

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



FOR OGCC USE ONLY

RECEIVED
2/10/2013**SPILL/RELEASE REPORT**

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and

Spill report taken by:

FACILITY ID:
323056**OPERATOR INFORMATION**

Name of Operator: PDC Energy, Inc.	OGCC Operator No: 69175	Phone Numbers
Address: 1775 Sherman Street, Suite 3000		No: (303) 831-3971
City: Denver	State: CO Zip: 80203	Fax: (303) 860-5838
Contact Person: Brandon Bruns		Email: brandon.bruns@pdce.com

DESCRIPTION OF SPILL OR RELEASE

Date of Incident: 1/25/2013	Facility Name & No: Plumb 1 & 2	County: Weld
Type of Facility (well, tank battery, flow line, pit): Tank Battery		QtrQtr: NWNW Section: 8
Well Name and Number: Plumb 1 & 2		Township: 5N Range: 64W
API Number: 05-123-12500		Meridian: 6th

Specify volume spilled and recovered (in bbls) for the following materials:

Oil spilled: 72	Oil recov'd: 0	Water spilled: 0	Water recov'd: 0	Other spilled: 0	Other recov'd: 0
-----------------	----------------	------------------	------------------	------------------	------------------

Ground Water impacted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Surface Water impacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Contained within berm? ☐ Yes ☒ No Area and vertical extent of spill: ~378 ft² x ~6' bgs

Current land use: Oil and Gas Production Facility/Agriculture/Livestock Weather conditions: High 30s

Soil/geology description: Aquolls and Aquents gravelly substratum, 0 to 3 percent slopes

IF LESS THAN A MILE, report distance **IN FEET** to nearest ... Surface water: ~500' N Wetlands: NA Buildings: ~100' SE

Livestock: ~150' E Water wells: ~387' SW Depth to shallowest ground water: ~6 feet

Cause of spill (e.g. equipment failure, human error, etc.): Equipment failure Detailed description of the spill/release incident:

On January 25, 2013, a condensate release was discovered during a daily inspection at the Plumb 1 & 2 tank battery. Wells Plumb 1 (API # 05-123-12500) and Plumb 2 (API # 05-123-13078) produce to this location. A topographic map of the site is included as Figure 1.

CORRECTIVE ACTION

Describe immediate response (how stopped, contained and recovered):

Excavation of impacted soil began on January 25, 2013 and concluded on January 28, 2013. Approximately 140 cubic yards (yd³) of impacted material was removed and transported to the Waste Management Facility in Ault, Colorado. The location and extent of the excavation is illustrated on Figure 2. Groundwater was encountered during excavation activities. As part of the initial remediation efforts, liquid recovery was conducted using a vac truck. Approximately 60 barrels of groundwater were recovered.

Describe any emergency pits constructed: NA

How was the extent of contamination determined?

Soil samples were collected during the excavation based on field screening of volatile organic compound (VOC) concentrations measured with a photoionization detector (PID). During excavation activities, soil samples SS01 through SS06 were collected at the locations illustrated on Figure 2. Two test pit locations (TP01 and TP02) were excavated and soil samples SS07 and SS08 were collected (35' north and 12' east of the main excavation, respectively) at the groundwater interface. Soil samples at these locations exhibited constituent concentrations above COGCC Table 910-1 soil limits. Test pit TP03 was also completed in the area where the separator was located. This test pit was done to evaluate subsurface conditions to the north along the dumlaine alignment. Soil samples were submitted to Summit Scientific Laboratories in Golden, Colorado for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), gasoline range total petroleum hydrocarbons (TPH)-GRO, and naphthalene by EPA Method 8260B and diesel range total petroleum hydrocarbons (TPH-DRO) by EPA Method 8015. A summary of soil analytical data is presented in Table 1. Groundwater was encountered within the excavation and in test pit TP03 at approximately 6 feet below ground surface (bgs). However, a groundwater sample was not collected from the release area excavation due to the presence of LNAPL. A groundwater sample was collected in TP03. Approximately 60 barrels of groundwater was recovered from the test pit TP03 and release area excavations. The groundwater sample GW01, was submitted to Summit Scientific for analysis of BTEX using EPA method 8260B. Analytical results indicate that benzene, toluene, and total xylenes concentrations were above Table 910-1 groundwater limits. Prior to backfilling the excavations, horizontal perforated remediation pipes were installed in the release area excavation and in TP03 as illustrated on Figure 2. A summary of groundwater analytical data is presented in Table 2. The laboratory analytical reports are included as Attachment A. The extent of the excavations, soil and groundwater sample locations, and the remediation pipe locations are illustrated on Figure 2.

