January 4, 2016

Mr. Randall Ferguson
EHS Senior Compliance Specialist
PDC Energy, Inc.
1775 Sherman Street, Suite 3000
Denver, CO 80203

Re: **Produced Water Vessel Closure Report**
Weingardt 24, 33-22 Tank Battery
Facility ID: 331079
NWSE S22 T3N R68W
Blanket Remediation #: 9440

Dear Mr. Ferguson,

On behalf of PDC Energy, Inc. (PDC), Tasman Geosciences, Inc. (Tasman) has prepared this Produced Water Vessel Closure Report (Report) to document environmental sampling activities performed at the above-referenced site. This Report is being submitted under the Form 27 Management Plan for Closure of Produced Water Vessels, which has been assigned Blanket Remediation #9440 by the Colorado Oil and Gas Conservation Commission (COGCC).

A summary of excavation and environmental sampling activities is provided below.

Site Assessment Activities

On December 7, 2015, excavation and sampling activities were completed following the removal of the partially buried concrete produced water vessel. Soil encountered in the excavation area was field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID). One soil sample (SS01) was collected below the former produced water vessel location at approximately 6 inches below ground surface (bgs). The sample was submitted to Summit Scientific Laboratories in Golden, Colorado for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, and total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by Environmental Protection Agency (EPA) Method 8260B, TPH - diesel range organics (DRO) by EPA Method 8015, electrical conductivity (EC), and pH.

Analytical results indicated organic compound concentrations and physical parameters were in compliance with COGCC Table 910-1 standards in soil sample SS01.

The excavation extent and soil sample location are illustrated on Figure 1. Soil analytical data is summarized in Table 1 and the laboratory analytical report is provided in Attachment A.

Conclusions

Based on the soil analytical data described herein, petroleum hydrocarbon impacts were not encountered during the removal of the produced water vessel. Consequently, no further site investigation is recommended at this time.

Please contact me at (720) 409-8791 if you have any questions regarding this report.

