

**TABLE 1
FORMER LEONARD & SONS 1 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH ⁽⁴⁾ (mg/kg)
Residential SSL^(1,2)			1.2	490	5.8	58	30	27	2	500
Protection of Groundwater SSL^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
WH01 @ 6'	7/13/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<50

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.
4. Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics

TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics

TEPH-ORO = Total extractable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

TABLE 2
FORMER LEONARD & SONS 1 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Soil Suitability for Reclamation Standard ⁽¹⁾			6-8.3	<4	<6	2
FLR01 @ 2.5'	7/13/2021	2.5 ft. bgs	8.52	0.393	1.56	0.334
BKG01 @ 2.5'	7/13/2021	2.5 ft. bgs	8.95	NA	NA	NA

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

NA = Constituent not analyzed

**TABLE 3
FORMER LEONARD & SONS 1 WELLHEAD
FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
WH01 @ 6'	7/13/2021	6 ft. bgs	40.401445	-104.904808	1.3	2.2
FLR01 @ 2.5'	7/13/2021	2.5 ft. bgs	40.401447	-104.904824	1.2	4.1
FLR01 @ 3'	7/13/2021	3 ft. bgs	40.401455	-104.904824	1.2	3.8
WHS01-N @ 0-6"	7/13/2021	0-6 in. bgs	40.401473	-104.904815	1.2	0.1
WHS01-W @ 0-6"	7/13/2021	0-6 in. bgs	40.401438	-104.904851	1.2	0.0
WHS01-S @ 0-6"	7/13/2021	0-6 in. bgs	40.401408	-104.904804	1.2	0.2
WHS01-E @ 0-6"	7/13/2021	0-6 in. bgs	40.401443	-104.904765	1.4	0.2
FL01-01 @ 4'	7/13/2021	4 ft. bgs	40.401258	-104.904839	1.2	0.4
FL01-02 @ 4'	7/13/2021	4 ft. bgs	40.400887	-104.904541	1.2	0.1
BKG01 @ 2.5'	7/13/2021	2.5 ft. bgs	40.401484	-104.905013	1.4	0.0

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.
2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 26, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Leonard & Son 1 Wellhead

Work Order #2107173

Enclosed are the results of analyses for samples received by Summit Scientific on 07/13/21 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large, stylized initial "M".

Muri Premer For Paul Shrewsbury
President



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

Project: Leonard & Son 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
07/26/21 15:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@6'	2107173-01	Soil	07/13/21 09:10	07/13/21 17:00
FLR01@2.5'	2107173-02	Soil	07/13/21 09:15	07/13/21 17:00
BKG01@2.5'	2107173-03	Soil	07/13/21 10:00	07/13/21 17:00

Summit Scientific

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2107173

Sample Receipt Checklist

S2 Work Order _____

Client: PDC/Tasman Client Project ID: Leonard & Son 1 Wellhead

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

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

Temp (°C)	8
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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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	On ice.
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

JB
Custodian Printed Name or Initials

Julie Brun
Signature of Custodian

7/13/21
Date/Time



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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/26/21 15:58

WH01@6'
2107173-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/13/21 09:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BEG0239	07/14/21	07/16/21	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **07/13/21 09:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		122 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		113 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.3 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/13/21 09:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BEG0253	07/15/21	07/16/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **07/13/21 09:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		92.9 %		30-150		"	"	"	"	

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1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Leonard & Son 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/26/21 15:58

FLR01@2.5'
2107173-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **07/13/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.334	0.0100	mg/L	1	BEG0231	07/14/21	07/16/21	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **07/13/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	35.2	0.0590	mg/L dry	1	BEG0235	07/14/21	07/17/21	EPA 6020B	
Magnesium	18.2	0.0590	"	"	"	"	"	"	
Sodium	45.8	0.0590	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **07/13/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.56	0.00100	units	1	BEG0324	07/19/21	07/19/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/13/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.7		%	1	BEG0245	07/14/21	07/15/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **07/13/21 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.393	0.0100	mmhos/cm	1	BEG0258	07/15/21	07/15/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Leonard & Son 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/26/21 15:58

FLR01@2.5'
2107173-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **07/13/21 09:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.52		pH Units	1	BEG0257	07/15/21	07/15/21	EPA 9045D	

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/26/21 15:58

BKG01@2.5'
2107173-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **07/13/21 10:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.95		pH Units	1	BEG0422	07/23/21	07/23/21	EPA 9045D	

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/26/21 15:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch BEG0239 - EPA 5030 Soil MS

Blank (BEG0239-BLK1)

Prepared: 07/14/21 Analyzed: 07/16/21

Benzene	ND	0.0020	mg/kg								
Toluene	ND	0.0050	"								
Ethylbenzene	ND	0.0050	"								
Xylenes (total)	ND	0.010	"								
1,2,4-Trimethylbenzene	ND	0.0050	"								
1,3,5-Trimethylbenzene	ND	0.0050	"								
Naphthalene	ND	0.0038	"								
Gasoline Range Hydrocarbons	ND	0.50	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0304</i>		<i>"</i>	<i>0.0400</i>		<i>75.9</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0510</i>		<i>"</i>	<i>0.0400</i>		<i>128</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0395</i>		<i>"</i>	<i>0.0400</i>		<i>98.8</i>	<i>21-167</i>				

LCS (BEG0239-BS1)