Further remediation activities proposed (attach separate sheet if needed):

PDC is currently evaluating a remedial approach for the site and will detail this approach in a Form 27 that will be submitted to the COGCC.

Describe measures taken to prevent problem from reoccurring:

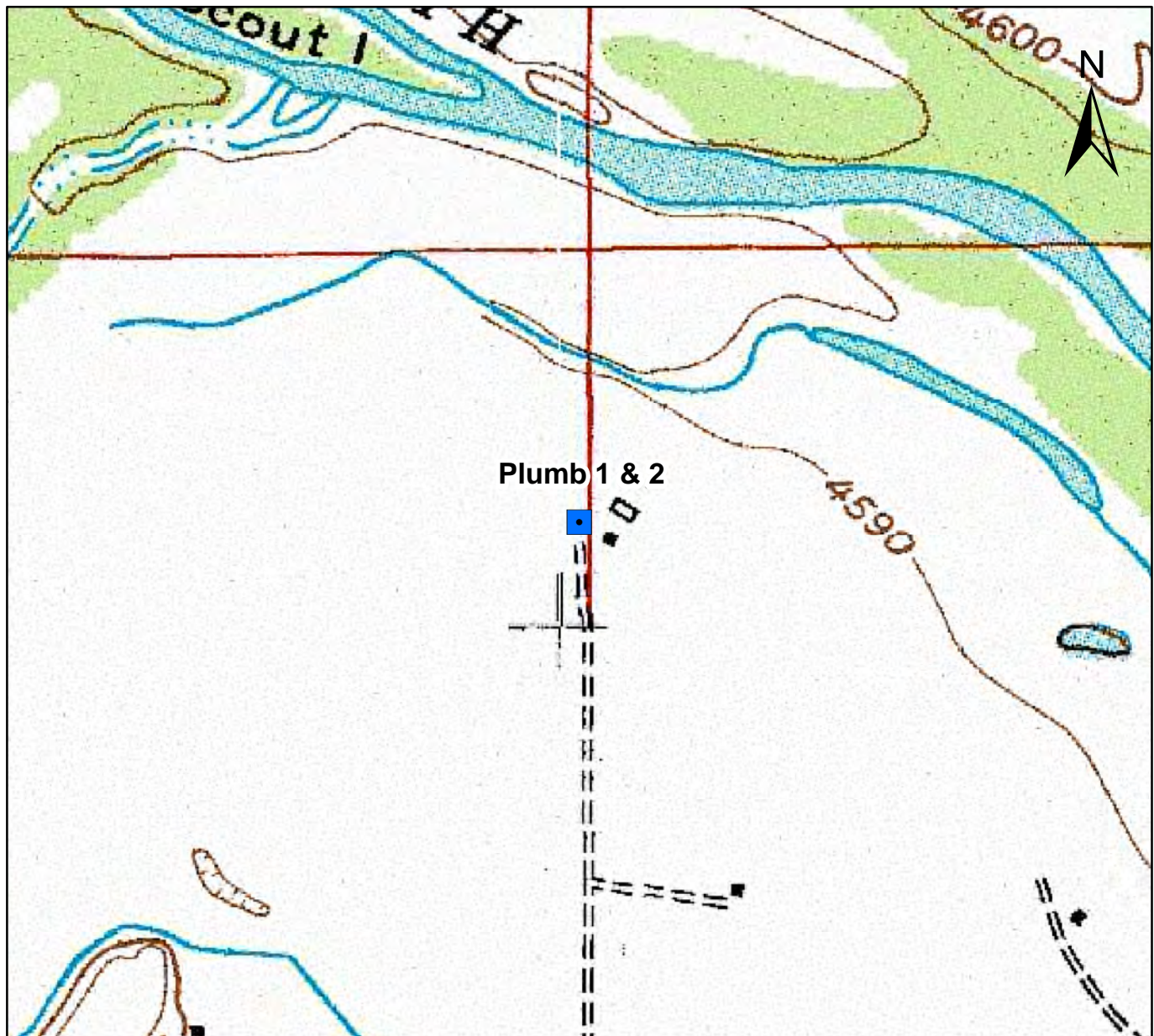
PDC will continue yearly production line testing once the location is back to being operational.

