

**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**

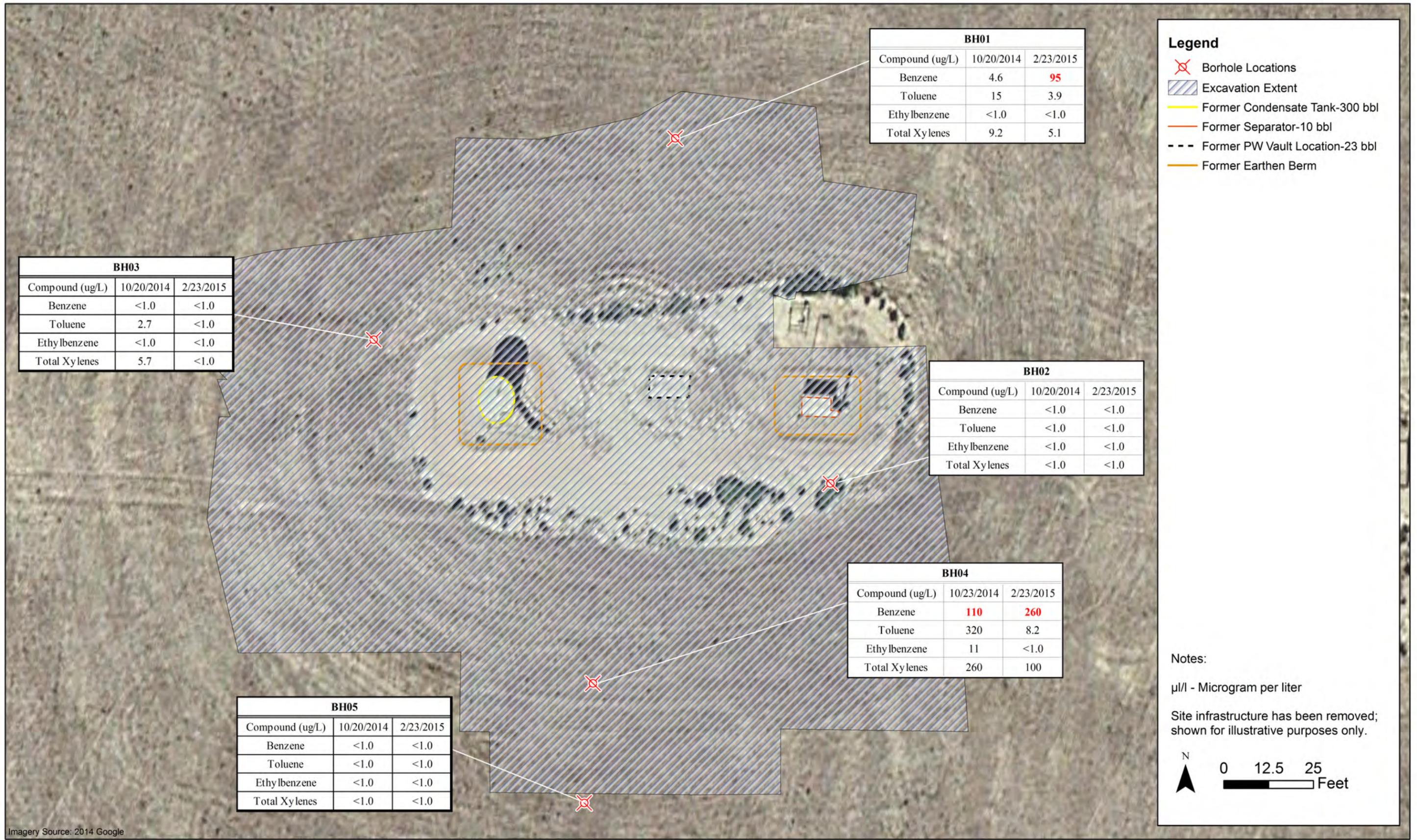
Sample ID	Date Sampled	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Depth to Water (feet)
BH01	10/20/2014	4.6	15	<1.0	9.2	67.08
BH01	2/23/2015	<b>95</b>	3.9	<1.0	5.1	66.90
BH02	10/20/2014	<1.0	<1.0	<1.0	<1.0	68.90
BH02	2/23/2015	<1.0	<1.0	<1.0	<1.0	68.61
BH03	10/20/2014	<1.0	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	<b>130</b>	<b>670</b>	29	390	66.58
BH04	10/23/2014	<b>110</b>	320	11	260	66.16
BH04	2/23/2015	<b>260</b>	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
<b>COGCC standards for Groundwater (ug/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	

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.

**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



**PDC Energy**  
**Steinwald #1**  
 NWNW Section 3, Township 1 North, Range 64 West  
 Weld County, Colorado

Groundwater Analytical  
 Results Map

Figure  
 3

**ATTACHMENT A**

# Summit Scientific

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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" superscripted 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 Bruns

**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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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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, etc.	<input checked="" type="checkbox"/>			HCl
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Joseph J Egrý IV  
 Custodian Printed Name

Brandon Bruns  
 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 Egrý IV

Joseph J Egrý IV For Paul Shrewsbury, President



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

**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
<b>Benzene</b>	<b>95</b>	1.0	ug/l	1	1502244	02/23/15	02/24/15 18:43	EPA 8260B	
<b>Toluene</b>	<b>3.9</b>	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>5.1</b>	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  
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 Denver CO, 80203

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

**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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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

**BH04**  
**1502151-04 (Water)**

**Summit Scientific**

**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
<b>Benzene</b>	<b>260</b>	1.0	ug/l	1	1502244	02/23/15	02/24/15 19:55	EPA 8260B	
<b>Toluene</b>	<b>8.2</b>	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>100</b>	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 Brunns

**Reported:**  
 02/26/15 14:30

**BH05**  
**1502151-05 (Water)**

**Summit Scientific**

**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 Brunns

Reported:  
02/26/15 14:30

**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 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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>12.2</i>		<i>"</i>	<i>13.2</i>		<i>92.4</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.3</i>		<i>"</i>	<i>13.3</i>		<i>99.8</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>15.2</i>		<i>"</i>	<i>13.3</i>		<i>114</i>	<i>45-146</i>			

**LCS (1502244-BS1)**

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

Benzene	32.5	1.0	ug/l	33.3	94.6	79.6	34-141			
Toluene	30.5	1.0	"	33.3	3.93	92.4	27-151			
Ethylbenzene	30.2	1.0	"	33.1	ND	90.9	29-160			
m,p-Xylene	61.3	2.0	"	66.5	2.56	90.9	20-166			
o-Xylene	30.4	1.0	"	32.8	2.50	91.7	33-159			
Xylenes (total)	91.7	1.0	"		5.06		30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>12.9</i>		<i>"</i>	<i>13.2</i>		<i>97.9</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>		<i>104</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>15.0</i>		<i>"</i>	<i>13.3</i>		<i>112</i>	<i>45-146</i>			

**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			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>13.6</i>		<i>"</i>	<i>13.2</i>		<i>103</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>		<i>103</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.9</i>		<i>"</i>	<i>13.3</i>		<i>112</i>	<i>45-146</i>			

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 Denver CO, 80203

Project: Steinwald #1  
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 Project Manager: Brandon Brunns

Reported:  
 02/26/15 14:30

**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		

**Batch 1502244 - EPA 5030 Water MS**

<b>Matrix Spike Dup (1502244-MSD1)</b>	<b>Source: 1502151-01</b>			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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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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