

PDC Energy, Inc.
First Quarter 2015 Groundwater Monitoring Summary

March 30, 2015

Steinwald 1 Tank Battery
NWNW S3 T1N R64W
Weld County, API # 05-123-11427

This groundwater summary has been prepared by Tasman Geosciences for the Steinwald 1 tank battery. On February 23, 2015, groundwater sampling was conducted at the five site monitoring well locations. Groundwater samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8260B. Groundwater analytical data is summarized in Table 1 below and the laboratory report is included as Attachment A. Fourth quarter 2014 and first quarter 2015 analytical results are illustrated on Figure 1. First quarter analytical results indicate benzene concentrations are in exceedance of COGCC Table 910-1 standard in two monitoring well locations (BH01 and BH04). BTEX concentrations are below regulatory standards in the remaining three sample locations.

Monitored natural attenuation will remain the selected remedial strategy through the second quarter 2015. Should BTEX concentrations persist, additional remedial strategies will be evaluated.

Second quarter 2015 groundwater sampling will be conducted during May 2015.

TABLE 1
STEINWALD 1
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

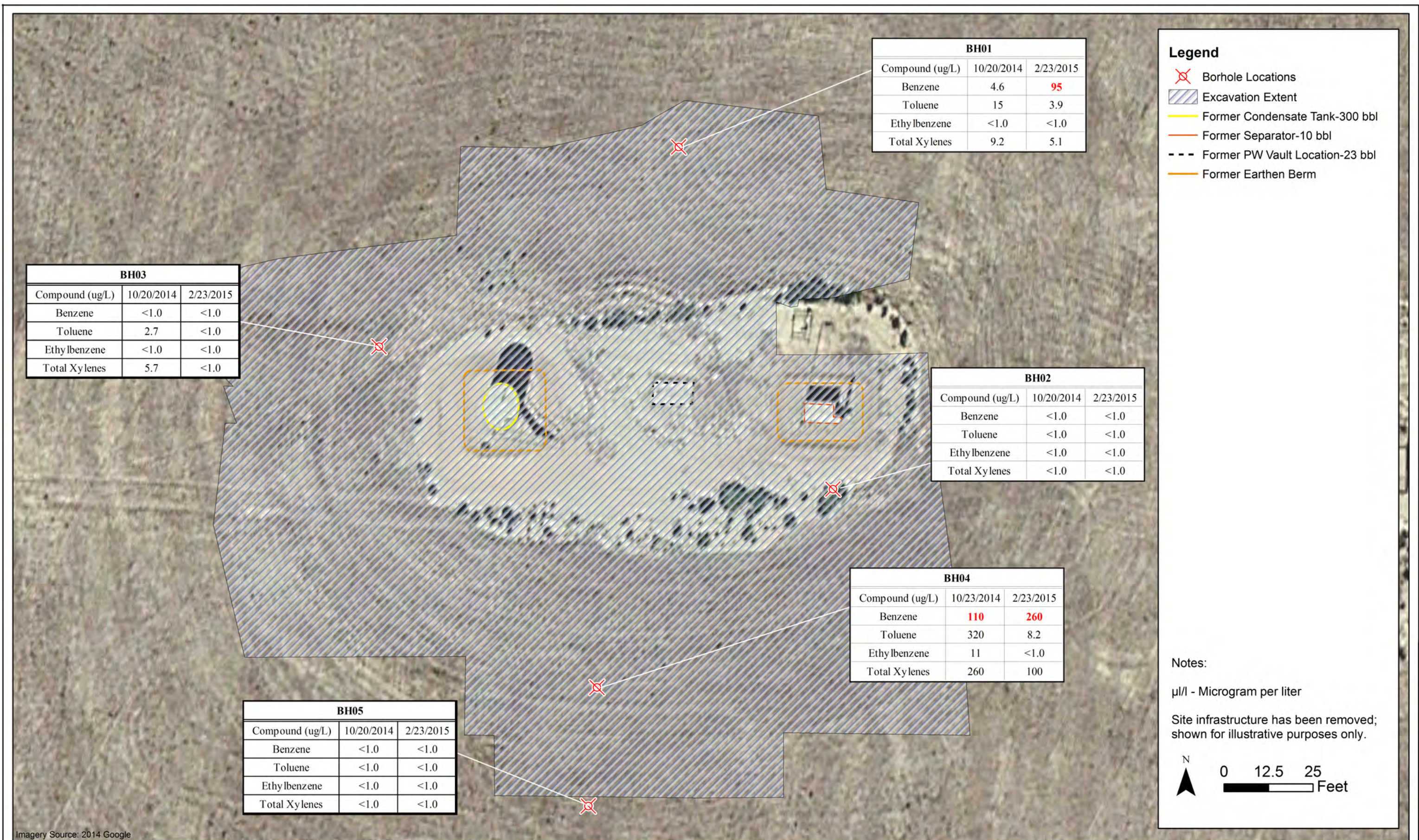
Sample ID	Date Sampled	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Depth to Water (feet)
BH01	10/20/2014	4.6	15	<1.0	9.2	67.08
BH01	2/23/2015	95	3.9	<1.0	5.1	66.90
BH02	10/20/2014	<1.0	<1.0	<1.0	<1.0	68.90
BH02	2/23/2015	<1.0	<1.0	<1.0	<1.0	68.61
BH03	10/20/2014	<1.0	2.7	<1.0	5.7	63.86
BH03	2/23/2015	<1.0	<1.0	<1.0	<1.0	63.29
BH04	10/20/2014	130	670	29	390	66.58
BH04	10/23/2014	110	320	11	260	66.16
BH04	2/23/2015	260	8.2	<1.0	100	66.32
BH05	11/26/2014	<1.0	<1.0	<1.0	<1.0	65.68
BH05	2/23/2015	<1.0	<1.0	<1.0	<1.0	65.88
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.



