

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
4/21/2014

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:

OPERATOR INFORMATION

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

DESCRIPTION OF SPILL OR RELEASE

Date of Incident: <u>1/22/2014</u>	Facility Name & No: <u>Seltzer G 2-4 - 320332</u>	County: <u>Adams</u>
Type of Facility (well, tank battery, flow line, pit): <u>Tank Battery</u>		QtrQtr: <u>NWSE</u> Section: <u>4</u>
Well Name and Number: <u>Seltzer G 2-4</u>		Township: <u>1S</u> Range: <u>67W</u>
API Number: <u>005-001-09025</u>		Meridian: <u>6th</u>

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

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

Ground Water impacted? ☒ Yes ☐ No Surface Water impacted? ☐ Yes ☒ No

Contained within berm? ☐ Yes ☒ No Area and vertical extent of spill: ~1,500 ft² x ~16' bgs

Current land use: Residential Weather conditions: High 30s

Soil/geology description: Platner loam, 3 to 5 percent slopes

IF LESS THAN A MILE, report distance IN FEET to nearest ... Surface water: ~680' NW Wetlands: NA Buildings: ~200' N, E, S, W

Livestock: NA Water wells: ~400' W Depth to shallowest ground water: 14 feet bgs

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

On January 22, 2014, a historical release was discovered during the removal of the buried concrete produced water vessel at the Seltzer G 2-4 (Facility ID 320332) tank battery. A topographic map of the site is included as Figure 1.

CORRECTIVE ACTION

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

Removal of the buried produced water vessel and soil below the former vessel occurred on January 22, 2014. Approximately 80 cubic yards (yd3) of impacted material were removed and transported to the Front Range Landfill in Erie, Colorado under PDC waste manifests. The location and extent of the excavation is illustrated on Figure 2.

Describe any emergency pits constructed: NA

How was the extent of contamination determined?

Excavation activities were conducted on January 22, 2014 following the discovery of a historical release below the buried produced water vessel. The soil below the former tank location was removed to a total depth of 12 feet below ground surface (bgs). Excavation activities were discontinued until further delineation of the residual petroleum hydrocarbon plume could be conducted as the battery is located within a dense residential area. On February 13, 2014, additional site characterization was conducted and six test pits (TP01 - TP06) were installed using a backhoe. Soil was field screened using a photoionization detector (PID) to measure volatile organic compound (VOC) concentrations. Soil samples were collected at varying depths between 8 feet bgs and 16 feet bgs from three test pit locations (TP01, TP03, and TP04) which exhibited elevated VOC concentrations. Additional vertical characterization was not possible with the backhoe as geological refusal was encountered at 16 feet bgs. Soil samples were submitted to Summit Scientific Laboratories in Golden, Colorado for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons (TPH)-gasoline range organics (GRO), and naphthalene by EPA Method 8260B. Samples were also submitted for analysis of TPH-diesel range organics (DRO) by EPA Method 8015. Analytical results indicated elevated TPH concentrations were present at 14 feet bgs (TP04) and 16 feet bgs (TP01). On March 24, 2014, further site characterization was conducted and thirteen temporary wells (BH01-BH13) were installed using continuous core drilling for monitoring and remediation purposes. Soil samples were collected from 10 well locations (BH01 - BH10) to delineate the lateral and vertical extent of residual soil impacts. Soil samples were collected at depths ranging between 8 feet bgs and 12 feet bgs and submitted for laboratory analysis. Soil samples were not collected from BH11 through BH13 as they were installed for remediation purposes between borehole locations which exhibited elevated VOC concentrations. Analytical results indicate TPH concentrations in two locations (BH06 and BH09) were in exceedance of Table 910-1 soils standards. A summary of soil analytical data is presented in Table 1. Groundwater was encountered at approximately 14 feet bgs and on April 1, 2014, groundwater sampling was conducted at the thirteen temporary monitoring locations. Groundwater samples were submitted for laboratory analysis of BTEX constituents. Analytical results indicated that benzene concentrations were in exceedance of regulatory standards at six sample locations (BH04, BH06, BH08, and BH11 - BH13). A summary of groundwater analytical data is presented in Table 2. The laboratory analytical reports are included as Attachment A. The extent of the excavation and soil and groundwater sample locations are illustrated on Figure 2.

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

PDC will submit a subsequent Form 27 outlining a proposed remedial strategy to address residual petroleum hydrocarbon concentrations in soil and groundwater.