OTHER NOTIFICATIONS

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other).

Date	Agency	Contact	Phone	Response
1/24/2012	COGCC	Bob Chesson	970-625-2497 Ext.5112	

Spill/Release Tracking No: **2231969**



0 375 750 1,500
Feet

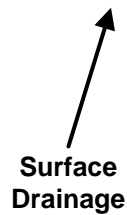


Figure 1

Site Location Map
Plumb 1 & 2
NWNW S8 T5N R64W
Weld County, Colorado

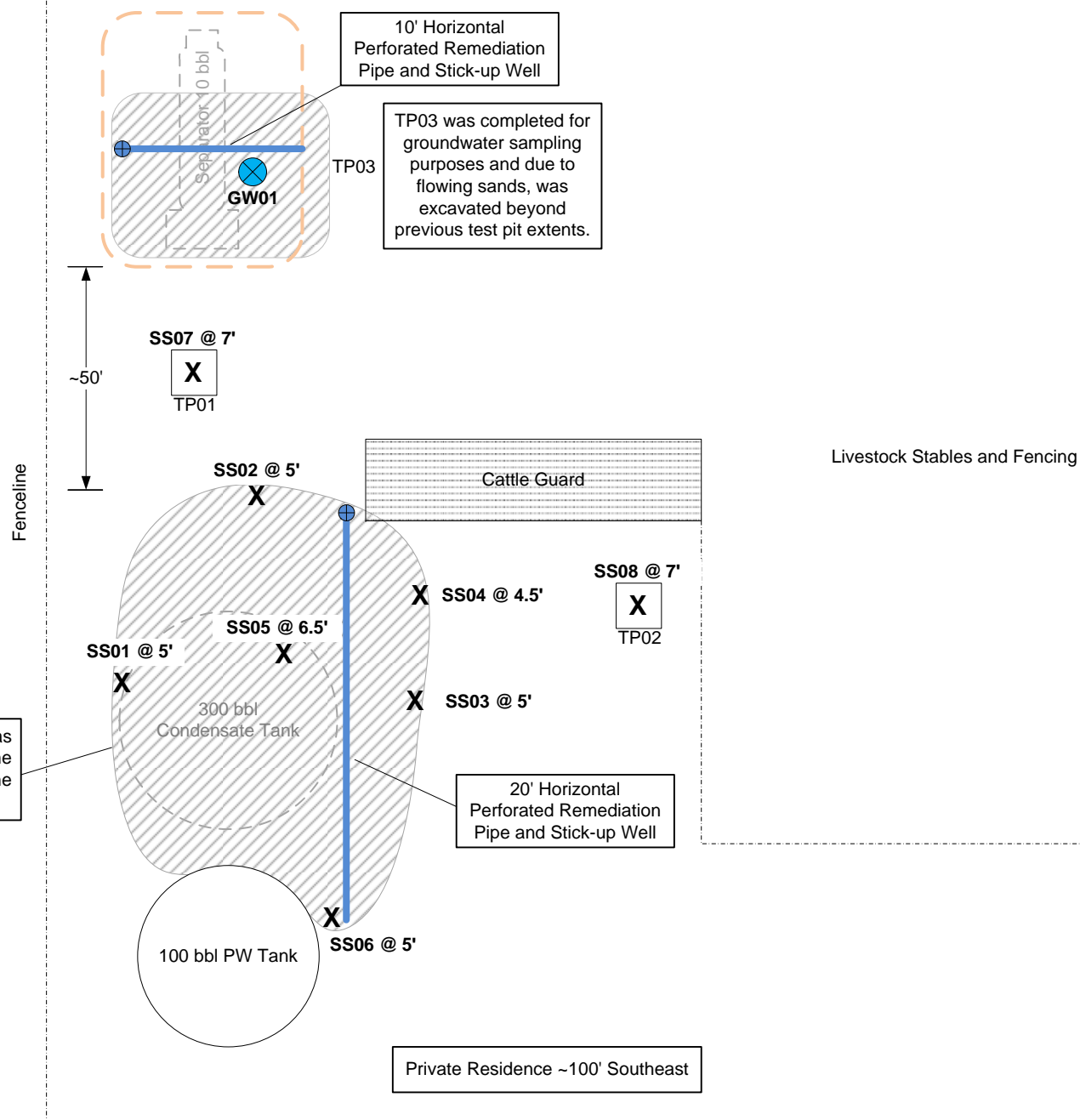
Drawn By: BDH
Date: 02/01/2013


Tasman Geosciences



A groundwater sample was not collected from the south excavation due to the presence of LNAPL.

Note:
Surface drainage direction is estimated based on site topography and is not related to regional topography.









PROJECT NO:	<p align="center"><u>Facility Diagram</u></p> <p align="center">PDC Energy – DJ Basin Plumb 1 & 2 NWNW S8 T5N R64W Weld County, CO</p>	 <p align="center">6899 Pecos St., Unit C Denver CO 80221</p>	<p align="center">LEGEND</p> <p> Approximate Excavation Extents</p> <p> Soil Sample Location</p> <p> Groundwater Sample Location</p> <p> Remediation Well Stick-up Pipe</p> <p> Horizontal Perforated Remediation Well</p>	<p align="center">FIGURE 2</p> <p align="center">Not to Scale</p>
DRAWN BY: BDH				
DATE: 1/29/13				

TABLE 1
PLUMB 1 and 2
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 ⁽²⁾ (mg/kg)
