.0360		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0353		"	0.0360		98.0	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: Rothe 13-29U Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

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

Batch 1602072 - General Preparation

LCS (1602072-BS1)

Prepared & Analyzed: 02/08/16

pH	6.14	0.100	pH Units	6.00	102	95-105
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Duplicate (1602072-DUP1)

Source: 1602040-01

Prepared & Analyzed: 02/08/16

pH	7.56	0.100	pH Units	7.54	0.265	20
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Batch 1602073 - General Preparation

Blank (1602073-BLK1)

Prepared & Analyzed: 02/08/16

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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LCS (1602073-BS1)

Prepared & Analyzed: 02/08/16

Specific Conductance (EC)	0.499	0.0100	mmhos/cm	0.500	99.8	90-110
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Duplicate (1602073-DUP1)

Source: 1602040-01

Prepared & Analyzed: 02/08/16

Specific Conductance (EC)	0.162	0.0100	mmhos/cm	0.181	11.0	20
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Rothe 13-29U Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
02/09/16 16:19

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

Summit Scientific

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

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