Describe measures taken to prevent problem from reoccurring:

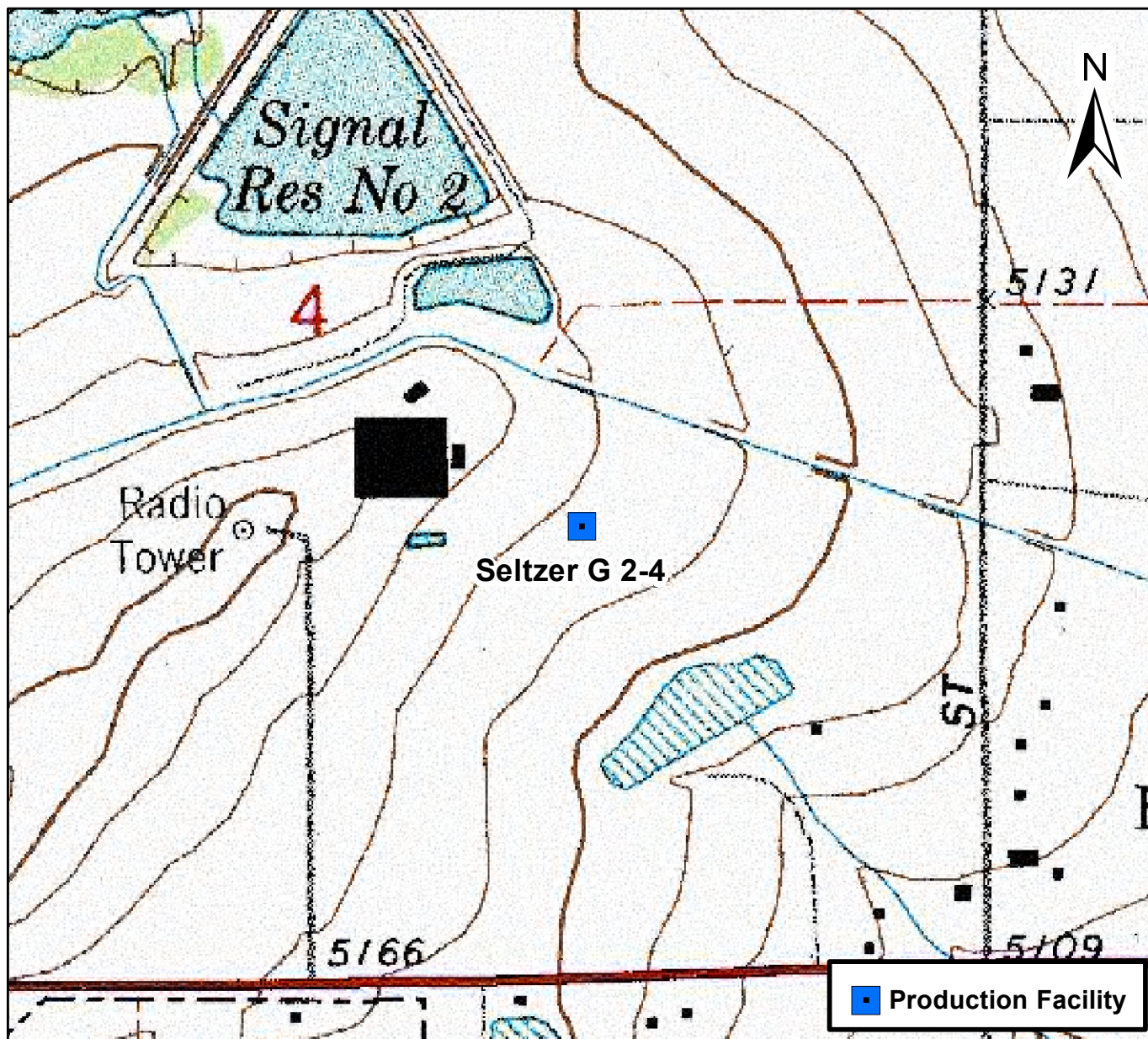
PDC will continue yearly production line testing once the location is back to being operational.

OTHER NOTIFICATIONS

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

Date	Agency	Contact	Phone	Response
4/1/2014	Landowner			Several attempts were made to contact landowner
4/21/2014	COGCC	Bob Chesson	303-894-2100	

Spill/Release Tracking No: **2148613**



0 750 1,500 Feet

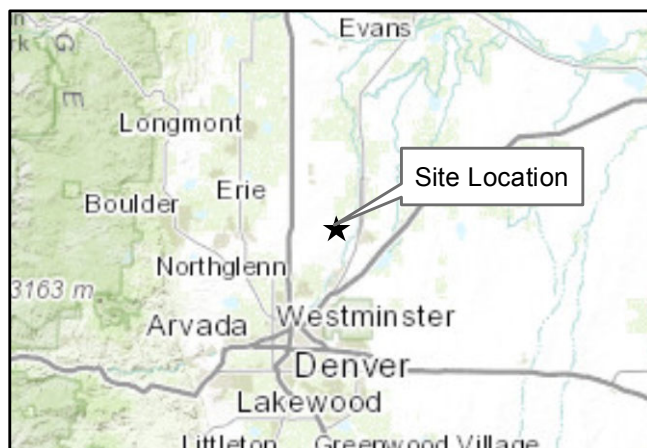


Figure 1

Site Location Map
Seltzer G 2-4
NWSE S4 T1S R67W
Adams County, Colorado

Drawn By: DBA
Date: 04/07/2014


Tasman Geosciences



Scale: 1 inches equals 30 feet

DRAWN BY: CAW

DATE: 3/25/2014

Facility Diagram
PDC Energy – DJ Basin
Seltzer G 2-4
NWSW S4 T1S 67W
Adams County, CO