DATE:	March 2015
DESIGNED BY:	C. Wasko
DRAWN BY:	D. Arnold

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite J ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.374.5933 - fax

February 26, 2015

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Steinwald #1

Enclosed are the results of analyses for samples received by Summit Scientific on 02/23/15 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 read "Joseph J Egry IV". The signature is fluid and cursive, with a small "IV" at the end.

Joseph J Egry IV For Paul Shrewsbury
President

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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/26/15 14:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1502151-01	Water	02/23/15 11:45	02/23/15 17:00
BH02	1502151-02	Water	02/23/15 11:00	02/23/15 17:00
BH03	1502151-03	Water	02/23/15 11:15	02/23/15 17:00
BH04	1502151-04	Water	02/23/15 10:30	02/23/15 17:00
BH05	1502151-05	Water	02/23/15 10:35	02/23/15 17:00

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

Project: Steinwald #1

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
02/26/15 14:30

Summit Scientific

150215)

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

Page 1 of 1

Client: PDC Energy
Address:
City/State/Zip:
Phone: Fax:
Sampler Name: EDH

Project Manager: Brandon Bruns
E-Mail: brandon.bruns@pdce.com
Project Name: Steinwald #1
Project Number:

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix			Analyze For:										
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTE x S260								
BH 01	02/24/15	11:45	↓	X				Y												Special Instructions
BH 02		11:00	↓	X																
BH 03		11:15	↓	X																
BH 04		10:30	↓	X																
BH 05	↓	10:39	↓	G				↓												
Relinquished by: [Signature]				Date/Time: 02/24/15 17:00	Received by: [Signature]	Date/Time: 2/23/15 1700	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>				Notes:									
Relinquished by:				Date/Time:	Received by:	Date/Time:														
Relinquished by:				Date/Time:	Received in Lab by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: 5.3°C Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>													

www.s2science.com

Soil samples reported on a wet-weight basis unless otherwise indicated on results page.

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Carol J. Gray ¹⁰

Joseph J Egry IV For Paul Shrewsbury, President



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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

Sample Receipt Checklist

S2 Work Order: 1502151

Client: PDC

Client Project ID: Steinwald #1

Shipped Via: Pick up

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: —

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

Cooler ID	<u>1</u>				
Temp (°C)	<u>5.3</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?	✓			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?		✓		
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water — is there headspace present? If yes, contact client and note in narrative.		✓		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	✓			HCL
Note the type of preservative in the Comments column — HCl, H ₂ SO ₄ , NaOH, etc.				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			✓	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Joseph J Egry IV
Custodian Printed Name

Joseph J Egry IV
Signature or Initials of Custodian

2/24/15
Date/Time

Soil samples reported on a wet-weight basis unless otherwise indicated on results page.