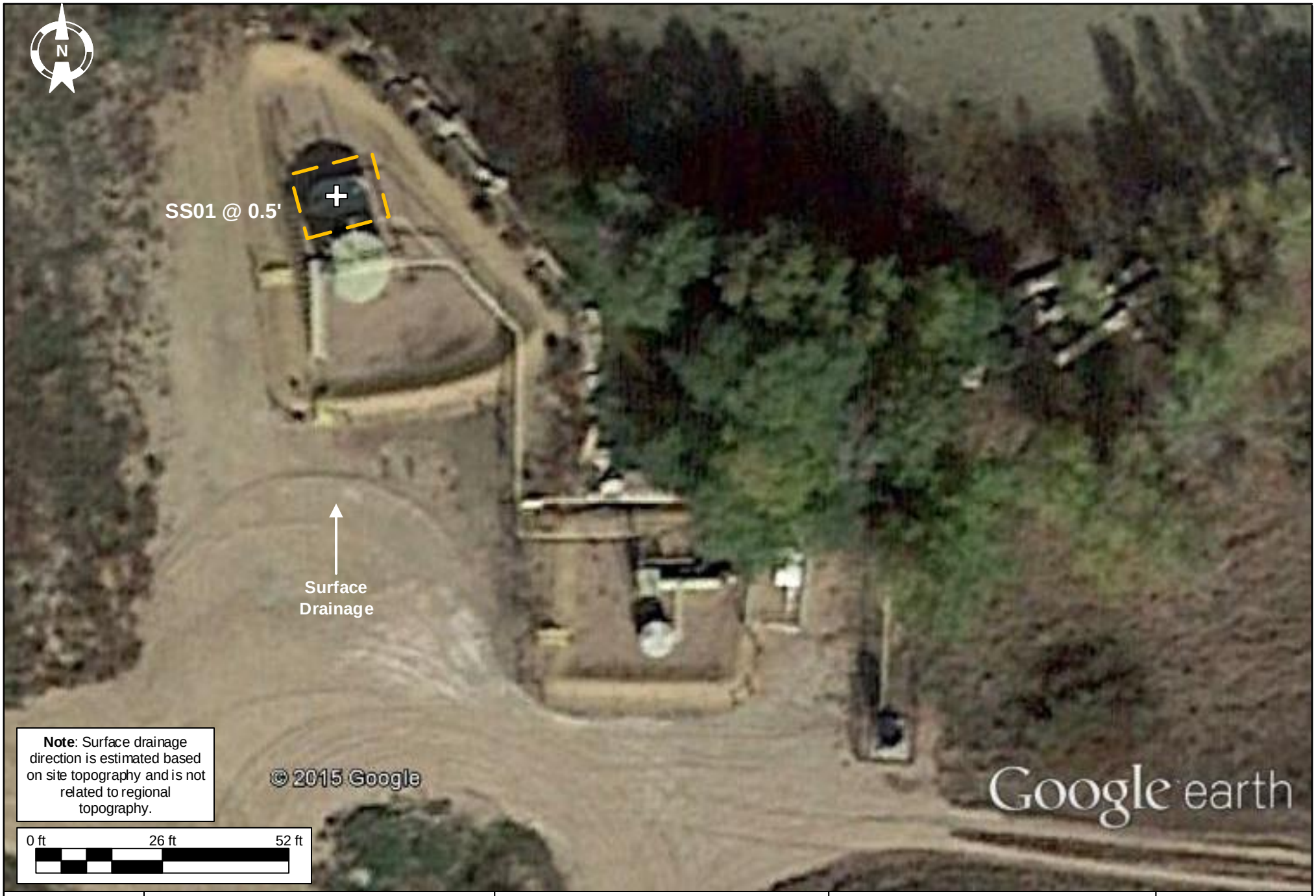
Sincerely,

Christine Wasko

Christine Wasko
Project Manager
Tasman Geosciences, Inc.

Enclosures:

Figure 1 – Soil Sample Location Map
Table 1 – Soil Analytical Results Summary Table
Attachment A – Laboratory Analytical Report



DRAWN BY: MAP

DATE: 12/29/2015

Facility Diagram
PDC Energy – DJ Basin
Weingardt 24, 33-22 Tank Battery
NWSE S22 T3N R68W
Weld County, CO

TASMAN GEOSCIENCES
6899 Pecos St., Unit C
Denver, CO 80221

LEGEND
Excavation Extent
Soil Sample Location

All locations are approximate unless otherwise noted

FIGURE 1

SOIL SAMPLE LOCATION MAP

TABLE 1
WEINGARDT 24, 33-22 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH [2] (mg/kg)	pH (units)	EC (mmhos/cm)
COGCC standards for soil (mg/kg) [1]			**0.17**	**85**	**100**	**175**	**23**	**500**	**6-9**	**<4**
SS01 @ 0.5'	12/7/2015	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	7.93	0.394

Notes:
1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.
2. TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.
COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
GRO = Total volatile petroleum hydrocarbons - gasoline range organics
DRO = Total extractable petroleum hydrocarbons - diesel range organics
mg/kg = Milligrams per kilogram
bgs = Below ground surface
EC = Electrical conductivity
mmhos/cm = millimhos per centimeter
BOLD = Analytical result is in exceedance of COGCC soil standards.

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

December 14, 2015

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

RE: Weingardt 24, 33-22

Enclosed are the results of analyses for samples received by Summit Scientific on 12/07/15 17:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Michelle Clements For Paul Shrewsbury
President

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Weingardt 24, 33-22 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 12/14/15 14:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@0.5'	1512054-01	Soil	12/07/15 15:35	12/07/15 17:15

1512054

Summit Scientific

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: 970-470-9047 Fax:
Sampler Name: Rob Ervin

Project Manager: Mark Longhurst
E-Mail: Mark.Longhurst@PDCE.com
Project Name: Weingardt 24, 33-22
Project Number:

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative: Other (Specify)	Matrix: Groundwater	Matrix: Soil	Matrix: Air - Canister Serial #	Matrix: Other (Specify)	Analyze For: 8260GBTEX	Analyze For: 8015DRO	Analyze For: EC	Analyze For: pH	Special Instructions
~~SS01@0.5'~~	12-7-15	15:35	1			X			X			X	X	X	X	
SS01@0.5'																

Relinquished by: Date/Time: 12/7/15
Received by: Date/Time: 12/7/15 1715
Relinquished by: 12/7/15 1745 Date/Time:
Received by: Date/Time: 12/7/15 17:45
Relinquished by: Date/Time:
Received in Lab by: Date/Time:

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

Sample Integrity:
Temperature Upon Receipt: 5.2°C
Intact: Yes No

Notes: on ice

www.s2scientific.com

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Weingardt 24, 33-22 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 12/14/15 14:37

SS01@0.5'
1512054-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/07/15 15:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1512104	12/11/15	12/12/15	8015M	

Date Sampled: **12/07/15 15:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*114 %*	*30-150*		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/07/15 15:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1512100	12/10/15	12/11/15	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: **12/07/15 15:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*97.3 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8		*100 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*21-167*		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/07/15 15:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.394**	0.0100	mmhos/cm	1	1512082	12/09/15	12/09/15	SM 2510B	

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: Weingardt 24, 33-22 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 12/14/15 14:37

SS01@0.5'
1512054-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/07/15 15:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.93**	0.100	pH Units	1	1512081	12/09/15	12/09/15	EPA 9045	