 **TASMAN** GEOSCIENCES 6899 Pecos Street, Unit C
Denver, CO 80221

LEGEND





- Former Vault Location
-  Approximate Area of Excavation During Vault Removal
-  Temporary Well Location
-  Temporary Well Location – Screened for AS Use
-  Test Pit Location – Soil Samples Collected 2/13/2014

FIGURE 2
TEMPORARY WELL
LOCATIONS

TABLE 1
SELTZER G 2-4
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)
TP01	2/13/2014	16	2,079	0.016	0.0063	2.5	7.1	0.53	1,330
TP01	2/13/2014	8	56.2	0.0083	<0.005	0.0065	0.083	<0.010	0.76
TP03	2/13/2014	11	556	<0.002	<0.005	<0.005	0.03	0.11	399.9
TP04	2/13/2014	14	986	0.04	<0.005	3.1	5.4	0.45	1,853
BH01	3/24/2014	10	0	<0.002	<0.005	<0.005	<0.010	<0.010	<50
BH02	3/24/2014	10-11.5	2,432	<0.002	<0.005	0.24	0.52	0.13	12
BH03	3/24/2014	10	0	<0.002	<0.005	<0.005	<0.010	<0.010	<50
BH04	3/24/2014	10	555	<0.002	<0.005	0.10	0.063	0.16	129
BH05	3/24/2014	10	0	<0.002	<0.005	<0.005	<0.010	<0.010	<50
BH06	3/25/2014	8-9	1,009	<0.002	<0.005	0.78	0.84	0.40	649
BH06	3/25/2014	9-11	2,420	<0.002	<0.005	0.42	2.2	0.2	304
BH07	3/25/2014	10	0	<0.002	<0.005	<0.005	<0.010	<0.010	<50
BH08	3/25/2014	8-9	1562	0.0084	<0.005	0.15	0.96	0.086	13
BH08	3/25/2014	9-11	1,905	<0.002	<0.005	0.32	2.0	0.029	29
BH09	3/25/2014	10-11	457	<0.002	<0.005	<0.005	1.1	0.4	690
BH10	3/25/2014	10-12	0	<0.002	<0.005	<0.005	<0.010	<0.010	<50
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
SELTZER G 2-4
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
BH01	4/1/2014	<1.0	<1.0	<1.0	<1.0
BH02	4/1/2014	3.6	<1.0	17	75
BH03	4/1/2014	1.5	<1.0	<1.0	<1.0
BH04	4/1/2014	49	3	86	250
BH05	4/1/2014	<1.0	<1.0	<1.0	<1.0
BH06	4/1/2014	19	<1.0	2.0	6.9
BH07	4/1/2014	1.1	<1.0	<1.0	<1.0
BH08	4/1/2014	280	17	64	280
BH09	4/1/2014	1.5	<1.0	<1.0	6.3
BH10	4/1/2014	1.0	<1.0	<1.0	<1.0
BH11	4/1/2014	11	2.9	9.1	160
BH12	4/1/2014	940	200	140	740
BH13	4/1/2014	24	<1.0	63	100
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

February 17, 2014

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Seltzer G 2-4

Enclosed are the results of analyses for samples received by Summit Scientific on 02/13/14 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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/17/14 14:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP01@16'	1402058-01	Soil	02/13/14 08:10	02/13/14 17:00
TP01@8'	1402058-02	Soil	02/13/14 08:15	02/13/14 17:00
TP03@11'	1402058-03	Soil	02/13/14 09:15	02/13/14 17:00
TP04@14'	1402058-04	Soil	02/13/14 09:30	02/13/14 17:00

Summit Scientific

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

Project: Seltzer G 2-4

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/17/14 14:17

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

Client: PDC Energy
Address:
City/State/Zip:
Phone:
Fax:
Sampler Name: C. Munk

Project Manager: Brandon Bruns
E-Mail:
Project Name: Seltzer G 2-4
Project Number:

Page 1 of 4

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)				
TP01 @ 10'	2/13/14	810	1		X										
TP01 @ 8'		85													
TP03 @ 11'		915													
TP04 @ 14'		930													

Relinquished by: [Signature] Date/Time: 2/13/14 1100
Received by: [Signature] Date/Time: 2/13/14 1700

Relinquished by: [Signature] Date/Time: 2/13/14 1100
Received by: [Signature] Date/Time: 2/13/14 1700

Relinquished by: [Signature] Date/Time: 2/13/14 1100
Received by: [Signature] Date/Time: 2/13/14 1700

Turn Around Time (Check)
Same Day ☐ 72 Hours ☒
24 Hours ☐ Standard ☐
48 Hours ☐

Sample Integrity:
Temperature Upon Receipt: -2°C
Intact: ☒ No ☐

Notes:

www.SummitScientific.com

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/17/14 14:17

TP01@16'
1402058-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 02/13/14 08:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1100	50	mg/kg	1	1402093	02/13/14	02/13/14	8015M	

