TABLE 1
FORMER BRANDONDI 1 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth (ft. 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 Table 910-1 Soil Standard (mg/kg) [1]			**0.17**	**85**	**100**	**175**	**23**	**500**	**6-9**	**<4**
SS01 @ 4'	2/5/2020	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	8.72	0.286

Notes:
1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
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
ft. = Feet
bgs = Below ground surface
EC = Electrical conductivity
mmhos/cm = millimhos per centimeter

TABLE 2
FORMER BRANDONDI 1 TANK BATTERY
VOC CONCENTRATIONS SUMMARY TABLE

Sample ID	Date Sampled	Depth (ft. bgs)	Sample Location[1]	Field Measured VOC Concentration[2] (ppm)
SS01 @ 4'	2/5/2020	4	Base	0.0
SS02 @ 3'	2/5/2020	3	North Sidewall	0.0
SS03 @ 3'	2/5/2020	3	West Sidewall	0.0
SS04 @ 3'	2/5/2020	3	South Sidewall	0.0
SS05 @ 3'	2/5/2020	3	East Sidewall	0.0

Notes:

1. Refers to the sample location within the excavation area below the former produced water vessel.
2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

ft. = Feet
bgs = Below ground surface
ppm = Parts per million
= Sample submitted for laboratory analysis.

ATTACHMENT A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

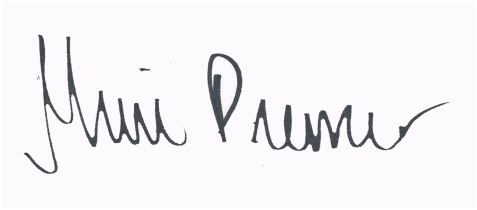
February 12, 2020

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

RE: Brandondi 1
Work Order #2002025

Enclosed are the results of analyses for samples received by Summit Scientific on 02/05/20 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Muri Premer For Paul Shrewsbury
President

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@4'	2002025-01	Soil	02/05/20 12:16	02/05/20 17:30

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.

Summit Scientific

2002025

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

Page 1 of 1

Client:	PDC	Project Manager:	Mark Longhurst
Address:		E-Mail:	Mark.Longhurst@pdce.com
City/State/Zip:		Project Name:	Brandendi 1
Phone:	Fax:	Project Number:	
Sampler Name:	Jake McCarver		

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: BTEXN	Analyze For: TPH-GRO/DRO	Analyze For: EC/pH	Analyze For:	Analyze For: HOLD	Analyze For:	Analyze For:	Analyze For:	Special Instructions
SS01 @ 4'	2/5/20	1216	1			X			X			X	X	X						
SS02 @ 3'	↓	1220	↓			↓			↓							X				Please hold SS02-SS05
SS03 @ 3'		1224														X				
SS04 @ 3'		1228														X				
SS05 @ 3'	↓	1232	↓			↓			↓							X				

Relinquished by:	Date/Time: 2/5/20 1730	Received by:	Date/Time: 02/05/2020 1730
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:

Turn Around Time (Check)

Same Day		72 Hours	
24 Hours		Standard	X
48 Hours			

Sample Integrity:
Temperature Upon Receipt: 3.4
Intact: Yes X No

Sample Receipt Checklist

S2 Work Order 2002025

Client: PDC Client Project ID: BRANDONDI 1

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ ☑ ☐ ☐ ☐ Airbill #: _____

Matrix (check all that apply): ☐ Air ☑ Soil/Solid ☐ Water ☐ Other: _____ (Describe)

Temp (°C)	3.4

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C [1]? NOTE: If samples are delivered the same day of sampling, this requirement is met 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 samples with holding times due within 48 hours sample 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]? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			✔	
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.				

RZ — **Custodian Printed Name or Initials**

Signature of Custodian

2/5/20 — **Date/Time**

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

SS01@4'

2002025-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/05/20 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	2002069	02/06/20	02/06/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/05/20 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8		*99.2 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*101 %*	*21-167*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/05/20 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2002068	02/06/20	02/07/20	EPA 8015M	

Date Sampled: **02/05/20 12:16**

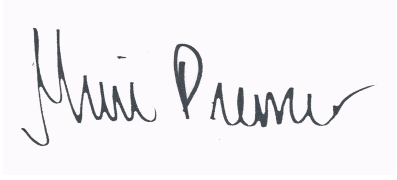
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*94.2 %*	*30-150*		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **02/05/20 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.72**		pH Units	1	2002063	02/06/20	02/06/20	EPA 9045D	

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.