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1512104 - EPA 3550A										
Blank (1512104-BLK1)				Prepared & Analyzed: 12/11/15						
C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	*13.6*		"	*12.5*		*109*	*30-150*			
LCS (1512104-BS1)				Prepared & Analyzed: 12/11/15						
C10-C28 (DRO)	521	50	mg/kg	499		104	73-134			
Surrogate: o-Terphenyl	*15.3*		"	*12.5*		*122*	*30-150*			
Matrix Spike (1512104-MS1)	**Source: 1512045-01**			Prepared & Analyzed: 12/11/15						
C10-C28 (DRO)	491	50	mg/kg	492	29.4	93.8	50-148			
Surrogate: o-Terphenyl	*14.2*		"	*12.3*		*115*	*30-150*			
Matrix Spike Dup (1512104-MSD1)	**Source: 1512045-01**			Prepared & Analyzed: 12/11/15						
C10-C28 (DRO)	470	50	mg/kg	466	29.4	94.5	50-148	4.30	13	
Surrogate: o-Terphenyl	*13.1*		"	*11.7*		*112*	*30-150*			

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PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Weingardt 24, 33-22 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 12/14/15 14:37

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1512100 - EPA 5030 Soil MS										
Blank (1512100-BLK1)				Prepared & Analyzed: 12/10/15						
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	*0.0381*		"	*0.0400*		*95.3*	*23-173*			
Surrogate: Toluene-d8	*0.0394*		"	*0.0400*		*98.4*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0404*		"	*0.0400*		*101*	*21-167*			
LCS (1512100-BS1)				Prepared & Analyzed: 12/10/15						
Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0762	0.0020	"	0.100		76.2	58-130			
Toluene	0.0805	0.0050	"	0.100		80.5	61-134			
Ethylbenzene	0.0972	0.0050	"	0.0992		98.0	74-139			
m,p-Xylene	0.188	0.010	"	0.200		94.4	73-137			
o-Xylene	0.0908	0.0050	"	0.0984		92.3	73-141			
Xylenes (total)	0.279	0.010	"				0-200			
Gasoline Range Hydrocarbons	2.22	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	*0.0387*		"	*0.0400*		*96.8*	*23-173*			
Surrogate: Toluene-d8	*0.0385*		"	*0.0400*		*96.3*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0391*		"	*0.0400*		*97.7*	*21-167*			
Matrix Spike (1512100-MS1)		**Source: 1512053-01**		Prepared & Analyzed: 12/10/15						
Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0708	0.0020	"	0.0931	ND	76.1	30-131			
Toluene	0.0764	0.0050	"	0.0931	ND	82.0	30-134			
Ethylbenzene	0.0907	0.0050	"	0.0924	ND	98.2	22-153			
m,p-Xylene	0.173	0.010	"	0.186	ND	92.9	10-159			
o-Xylene	0.0846	0.0050	"	0.0916	ND	92.3	31-151			
Xylenes (total)	0.257	0.010	"		0.00		30-160			
Gasoline Range Hydrocarbons	2.04	0.50	"		ND		30-160			
Surrogate: 1,2-Dichloroethane-d4	*0.0370*		"	*0.0372*		*99.4*	*23-173*			
Surrogate: Toluene-d8	*0.0358*		"	*0.0372*		*96.2*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0358*		"	*0.0372*		*96.2*	*21-167*			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1512100 - EPA 5030 Soil MS										
Matrix Spike Dup (1512100-MSD1)		**Source: 1512053-01**		Prepared & Analyzed: 12/10/15						
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0722	0.0020	"	0.0940	ND	76.8	30-131	1.92	34	
Toluene	0.0772	0.0050	"	0.0940	ND	82.1	30-134	1.05	30	
Ethylbenzene	0.0921	0.0050	"	0.0932	ND	98.8	22-153	1.52	24	
m,p-Xylene	0.175	0.010	"	0.188	ND	93.5	10-159	1.60	68	
o-Xylene	0.0845	0.0050	"	0.0925	ND	91.3	31-151	0.127	38	
Xylenes (total)	0.260	0.010	"		0.00		30-160	1.03	30	
Gasoline Range Hydrocarbons	2.04	0.50	"		ND		30-160	0.0803	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0375*		*"*	*0.0376*		*99.7*	*23-173*			
Surrogate: Toluene-d8	*0.0363*		*"*	*0.0376*		*96.5*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0370*		*"*	*0.0376*		*98.6*	*21-167*			

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Weingardt 24, 33-22 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 12/14/15 14:37

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1512081 - General Preparation										
LCS (1512081-BS1)				Prepared & Analyzed: 12/09/15						
pH	8.01	0.100	pH Units	8.00		100	95-105			
Duplicate (1512081-DUP1)		**Source: 1512060-01**		Prepared & Analyzed: 12/09/15						
pH	8.20	0.100	pH Units		8.08			1.47	20	
Batch 1512082 - General Preparation										
Blank (1512082-BLK1)				Prepared & Analyzed: 12/09/15						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (1512082-BS1)				Prepared & Analyzed: 12/09/15						
Specific Conductance (EC)	0.514	0.0100	mmhos/cm	0.500		103	90-110			
Duplicate (1512082-DUP1)		**Source: 1512060-01**		Prepared & Analyzed: 12/09/15						
Specific Conductance (EC)	1.19	0.0100	mmhos/cm		1.32			10.3	20	

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Weingardt 24, 33-22 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 12/14/15 14:37

Notes and Definitions

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

Summit Scientific

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