Date Sampled: 02/13/14 08:10

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: 02/13/14 08:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.53	0.010	mg/kg	1	1402094	02/13/14	02/14/14	EPA 8260B	
Benzene	0.016	0.0020	"	"	"	"	"	"	
Toluene	0.0063	0.0050	"	"	"	"	"	"	
Ethylbenzene	2.5	0.050	"	10	"	"	02/13/14	"	
Xylenes (total)	7.1	0.10	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	230	5.0	"	"	"	"	"	"	

Date Sampled: 02/13/14 08:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	02/14/14	"	
Surrogate: Toluene-d8		116 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		191 %	21-167		"	"	"	"	S-02

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/17/14 14:17

TP01@8'
1402058-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/13/14 08:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1402093	02/13/14	02/13/14	8015M	

Date Sampled: **02/13/14 08:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		140 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/13/14 08:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1402094	02/13/14	02/14/14	EPA 8260B	
Benzene	0.0083	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.0065	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.083	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.76	0.50	"	"	"	"	"	"	

Date Sampled: **02/13/14 08:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/17/14 14:17

TP03@11'
1402058-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/13/14 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	390	50	mg/kg	1	1402093	02/13/14	02/13/14	8015M	

Date Sampled: **02/13/14 09:15**

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: **02/13/14 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.11	0.010	mg/kg	1	1402094	02/13/14	02/15/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.030	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	9.9	0.50	"	"	"	"	"	"	

Date Sampled: **02/13/14 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	21-167		"	"	"	"	

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/17/14 14:17

TP04@14'
1402058-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/13/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1800	50	mg/kg	1	1402093	02/13/14	02/13/14	8015M	

Date Sampled: **02/13/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		139 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/13/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.45	0.010	mg/kg	1	1402094	02/13/14	02/14/14	EPA 8260B	
Benzene	0.040	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	3.1	0.050	"	10	"	"	02/13/14	"	
Xylenes (total)	5.4	0.10	"	"	"	"	02/14/14	"	
Gasoline Range Hydrocarbons	53	0.50	"	1	"	"	"	"	

Date Sampled: **02/13/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		128 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	21-167		"	"	"	"	

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/17/14 14:17

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 1402093 - EPA 3550A

Blank (1402093-BLK1)

Prepared & Analyzed: 02/13/14

C10-C28 (DRO) ND 50 mg/kg

LCS (1402093-BS1)

Prepared & Analyzed: 02/13/14

C10-C28 (DRO) 513 50 mg/kg 501 102 73-134

Matrix Spike (1402093-MS1)

Source: 1402057-01

Prepared & Analyzed: 02/13/14

C10-C28 (DRO) 482 50 mg/kg 474 ND 102 50-148

Matrix Spike Dup (1402093-MSD1)

Source: 1402057-01

Prepared & Analyzed: 02/13/14

C10-C28 (DRO) 477 50 mg/kg 479 ND 99.5 50-148 1.11 13

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/17/14 14:17

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 1402094 - EPA 5030 Soil MS

Blank (1402094-BLK1)

Prepared & Analyzed: 02/13/14

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>0.0439</i>		<i>"</i>	<i>0.0395</i>		<i>111</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0402</i>		<i>"</i>	<i>0.0398</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0414</i>		<i>"</i>	<i>0.0398</i>		<i>104</i>	<i>21-167</i>			

LCS (1402094-BS1)

Prepared & Analyzed: 02/13/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0919	0.0020	"	0.0966		95.2	58-130			
Toluene	0.0971	0.0050	"	0.0969		100	61-134			
Ethylbenzene	0.0976	0.0050	"	0.0961		101	74-139			
m,p-Xylene	0.191	0.010	"	0.194		98.3	73-137			
o-Xylene	0.0934	0.0050	"	0.0957		97.6	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0412</i>		<i>"</i>	<i>0.0385</i>		<i>107</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0394</i>		<i>"</i>	<i>0.0388</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0397</i>		<i>"</i>	<i>0.0388</i>		<i>102</i>	<i>21-167</i>			

Matrix Spike (1402094-MS1)

Source: 1402057-01

Prepared & Analyzed: 02/13/14

Naphthalene	0.0186	0.010	mg/kg		0.0173		10-158			
Benzene	0.102	0.0020	"	0.0964	ND	106	30-131			
Toluene	0.0986	0.0050	"	0.0967	ND	102	30-134			
Ethylbenzene	0.152	0.0050	"	0.0959	0.0315	126	22-153			
m,p-Xylene	0.762	0.010	"	0.193	0.573	97.9	10-159			
o-Xylene	0.128	0.0050	"	0.0956	0.00487	129	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0402</i>		<i>"</i>	<i>0.0384</i>		<i>105</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0371</i>		<i>"</i>	<i>0.0387</i>		<i>95.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0427</i>		<i>"</i>	<i>0.0387</i>		<i>110</i>	<i>21-167</i>			

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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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/17/14 14:17