SS01	1/25/2013	5	206	<0.005	<0.005	<0.005	<0.01	<0.005	<50
SS02	1/25/2013	5	55.7	<0.005	<0.005	<0.005	<0.01	<0.005	<50
SS03	1/25/2013	5	85.5	<0.005	<0.005	<0.005	<0.01	<0.005	<50
SS04	1/25/2013	4.5	67	<0.005	<0.005	<0.005	<0.01	<0.005	<50
SS05	1/25/2013	6.5	9.8	<0.005	<0.005	<0.005	<0.01	<0.005	<50
SS06	1/25/2013	5	130	<0.005	<0.005	<0.005	<0.01	<0.005	<50
SS07	1/25/2013	7	1,750	0.0064	0.038	0.11	1.9	0.07	820
SS08	1/25/2013	7	1,395	19	210	23	340	2.5	12,700
COGCC standards for Soil (mg/kg) ⁽¹⁾				0.17	85	100	175	23	500

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.

TABLE 2
PLUMB 1 and 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
GW01	1/29/2013	640	1,100	340	3,700
COGCC standards for Groundwater (ug/L) ⁽¹⁾		5	560	700	1,400

Notes:

1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

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

ug/L= Micrograms per liter.

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 30, 2013

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Plumb 1 & 2

Enclosed are the results of analyses for samples received by Summit Scientific on 01/25/13 16:27. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written approval of Summit Scientific. Test results relate only to samples analyzed.

Summit Scientific is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.