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Joseph J Egry IV For Paul Shrewsbury, President



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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

BH01
1502151-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/23/15 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	95	1.0	ug/l	1	1502244	02/23/15	02/24/15 18:43	EPA 8260B	
Toluene	3.9	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	5.1	1.0	"	"	"	"	"	"	

Date Sampled: **02/23/15 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	102 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	105 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	115 %	45-146			"	"	"	"	

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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

BH02
1502151-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/23/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1502244	02/23/15	02/24/15 19:06	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/23/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	97.4 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	103 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	116 %	45-146			"	"	"	"	

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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

BH03
1502151-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/23/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1502244	02/23/15	02/24/15 19:29	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/23/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	93.9 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	98.0 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	116 %	45-146			"	"	"	"	

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

BH04
1502151-04 (Water)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/23/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	260	1.0	ug/l	1	1502244	02/23/15	02/24/15 19:55	EPA 8260B	
Toluene	8.2	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	100	1.0	"	"	"	"	"	"	

Date Sampled: **02/23/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	100 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	102 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	115 %	45-146			"	"	"	"	

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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

BH05
1502151-05 (Water)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/23/15 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1502244	02/23/15	02/24/15 20:41	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/23/15 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	99.0 %	37-154			"	"	"	"	
Surrogate: Toluene-d8	100 %	45-149			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	116 %	45-146			"	"	"	"	

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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

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 1502244 - EPA 5030 Water MS

Blank (1502244-BLK1)

Prepared: 02/23/15 Analyzed: 02/24/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.2		"	13.2		92.4	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		99.8	45-149			
Surrogate: 4-Bromofluorobenzene	15.2		"	13.3		114	45-146			

LCS (1502244-BS1)

Prepared: 02/23/15 Analyzed: 02/24/15

Benzene	32.5	1.0	ug/l	33.3		97.5	51-132			
Toluene	30.5	1.0	"	33.3		91.5	51-138			
Ethylbenzene	30.2	1.0	"	33.1		91.3	58-146			
m,p-Xylene	61.3	2.0	"	66.5		92.1	57-144			
o-Xylene	30.4	1.0	"	32.8		92.7	53-146			
Xylenes (total)	91.7	1.0	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.2		97.9	37-154			
Surrogate: Toluene-d8	13.8		"	13.3		104	45-149			
Surrogate: 4-Bromofluorobenzene	15.0		"	13.3		112	45-146			

Matrix Spike (1502244-MS1)

Source: 1502151-01

Prepared: 02/23/15 Analyzed: 02/24/15

Benzene	121	1.0	ug/l	33.3	94.6	79.6	34-141			
Toluene	34.7	1.0	"	33.3	3.93	92.4	27-151			
Ethylbenzene	30.0	1.0	"	33.1	ND	90.9	29-160			
m,p-Xylene	63.0	2.0	"	66.5	2.56	90.9	20-166			
o-Xylene	32.6	1.0	"	32.8	2.50	91.7	33-159			
Xylenes (total)	95.6	1.0	"		5.06		30-150			
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.2		103	37-154			
Surrogate: Toluene-d8	13.8		"	13.3		103	45-149			
Surrogate: 4-Bromofluorobenzene	14.9		"	13.3		112	45-146			

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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

Volatile Organic Compounds by EPA Method 8260B - Quality Control
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Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1502244 - EPA 5030 Water MS

Matrix Spike Dup (1502244-MSD1)	Source: 1502151-01			Prepared: 02/23/15		Analyzed: 02/24/15				
Benzene	122	1.0	ug/l	33.3	94.6	81.3	34-141	0.478	32	
Toluene	34.0	1.0	"	33.3	3.93	90.2	27-151	2.18	25	
Ethylbenzene	30.5	1.0	"	33.1	ND	92.3	29-160	1.55	50	
m,p-Xylene	63.3	2.0	"	66.5	2.56	91.3	20-166	0.412	36	
o-Xylene	32.5	1.0	"	32.8	2.50	91.4	33-159	0.307	26	
Xylenes (total)	95.8	1.0	"		5.06		30-150	0.167	25	
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.2		100	37-154			
Surrogate: Toluene-d8	14.0		"	13.3		105	45-149			
Surrogate: 4-Bromofluorobenzene	15.2		"	13.3		114	45-146			

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Joseph J Egry IV For Paul Shrewsbury, President



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

Project: Steinwald #1
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
02/26/15 14:30

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

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A handwritten signature in black ink, appearing to read 'Joseph J Egry IV'.

Joseph J Egry IV For Paul Shrewsbury, President