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 1402094 - EPA 5030 Soil MS

Matrix Spike Dup (1402094-MSD1)		Source: 1402057-01			Prepared & Analyzed: 02/13/14					
Naphthalene	0.0255	0.010	mg/kg		0.0173		10-158	31.3	42	
Benzene	0.105	0.0020	"	0.0953	ND	110	30-131	2.97	34	
Toluene	0.100	0.0050	"	0.0956	ND	105	30-134	1.92	30	
Ethylbenzene	0.222	0.0050	"	0.0948	0.0315	201	22-153	37.2	24	QM-07
m,p-Xylene	1.83	0.010	"	0.191	0.573	660	10-159	82.6	68	QM-07
o-Xylene	0.142	0.0050	"	0.0945	0.00487	146	31-151	10.5	38	
Surrogate: 1,2-Dichloroethane-d4	0.0409		"	0.0380		108	23-173			
Surrogate: Toluene-d8	0.0401		"	0.0382		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0464		"	0.0382		121	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/17/14 14:17

Notes and Definitions

S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

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 02, 2014

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Seltzer G 2-4

Enclosed are the results of analyses for samples received by Summit Scientific on 03/26/14 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' with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Manager



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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 21:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@10'	1403227-01	Soil	03/24/14 08:30	03/26/14 17:00
BH02@10-11.5'	1403227-02	Soil	03/24/14 10:15	03/26/14 17:00
BH03@10'	1403227-03	Soil	03/24/14 12:45	03/26/14 17:00
BH04@10'	1403227-04	Soil	03/24/14 14:30	03/26/14 17:00
BH05@10'	1403227-05	Soil	03/24/14 16:00	03/26/14 17:00
BH06@8-9'	1403227-06	Soil	03/25/14 08:30	03/26/14 17:00
BH06@9-11'	1403227-07	Soil	03/25/14 08:40	03/26/14 17:00
BH07@10'	1403227-08	Soil	03/25/14 09:30	03/26/14 17:00
BH08@8-9'	1403227-09	Soil	03/25/14 10:30	03/26/14 17:00
BH08@9-11'	1403227-10	Soil	03/25/14 10:45	03/26/14 17:00
BH09@10-11'	1403227-11	Soil	03/25/14 12:00	03/26/14 17:00
BH10@10-12'	1403227-12	Soil	03/25/14 12:30	03/26/14 17:00

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: Seltzer G 2-4

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 21:59

1403227-1

Summit Scientific

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

Client: PDC Energy Page 1 of 2

Address: _____

City/State/Zip: _____

Phone: _____ Fax: _____

Project Manager: Brandon Bruns

E-Mail: _____

Project Name: Seltzer G 2-4

Project Number: _____

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative					Matrix	Analyze For:	Special Instructions
				HCl	HNO ₃	None	Other (Specify)	Groundwater			
BH10 Q 10	8/24/14	8:20	1					X	Soil		
BH12 Q 10-11.5'		10:5								X	SPRINTER
BH13 Q 10'		12:45									
BH14 Q 10		14:30									
BH15 Q 10		14:00									
BH16 Q 8-9	8/25/14	5:30									
BH17 Q 9-11		9:40									
BH18 Q 10		9:30									
BH19 Q 8-9		10:30									
BH18 Q 9-11		11:05									

Requisitioned by: [Signature] Date/Time: 8/26/14 14:00

Received by: [Signature] Date/Time: 8/26/14 17:00

Requisitioned by: _____ Date/Time: _____

Received by: _____ Date/Time: _____

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

Sample Integrity: Temperature Upon Receipt: 0°C Intact: ☒ No ☐

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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.

[Signature]



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

Project: Seltzer G 2-4

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 21:59

1403227.2

Summit Scientific

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

Page 2 of 2

Client: W. Bruns
Address: _____
City/State/Zip: _____
Phone: _____ Fax: _____
Sample Name: W. Bruns

Project Manager: Brandon Bruns
E-Mail: _____
Project Name: Seltzer G 2-4
Project Number: _____

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative					Matrix	Analyze For:	Special Instructions
				HCl	HNO ₃	None	Other (Specify)	Groundwater			
241010-4	3/25/14	12:30	1	X				X	Soil	XX-a1	
241011-1	3/25/14	12:00	1		X				Groundwater	XX	
241012-1	3/25/14	12:30	1		X				Groundwater	XX	

Requisitioned by: [Signature] Date/Time: 3/26/14 9:00 Received by: [Signature] Date/Time: 3/26/14 1700

Requisitioned by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

Requisitioned by: _____ Date/Time: _____ Received in Lab by: _____ Date/Time: _____

Turn Around Time (Check): ☒ 72 Hours ☐ 24 Hours ☐ 48 Hours

Sample Integrity: ☒ Intact ☐ No

Notes: _____

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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.