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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/30/13 08:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01	R301161-01	Soil	01/25/13 08:35	01/25/13 16:27
SS02	R301161-02	Soil	01/25/13 08:40	01/25/13 16:27
SS03	R301161-03	Soil	01/25/13 08:55	01/25/13 16:27
SS04	R301161-04	Soil	01/25/13 11:40	01/25/13 16:27
SS05	R301161-05	Soil	01/25/13 12:15	01/25/13 16:27
SS06	R301161-06	Soil	01/25/13 13:53	01/25/13 16:27
SS07	R301161-07	Soil	01/25/13 14:15	01/25/13 16:27
SS08	R301161-08	Soil	01/25/13 14:35	01/25/13 16:27

Summit Scientific

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

Project: Plumb 1 & 2

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/30/13 08:21

R361161

Summit Scientific

S:

741 Corporate Circle Suite 1 • Golden, Colorado 80401
303-277-9310 • 303-277-9311 Fax

Client: PDC Energy
Address: 1775 Sherman St Suite 3000
City/State/Zip: Denver CO 80203
Phone: (303) 860-5800
Sample Name: Brun Humphrey
Project Manager: Brandon Bruns
E-Mail: brun@summit-sc.com
Project Name: Plumb 1 & 2
Project Number: Plumb 1 & 2
Page 1 of 1

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative	Matrix	Analyze For:	Special Instructions
SSC1	1/25/13	0835	1	HCl	Air - Canister Serial #		
SSC2		0840	1	None	Groundwater		
SSC3		0855	1	Other (Specify)	Other (Specify)		
SSC4		1140	1	None	Soil		
SSC5		1215	1	None	Soil		
SSC6		1415	1	None	Soil		
SSC7		1415	1	None	Soil		
SSC8		1435	1	None	Soil		
Retinquished by: <u>[Signature]</u> Date Time: <u>1-25-13/1607</u>							
Retinquished by: <u>[Signature]</u> Date Time: <u>1-25-13/1607</u>							
Retinquished by: <u>[Signature]</u> Date Time: <u>1-25-13/1627</u>							

Turn Around Time (Check)
Same Day ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☒ Standard ☒
Notes: 6A ice

Sample Integrity:
Temperature: 2.0
Inact: Yes

Received in Lab by: [Signature] Date Time: 1-25-13/1627

www.s2scientific.com

[Signature]



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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
01/30/13 08:21

SS01
R301161-01 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **01/25/13 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3012807	01/28/13	01/29/13	8015 DRO	

Date Sampled: **01/25/13 08:35**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/25/13 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3012806	01/28/13	01/28/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/25/13 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		119 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
01/30/13 08:21

SS02
R301161-02 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **01/25/13 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3012807	01/28/13	01/29/13	8015 DRO	

Date Sampled: **01/25/13 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/25/13 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3012806	01/28/13	01/28/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/25/13 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		111 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %	21-167		"	"	"	"	

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
01/30/13 08:21

SS03
R301161-03 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **01/25/13 08:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3012807	01/28/13	01/29/13	8015 DRO	

Date Sampled: **01/25/13 08:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		100 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/25/13 08:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3012806	01/28/13	01/28/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/25/13 08:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	21-167		"	"	"	"	

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
01/30/13 08:21

SS04
R301161-04 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: 01/25/13 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3012807	01/28/13	01/29/13	8015 DRO	

Date Sampled: 01/25/13 11:40

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: 01/25/13 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3012806	01/28/13	01/28/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 01/25/13 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		113 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/30/13 08:21

SS05
R301161-05 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **01/25/13 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3012807	01/28/13	01/29/13	8015 DRO	

Date Sampled: **01/25/13 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		99.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/25/13 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3012806	01/28/13	01/28/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/25/13 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		94.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/30/13 08:21

SS06
R301161-06 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **01/25/13 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3012807	01/28/13	01/29/13	8015 DRO	

Date Sampled: **01/25/13 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/25/13 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	3012806	01/28/13	01/28/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/25/13 13:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/30/13 08:21

SS07
R301161-07 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **01/25/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	260	50	mg/kg	1	3012807	01/28/13	01/29/13	8015 DRO	

Date Sampled: **01/25/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		100 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/25/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.070	0.0050	mg/kg	1	3012806	01/28/13	01/29/13	EPA 8260B	
Benzene	0.0064	0.0050	"	"	"	"	"	"	
Toluene	0.038	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.11	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.9	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	560	50	"	100	"	"	"	"	