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

SS01@4'

2002025-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1

Date Sampled: **02/05/20 12:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.286**	0.0100	mmhos/cm	1	2002062	02/06/20	02/06/20	EPA 120.1	

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

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 2002069 - EPA 5030 Soil MS										
Blank (2002069-BLK1)				Prepared & Analyzed: 02/06/20						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0438*		"	*0.0400*		*110*	*23-173*			
Surrogate: Toluene-d8	*0.0393*		"	*0.0400*		*98.2*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0404*		"	*0.0400*		*101*	*21-167*			
LCS (2002069-BS1)				Prepared & Analyzed: 02/06/20						
Benzene	0.0966	0.0020	mg/kg	0.100		96.6	70-130			
Toluene	0.105	0.0050	"	0.100		105	70-130			
Ethylbenzene	0.107	0.0050	"	0.100		107	70-130			
m,p-Xylene	0.192	0.010	"	0.200		96.2	70-130			
o-Xylene	0.102	0.0050	"	0.100		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0426*		"	*0.0400*		*107*	*23-173*			
Surrogate: Toluene-d8	*0.0420*		"	*0.0400*		*105*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0378*		"	*0.0400*		*94.6*	*21-167*			
Matrix Spike (2002069-MS1)		**Source: 2002024-01**		Prepared & Analyzed: 02/06/20						
Benzene	0.105	0.0020	mg/kg	0.100	ND	105	70-130			
Toluene	0.114	0.0050	"	0.100	ND	114	70-130			
Ethylbenzene	0.118	0.0050	"	0.100	ND	118	70-130			
m,p-Xylene	0.214	0.010	"	0.200	ND	107	70-130			
o-Xylene	0.112	0.0050	"	0.100	ND	112	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0431*		"	*0.0400*		*108*	*23-173*			
Surrogate: Toluene-d8	*0.0414*		"	*0.0400*		*104*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0382*		"	*0.0400*		*95.6*	*21-167*			

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

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 2002069 - EPA 5030 Soil MS										
Matrix Spike Dup (2002069-MSD1)	**Source: 2002024-01**			Prepared & Analyzed: 02/06/20						
Benzene	0.107	0.0020	mg/kg	0.100	ND	107	70-130	1.30	30	
Toluene	0.115	0.0050	"	0.100	ND	115	70-130	0.971	30	
Ethylbenzene	0.121	0.0050	"	0.100	ND	121	70-130	2.52	30	
m,p-Xylene	0.219	0.010	"	0.200	ND	109	70-130	2.09	30	
o-Xylene	0.115	0.0050	"	0.100	ND	115	70-130	2.01	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0434*		*"*	*0.0400*		*109*	*23-173*			
Surrogate: Toluene-d8	*0.0407*		*"*	*0.0400*		*102*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0377*		*"*	*0.0400*		*94.3*	*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.

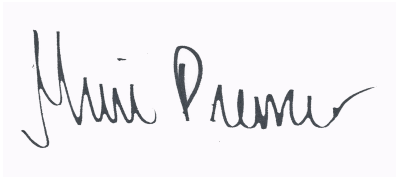
S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

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 2002068 - EPA 3550A										
Blank (2002068-BLK1)				Prepared & Analyzed: 02/06/20						
C10-C28 (DRO)	ND	50	mg/kg							
LCS (2002068-BS1)				Prepared & Analyzed: 02/06/20						
C10-C28 (DRO)	534	50	mg/kg	500		107	70-130			
Matrix Spike (2002068-MS1)	**Source: 2002024-01**			Prepared & Analyzed: 02/06/20						
C10-C28 (DRO)	471	50	mg/kg	500	18.4	90.4	70-130			
Matrix Spike Dup (2002068-MSD1)	**Source: 2002024-01**			Prepared & Analyzed: 02/06/20						
C10-C28 (DRO)	446	50	mg/kg	500	18.4	85.5	70-130	5.42	20	



S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

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 2002063 - General Preparation										
LCS (2002063-BS1)				Prepared & Analyzed: 02/06/20						
pH	9.14		pH Units	9.18		99.6	95-105			
Duplicate (2002063-DUP1)		**Source: 2001403-01**		Prepared & Analyzed: 02/06/20						
pH	7.76		pH Units		7.70			0.776	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.

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

Specific Conductance by EPA Method 120.1 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2002062 - General Preparation										
Blank (2002062-BLK1)				Prepared & Analyzed: 02/06/20						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (2002062-BS1)				Prepared & Analyzed: 02/06/20						
Specific Conductance (EC)	0.776	0.0100	mmhos/cm	0.750		103	90-110			
Duplicate (2002062-DUP1)		**Source: 2001403-01**		Prepared & Analyzed: 02/06/20						
Specific Conductance (EC)	1.76	0.0100	mmhos/cm		1.75			0.485	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.

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Brandondi 1 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/12/20 15:34

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