[Signature]



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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH01@10'
1403227-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/24/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/24/14 08:30**

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: **03/24/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403260	03/30/14	04/01/14	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: **03/24/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		135 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH02@10-11.5'
1403227-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/24/14 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/24/14 10:15**

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: **03/24/14 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.13	0.010	mg/kg	1	1403260	03/30/14	04/01/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.24	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.52	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	12	0.50	"	"	"	"	"	"	

Date Sampled: **03/24/14 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		123 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH03@10'
1403227-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/24/14 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/24/14 12:45**

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: **03/24/14 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403260	03/30/14	04/01/14	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: **03/24/14 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		137 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		118 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH04@10'
1403227-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/24/14 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	110	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/24/14 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/24/14 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.16	0.010	mg/kg	1	1403260	03/30/14	04/01/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.10	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.063	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	19	0.50	"	"	"	"	"	"	

Date Sampled: **03/24/14 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		140 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		121 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		122 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH05@10'
1403227-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/24/14 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/24/14 16:00**

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: **03/24/14 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403260	03/30/14	04/01/14	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: **03/24/14 16:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH06@8-9'
1403227-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	610	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/25/14 08:30**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.40	0.010	mg/kg	1	1403260	03/30/14	04/01/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.78	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.84	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	39	0.50	"	"	"	"	"	"	

Date Sampled: **03/25/14 08:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		115 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		104 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		142 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH06@9-11'
1403227-07 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/14 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	250	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/25/14 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		88.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/14 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.20	0.010	mg/kg	1	1403260	03/30/14	04/01/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.42	0.0050	"	"	"	"	"	"	
Xylenes (total)	2.2	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	54	0.50	"	"	"	"	"	"	

Date Sampled: **03/25/14 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		146 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		140 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH07@10'
1403227-08 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/25/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		89.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403260	03/30/14	04/01/14	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: **03/25/14 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH08@8-9'
1403227-09 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/25/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		87.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.086	0.010	mg/kg	1	1403260	03/30/14	04/01/14	EPA 8260B	
Benzene	0.0084	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.15	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.96	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	13	0.50	"	"	"	"	"	"	

Date Sampled: **03/25/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		148 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH08@9-11'
1403227-10 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/25/14 10:45**

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: **03/25/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.029	0.010	mg/kg	1	1403260	03/30/14	04/01/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.32	0.0050	"	"	"	"	"	"	
Xylenes (total)	2.0	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	29	0.50	"	"	"	"	"	"	

Date Sampled: **03/25/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		128 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		124 %	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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH09@10-11'
1403227-11 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	380	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/25/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.40	0.010	mg/kg	1	1403260	03/30/14	04/01/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.1	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	310	5.0	"	10	"	"	04/01/14	"	

Date Sampled: **03/25/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	04/01/14	"	
Surrogate: Toluene-d8		146 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		201 %	21-167		"	"	"	"	S-02

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

BH10@10-12'
1403227-12 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/25/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1403241	03/28/14	03/29/14	8015M	

Date Sampled: **03/25/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		87.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/25/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1403260	03/30/14	04/01/14	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: **03/25/14 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		141 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 21:59

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 1403241 - EPA 3550A

Blank (1403241-BLK1)

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

C10-C28 (DRO) ND 50 mg/kg

LCS (1403241-BS1)

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

C10-C28 (DRO) 439 50 mg/kg 463 94.8 73-134

Matrix Spike (1403241-MS1)

Source: 1403227-01

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

C10-C28 (DRO) 431 50 mg/kg 443 ND 97.2 50-148

Matrix Spike Dup (1403241-MSD1)

Source: 1403227-01

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

C10-C28 (DRO) 455 50 mg/kg 471 ND 96.7 50-148 5.55 13

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 21:59

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 1403260 - EPA 5030 Soil MS

Blank (1403260-BLK1)

Prepared: 03/30/14 Analyzed: 03/31/14

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	0.0445		"	0.0379	117	23-173				
Surrogate: Toluene-d8	0.0443		"	0.0382	116	20-170				
Surrogate: 4-Bromofluorobenzene	0.0409		"	0.0382	107	21-167				

LCS (1403260-BS1)

Prepared: 03/30/14 Analyzed: 03/31/14

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0843	0.0020	"	0.0882	95.5	58-130				
Toluene	0.104	0.0050	"	0.0885	117	61-134				
Ethylbenzene	0.118	0.0050	"	0.0878	134	74-139				
m,p-Xylene	0.215	0.010	"	0.177	122	73-137				
o-Xylene	0.116	0.0050	"	0.0874	132	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0431		"	0.0351	123	23-173				
Surrogate: Toluene-d8	0.0426		"	0.0354	120	20-170				
Surrogate: 4-Bromofluorobenzene	0.0376		"	0.0354	106	21-167				

Matrix Spike (1403260-MS1)

Source: 1403223-08

Prepared: 03/30/14 Analyzed: 03/31/14

Naphthalene	ND	0.010	mg/kg		ND	10-158				
Benzene	0.0813	0.0020	"	0.0918	0.00308	85.2	30-131			
Toluene	0.100	0.0050	"	0.0921	0.00349	105	30-134			
Ethylbenzene	0.128	0.0050	"	0.0913	0.00273	137	22-153			
m,p-Xylene	0.234	0.010	"	0.184	0.00532	124	10-159			
o-Xylene	0.132	0.0050	"	0.0910	0.00286	142	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0400		"	0.0366		109	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0368		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0368		103	21-167			