Date Sampled: **01/25/13 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		98.4 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.6 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		42.8 %	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: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/30/13 08:21

SS08
R301161-08 (Soil)

Summit Scientific

Total Petroleum Hydrocarbons by 8015

Date Sampled: **01/25/13 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	3900	50	mg/kg	1	3012807	01/28/13	01/29/13	8015 DRO	

Date Sampled: **01/25/13 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/25/13 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	2.5	0.50	mg/kg	100	3012806	01/28/13	01/28/13	EPA 8260B	
Benzene	19	0.50	"	"	"	"	"	"	
Toluene	210	5.0	"	1000	"	"	"	"	
Ethylbenzene	23	0.50	"	100	"	"	"	"	
Xylenes (total)	340	10	"	1000	"	"	"	"	
Gasoline Range Hydrocarbons	8800	500	"	"	"	"	"	"	

Date Sampled: **01/25/13 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		104 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		88.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
01/30/13 08:21

Total 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 3012807 - EPA 3550A

Blank (3012807-BLK1)

Prepared: 01/28/13 Analyzed: 01/29/13

C10-C28 (DRO) ND 50 mg/kg

LCS (3012807-BS1)

Prepared: 01/28/13 Analyzed: 01/29/13

C10-C28 (DRO) 533 50 mg/kg 501 106 73-134

LCS Dup (3012807-BSD1)

Prepared: 01/28/13 Analyzed: 01/29/13

C10-C28 (DRO) 491 50 mg/kg 501 97.9 73-134 8.30 11

Matrix Spike (3012807-MS1)

Source: R301161-01

Prepared: 01/28/13 Analyzed: 01/29/13

C10-C28 (DRO) 504 50 mg/kg 501 ND 101 50-148

Matrix Spike Dup (3012807-MSD1)

Source: R301161-01

Prepared: 01/28/13 Analyzed: 01/29/13

C10-C28 (DRO) 504 50 mg/kg 501 ND 101 50-148 0.0202 13

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
01/30/13 08:21

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 3012806 - EPA 5030 Soil MS

Blank (3012806-BLK1)

Prepared: 01/28/13 Analyzed: 01/29/13

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0397		93.2	23-173			
Surrogate: Toluene-d8	0.0469		"	0.0400		117	20-170			
Surrogate: 4-Bromofluorobenzene	0.0439		"	0.0400		110	21-167			

LCS (3012806-BS1)

Prepared: 01/28/13 Analyzed: 01/29/13

Naphthalene	ND	0.0050	mg/kg				66-138			
Benzene	0.0862	0.0050	"	0.100		86.2	58-130			
Toluene	0.120	0.0050	"	0.100		120	61-134			
Ethylbenzene	0.119	0.0050	"	0.100		119	74-139			
m,p-Xylene	0.220	0.010	"	0.200		110	73-137			
o-Xylene	0.121	0.0050	"	0.100		121	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0374		"	0.0397		94.2	23-173			
Surrogate: Toluene-d8	0.0477		"	0.0400		119	20-170			
Surrogate: 4-Bromofluorobenzene	0.0432		"	0.0400		108	21-167			

LCS Dup (3012806-BSD1)

Prepared: 01/28/13 Analyzed: 01/29/13

Naphthalene	ND	0.0050	mg/kg				66-138		12	
Benzene	0.0876	0.0050	"	0.100		87.6	58-130	1.59	13	
Toluene	0.118	0.0050	"	0.100		118	61-134	1.03	16	
Ethylbenzene	0.122	0.0050	"	0.100		122	74-139	2.71	12	
m,p-Xylene	0.225	0.010	"	0.200		112	73-137	2.12	14	
o-Xylene	0.124	0.0050	"	0.100		124	73-141	2.74	12	
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0397		95.7	23-173			
Surrogate: Toluene-d8	0.0453		"	0.0400		113	20-170			
Surrogate: 4-Bromofluorobenzene	0.0427		"	0.0400		107	21-167			