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 21:59

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 1403260 - EPA 5030 Soil MS

Matrix Spike Dup (1403260-MSD1)				Source: 1403223-08		Prepared: 03/30/14		Analyzed: 03/31/14		
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0900	0.0020	"	0.0961	0.00308	90.5	30-131	10.2	34	
Toluene	0.110	0.0050	"	0.0963	0.00349	111	30-134	9.38	30	
Ethylbenzene	0.130	0.0050	"	0.0956	0.00273	133	22-153	1.47	24	
m,p-Xylene	0.240	0.010	"	0.193	0.00532	122	10-159	2.70	68	
o-Xylene	0.138	0.0050	"	0.0952	0.00286	142	31-151	5.08	38	
Surrogate: 1,2-Dichloroethane-d4	0.0456		"	0.0382		119	23-173			
Surrogate: Toluene-d8	0.0455		"	0.0385		118	20-170			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0385		107	21-167			

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 21:59

Notes and Definitions

S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

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'.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 02, 2014

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Seltzer G 2-4

Enclosed are the results of analyses for samples received by Summit Scientific on 04/01/14 17:20. 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', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Manager



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

Project: Seltzer G 2-4

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 16:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1404008-01	Water	04/01/14 14:00	04/01/14 17:20
BH02	1404008-02	Water	04/01/14 14:10	04/01/14 17:20
BH03	1404008-03	Water	04/01/14 14:20	04/01/14 17:20
BH04	1404008-04	Water	04/01/14 14:30	04/01/14 17:20
BH05	1404008-05	Water	04/01/14 14:40	04/01/14 17:20
BH06	1404008-06	Water	04/01/14 14:50	04/01/14 17:20
BH07	1404008-07	Water	04/01/14 15:00	04/01/14 17:20
BH08	1404008-08	Water	04/01/14 15:10	04/01/14 17:20
BH09	1404008-09	Water	04/01/14 15:20	04/01/14 17:20
BH10	1404008-10	Water	04/01/14 15:30	04/01/14 17:20
BH11	1404008-11	Water	04/01/14 15:40	04/01/14 17:20
BH12	1404008-12	Water	04/01/14 15:50	04/01/14 17:20
BH13	1404008-13	Water	04/01/14 16:00	04/01/14 17:20

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: Seltzer G 2-4

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 16:16

1404008.1

Summit Scientific

7411 Corporate Circle Suite 100 (Golden, Colorado 80601)
303-772-5110 • 303-772-5933 Fax

Client: PDC Energy
Address:
City/State/Zip:
Phone:
Sample Name: DAN KOTER

Project Manager: Brandon Bruns
Editor:
Project Name: Seltzer G 2-4
Project Number:

Page: 1 of 2

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative	Matrix	Analyte Req	Vertical Interval/ft
BH01	4/1/14	1400	3	X	Other (Specify)	X BTEX	
BH02		1410		X	Other (Specify)		
BH03		1420		X	Other (Specify)		
BH04		1430		X	Other (Specify)		
BH05		1440		X	Other (Specify)		
BH06		1450		X	Other (Specify)		
BH07		1500		X	Other (Specify)		
BH08		1510		X	Other (Specify)		
BH09		1520		X	Other (Specify)		
BH10		1530		X	Other (Specify)		

Received by: [Signature] Date/Time: 4/1/14 1700
Received by: [Signature] Date/Time: 4/1/14 1700
Received by: [Signature] Date/Time: 4/1/14 1700

Sample Integrity: Temperature: 11.00°C
Intact: [X] No: []

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.

[Signature]

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

Project: Seltzer G 2-4

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 16:16

1404008.2

Summit Scientific

Alt (Corporate Truck Site) (+ Golden, Colorado 80401)
 W: 773/410 + 30; 734/593 fax

Client: PNC Energy
 Address: _____
 City/State/Zip: _____
 Phone: _____ Fax: _____
 Sample Name: DAN KOTTER

Project Manager: Brendan Bruns
 E-Mail: _____
 Project Name: Seltzer G-2-4
 Project Number: _____

Page: 2 of 2

Sample Description		Date Sampled	Time Sampled	Number of Containers	Preservative	Matrix	Analysis For:
Sample Description	BH 11	4/1/14	1510	3	X	Soil	Special Test Notes
	BH 12	↓	1550	↓	↓	Groundwater	
	BH 13	↓	1600	↓	↓	Other (Specify)	
Alt - Container Serial # Other (Specify)							

Receival		Date/Time	Date/Time	Notes
Received by	4/1/14	4/1/14	1728	Turn Around Time (Week) Same Day <input checked="" type="checkbox"/> 7 Days 24 Hours <input type="checkbox"/> Standard 48 Hours <input type="checkbox"/>
Received by				

Sample Integrity		Date/Time	Date/Time
Undisturbed by			
Disturbed by			

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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH01
1404008-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/01/14 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		76.9 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH02
1404008-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	3.6	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	17	1.0		"	"	"	"	"	"	
Xylenes (total)	75	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		80.3 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		98.7 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %		45-146		"	"	"	"	

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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH03
1404008-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	1.5	1.0	ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/01/14 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		79.3 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.2 %	45-146		"	"	"	"	

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: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH04
1404008-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 14:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	49	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	2.8	1.0		"	"	"	"	"	"	
Ethylbenzene	86	1.0		"	"	"	"	"	"	
Xylenes (total)	250	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 14:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		92.2 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		101 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		95.3 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH05
1404008-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 14:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 14:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		79.8 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		98.1 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.2 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH06
1404008-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 14:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	19	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	2.0	1.0		"	"	"	"	"	"	
Xylenes (total)	6.9	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 14:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		76.9 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		98.0 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH07
1404008-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 15:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	1.1	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 15:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		78.7 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		98.7 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH08
1404008-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 15:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	280	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	17	1.0		"	"	"	"	"	"	
Ethylbenzene	64	1.0		"	"	"	"	"	"	
Xylenes (total)	280	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 15:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		81.5 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		101 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.8 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH09
1404008-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	1.5	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	6.3	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 15:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		77.2 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		96.8 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.7 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH10
1404008-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 15:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	1.0	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 15:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		79.3 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		97.3 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.3 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH11
1404008-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 15:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	11	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	2.9	1.0		"	"	"	"	"	"	
Ethylbenzene	9.1	1.0		"	"	"	"	"	"	
Xylenes (total)	160	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 15:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		72.6 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.3 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.5 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH12
1404008-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 15:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	940	100		ug/l	100	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	200	1.0		"	1	"	"	04/02/14	"	
Ethylbenzene	140	1.0		"	"	"	"	"	"	
Xylenes (total)	740	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 15:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>		81.5 %		37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		107 %		45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		95.4 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

BH13
1404008-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/01/14 16:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	24	1.0		ug/l	1	1404012	04/01/14	04/02/14	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	63	1.0		"	"	"	"	"	"	
Xylenes (total)	100	1.0		"	"	"	"	"	"	

Date Sampled: **04/01/14 16:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		84.1 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		100 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %		45-146		"	"	"	"	

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 16:16

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 1404012 - EPA 5030 Water MS

Blank (1404012-BLK1)

Prepared & Analyzed: 04/01/14

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	16.5		"	13.2	125	37-154				
Surrogate: Toluene-d8	16.1		"	13.3	121	45-149				
Surrogate: 4-Bromofluorobenzene	14.3		"	13.3	107	45-146				

LCS (1404012-BS1)

Prepared & Analyzed: 04/01/14

Benzene	34.8	1.0	ug/l	33.2	105	51-132				
Toluene	41.0	1.0	"	33.3	123	51-138				
Ethylbenzene	40.4	1.0	"	33.1	122	58-146				
m,p-Xylene	80.0	2.0	"	66.7	120	57-144				
o-Xylene	39.4	1.0	"	32.9	120	53-146				
Surrogate: 1,2-Dichloroethane-d4	14.2		"	13.2	107	37-154				
Surrogate: Toluene-d8	14.3		"	13.3	107	45-149				
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3	105	45-146				

Matrix Spike (1404012-MS1)

Source: 1404008-09

Prepared & Analyzed: 04/01/14

Benzene	40.2	1.0	ug/l	33.2	1.53	116	34-141			
Toluene	44.5	1.0	"	33.3	ND	134	27-151			
Ethylbenzene	48.6	1.0	"	33.1	ND	147	29-160			
m,p-Xylene	106	2.0	"	66.7	6.33	150	20-166			
o-Xylene	47.2	1.0	"	32.9	ND	143	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.2		103	37-154			
Surrogate: Toluene-d8	14.3		"	13.3		107	45-149			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	45-146			

Summit Scientific

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

Project: Seltzer G 2-4
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
04/02/14 16:16

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 1404012 - EPA 5030 Water MS

Matrix Spike Dup (1404012-MSD1)	Source: 1404008-09			Prepared & Analyzed: 04/01/14						
Benzene	45.7	1.0	ug/l	33.2	1.53	133	34-141	12.6	32	
Toluene	50.2	1.0	"	33.3	ND	150	27-151	11.9	25	
Ethylbenzene	46.6	1.0	"	33.1	ND	141	29-160	4.12	50	
m,p-Xylene	103	2.0	"	66.7	6.33	145	20-166	2.95	36	
o-Xylene	46.2	1.0	"	32.9	ND	140	33-159	2.21	26	
Surrogate: 1,2-Dichloroethane-d4	16.0		"	13.2		121	37-154			
Surrogate: Toluene-d8	16.1		"	13.3		121	45-149			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	45-146			

Summit Scientific

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

Project: Seltzer G 2-4

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
04/02/14 16:16

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

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