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/30/13 08:21

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 3012806 - EPA 5030 Soil MS

Matrix Spike (3012806-MS1)				Source: R301161-01		Prepared: 01/28/13		Analyzed: 01/29/13	
Naphthalene	ND	0.0050	mg/kg		ND		10-158		
Benzene	0.0868	0.0050	"	0.100	0.00	86.8	30-131		
Toluene	0.116	0.0050	"	0.100	0.00	116	30-134		
Ethylbenzene	0.116	0.0050	"	0.100	0.00	116	22-153		
m,p-Xylene	0.212	0.010	"	0.200	0.00	106	10-159		
o-Xylene	0.121	0.0050	"	0.100	0.00	121	31-151		
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0397		105	23-173		
Surrogate: Toluene-d8	0.0482		"	0.0400		120	20-170		
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400		107	21-167		

Matrix Spike Dup (3012806-MSD1)				Source: R301161-01		Prepared: 01/28/13		Analyzed: 01/29/13	
Naphthalene	ND	0.0050	mg/kg		ND		10-158		42
Benzene	0.0845	0.0050	"	0.100	0.00	84.5	30-131	2.70	34
Toluene	0.111	0.0050	"	0.100	0.00	111	30-134	4.57	30
Ethylbenzene	0.116	0.0050	"	0.100	0.00	116	22-153	0.104	24
m,p-Xylene	0.212	0.010	"	0.200	0.00	106	10-159	0.0284	68
o-Xylene	0.121	0.0050	"	0.100	0.00	121	31-151	0.198	38
Surrogate: 1,2-Dichloroethane-d4	0.0386		"	0.0397		97.1	23-173		
Surrogate: Toluene-d8	0.0457		"	0.0400		114	20-170		
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400		107	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: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
01/30/13 08:21

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 read 'Daniel A. Bruns IV'.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 04, 2013

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Plumb 1 & 2

Enclosed are the results of analyses for samples received by Summit Scientific on 01/29/13 15:11. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'Ben Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury For Joseph J Egry IV
Laboratory Director



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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/04/13 18:21

GW-01
R301185-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/29/13 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	640	100		ug/l	100	3013113	01/31/13	02/01/13	EPA 8260B	
Toluene	1100	100		"	"	"	"	"	"	
Ethylbenzene	340	100		"	"	"	"	"	"	
Xylenes (total)	3700	100		"	"	"	"	"	"	

Date Sampled: **01/29/13 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		109 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		101 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.9 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/04/13 18:21

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 3013113 - EPA 5030 Water MS

Blank (3013113-BLK1)

Prepared: 01/31/13 Analyzed: 02/01/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.2		105	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		97.1	45-149			
Surrogate: 4-Bromofluorobenzene	14.4		"	13.3		108	45-146			

Blank (3013113-BLK2)

Prepared: 01/31/13 Analyzed: 02/01/13

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.2		104	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.0	45-149			
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3		104	45-146			

LCS (3013113-BS1)

Prepared: 01/31/13 Analyzed: 02/01/13

Benzene	22.0	1.0	ug/l	33.3		65.9	51-132			
Toluene	23.6	1.0	"	33.3		70.8	51-138			
Ethylbenzene	23.7	1.0	"	33.3		71.1	58-146			
m,p-Xylene	48.6	2.0	"	66.7		72.9	57-144			
o-Xylene	23.7	1.0	"	33.3		71.0	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.2		109	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		99.5	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	45-146			

LCS (3013113-BS2)

Prepared: 01/31/13 Analyzed: 02/01/13

Benzene	21.2	1.0	ug/l	33.3		63.5	51-132			
Toluene	22.6	1.0	"	33.3		67.8	51-138			
Ethylbenzene	23.8	1.0	"	33.3		71.3	58-146			
m,p-Xylene	48.8	2.0	"	66.7		73.2	57-144			
o-Xylene	23.9	1.0	"	33.3		71.7	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.2		99.5	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	45-149			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	45-146			

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/04/13 18:21

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 3013113 - EPA 5030 Water MS

LCS Dup (3013113-BSD1)

Prepared: 01/31/13 Analyzed: 02/01/13

Benzene	20.9	1.0	ug/l	33.3		62.8	51-132	4.81	17	
Toluene	22.2	1.0	"	33.3		66.7	51-138	5.89	17	
Ethylbenzene	23.3	1.0	"	33.3		69.9	58-146	1.70	16	
m,p-Xylene	47.9	2.0	"	66.7		71.8	57-144	1.51	16	
o-Xylene	23.2	1.0	"	33.3		69.8	53-146	1.79	15	
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.2		103	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		97.1	45-149			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	45-146			

LCS Dup (3013113-BSD2)

Prepared: 01/31/13 Analyzed: 02/01/13

Benzene	20.4	1.0	ug/l	33.3		61.3	51-132	3.56	17	
Toluene	21.8	1.0	"	33.3		65.5	51-138	3.42	17	
Ethylbenzene	23.0	1.0	"	33.3		69.0	58-146	3.21	16	
m,p-Xylene	47.2	2.0	"	66.7		70.7	57-144	3.42	16	
o-Xylene	23.3	1.0	"	33.3		69.8	53-146	2.67	15	
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.2		104	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.6	45-149			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	45-146			

Matrix Spike (3013113-MS1)

Source: R301192-01

Prepared: 01/31/13 Analyzed: 02/01/13

Benzene	25.7	1.0	ug/l	33.3	1.70	71.9	34-141			
Toluene	24.0	1.0	"	33.3	ND	72.1	27-151			
Ethylbenzene	27.4	1.0	"	33.3	1.06	79.0	29-160			
m,p-Xylene	51.7	2.0	"	66.7	ND	77.6	20-166			
o-Xylene	25.2	1.0	"	33.3	ND	75.6	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.2		106	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	45-149			
Surrogate: 4-Bromofluorobenzene	12.0		"	13.3		90.2	45-146			

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/04/13 18:21

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 3013113 - EPA 5030 Water MS

Matrix Spike (3013113-MS2)		Source: R301192-02			Prepared: 01/31/13		Analyzed: 02/02/13			
Benzene	20.5	1.0	ug/l	33.3	ND	61.4	34-141			
Toluene	21.7	1.0	"	33.3	ND	65.2	27-151			
Ethylbenzene	23.0	1.0	"	33.3	ND	69.1	29-160			
m,p-Xylene	47.4	2.0	"	66.7	ND	71.2	20-166			
o-Xylene	22.9	1.0	"	33.3	ND	68.8	33-159			
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.2		97.3	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		101	45-146			

Matrix Spike Dup (3013113-MSD1)		Source: R301192-01			Prepared: 01/31/13		Analyzed: 02/01/13			
Benzene	22.1	1.0	ug/l	33.3	1.70	61.1	34-141	15.1	32	
Toluene	20.7	1.0	"	33.3	ND	62.0	27-151	15.0	25	
Ethylbenzene	22.4	1.0	"	33.3	1.06	63.9	29-160	20.2	50	
m,p-Xylene	42.8	2.0	"	66.7	ND	64.3	20-166	18.7	36	
o-Xylene	21.1	1.0	"	33.3	ND	63.3	33-159	17.6	26	
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.2		110	37-154			
Surrogate: Toluene-d8	13.5		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.3	45-146			

Matrix Spike Dup (3013113-MSD2)		Source: R301192-02			Prepared: 01/31/13		Analyzed: 02/02/13			
Benzene	20.0	1.0	ug/l	33.3	ND	60.0	34-141	2.32	32	
Toluene	21.4	1.0	"	33.3	ND	64.2	27-151	1.53	25	
Ethylbenzene	22.1	1.0	"	33.3	ND	66.3	29-160	4.08	50	
m,p-Xylene	44.8	2.0	"	66.7	ND	67.2	20-166	5.75	36	
o-Xylene	22.2	1.0	"	33.3	ND	66.6	33-159	3.28	26	
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.2		106	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.2	45-149			
Surrogate: 4-Bromofluorobenzene	13.6		"	13.3		102	45-146			

Summit Scientific

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

Project: Plumb 1 & 2
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/04/13 18:21

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'.