Prepared: 07/14/21 Analyzed: 07/16/21

Benzene	0.0778	0.0020	mg/kg	0.100		77.8	70-130				
Toluene	0.103	0.0050	"	0.100		103	70-130				
Ethylbenzene	0.0948	0.0050	"	0.100		94.8	70-130				
m,p-Xylene	0.191	0.010	"	0.200		95.5	70-130				
o-Xylene	0.0930	0.0050	"	0.100		93.0	70-130				
1,2,4-Trimethylbenzene	0.102	0.0050	"	0.100		102	70-130				
1,3,5-Trimethylbenzene	0.0994	0.0050	"	0.100		99.4	70-130				
Naphthalene	0.0751	0.0038	"	0.100		75.1	70-130				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0107</i>		<i>"</i>	<i>0.0400</i>		<i>26.8</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0512</i>		<i>"</i>	<i>0.0400</i>		<i>128</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0402</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>21-167</i>				

Matrix Spike (BEG0239-MS1)

Source: 2107123-02

Prepared: 07/14/21 Analyzed: 07/16/21

Benzene	0.164	0.0020	mg/kg	0.100	0.125	39.0	70-130			QM-07
Toluene	0.408	0.0050	"	0.100	0.438	NR	70-130			QM-07
Ethylbenzene	0.0899	0.0050	"	0.100	ND	89.9	70-130			
m,p-Xylene	0.979	0.010	"	0.200	0.948	15.5	70-130			QM-07
o-Xylene	1.09	0.0050	"	0.100	1.24	NR	70-130			QM-07
1,2,4-Trimethylbenzene	0.593	0.0050	"	0.100	0.569	24.2	70-130			QM-07
1,3,5-Trimethylbenzene	0.613	0.0050	"	0.100	0.758	NR	70-130			QM-07
Naphthalene	0.106	0.0038	"	0.100	0.0182	88.0	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0154</i>		<i>"</i>	<i>0.0400</i>		<i>38.4</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0259</i>		<i>"</i>	<i>0.0400</i>		<i>64.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0587</i>		<i>"</i>	<i>0.0400</i>		<i>147</i>	<i>21-167</i>			

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/26/21 15:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch BEG0239 - EPA 5030 Soil MS

Matrix Spike Dup (BEG0239-MSD1)	Source: 2107123-02			Prepared: 07/14/21 Analyzed: 07/16/21							
Benzene	0.159	0.0020	mg/kg	0.100	0.125	34.0	70-130	3.12	30		QM-07
Toluene	0.242	0.0050	"	0.100	0.438	NR	70-130	50.8	30		QM-07
Ethylbenzene	0.0900	0.0050	"	0.100	ND	90.0	70-130	0.100	30		
m,p-Xylene	0.597	0.010	"	0.200	0.948	NR	70-130	48.5	30		QM-07
o-Xylene	1.00	0.0050	"	0.100	1.24	NR	70-130	8.72	30		QM-07
1,2,4-Trimethylbenzene	0.463	0.0050	"	0.100	0.569	NR	70-130	24.8	30		QM-07
1,3,5-Trimethylbenzene	0.625	0.0050	"	0.100	0.758	NR	70-130	1.94	30		QM-07
Naphthalene	0.116	0.0038	"	0.100	0.0182	97.4	70-130	8.42	30		
Surrogate: 1,2-Dichloroethane-d4	0.0410		"	0.0400		102	23-173				
Surrogate: Toluene-d8	0.0298		"	0.0400		74.6	20-170				
Surrogate: 4-Bromofluorobenzene	0.0648		"	0.0400		162	21-167				

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/26/21 15:58

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike	Source		%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

Batch BEG0253 - EPA 3550A

Blank (BEG0253-BLK1)

Prepared: 07/15/21 Analyzed: 07/16/21

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

LCS (BEG0253-BS1)

Prepared: 07/15/21 Analyzed: 07/16/21

C10-C28 (DRO)	488	50	mg/kg	500	97.6	70-130				
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Matrix Spike (BEG0253-MS1)

Source: 2107170-01

Prepared: 07/15/21 Analyzed: 07/16/21

C10-C28 (DRO)	486	50	mg/kg	500	41.7	88.9	70-130			
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Matrix Spike Dup (BEG0253-MSD1)

Source: 2107170-01

Prepared: 07/15/21 Analyzed: 07/16/21

C10-C28 (DRO)	537	50	mg/kg	500	41.7	99.1	70-130	9.90	20	
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Summit Scientific

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/26/21 15:58

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch BEG0231 - EPA 3050B

Blank (BEG0231-BLK1)				Prepared: 07/14/21 Analyzed: 07/16/21							
Boron	ND	0.0100	mg/L								
LCS (BEG0231-BS1)				Prepared: 07/14/21 Analyzed: 07/16/21							
Boron	5.52	0.0100	mg/L	5.00	110	80-120					
Duplicate (BEG0231-DUP1)				Source: 2106436-01		Prepared: 07/14/21 Analyzed: 07/16/21					
Boron	0.169	0.0100	mg/L	0.191					12.1	20	
Matrix Spike (BEG0231-MS1)				Source: 2106436-01		Prepared: 07/14/21 Analyzed: 07/16/21					
Boron	5.88	0.0100	mg/L	5.00	0.191	114	75-125				
Matrix Spike Dup (BEG0231-MSD1)				Source: 2106436-01		Prepared: 07/14/21 Analyzed: 07/16/21					
Boron	6.05	0.0100	mg/L	5.00	0.191	117	75-125	2.89		25	

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/26/21 15:58

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			%REC	Limits	RPD	Limit	

Batch BEG0235 - General Preparation

Blank (BEG0235-BLK1)

Prepared: 07/14/21 Analyzed: 07/17/21

Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

LCS (BEG0235-BS1)

Prepared: 07/14/21 Analyzed: 07/17/21

Calcium	5.47	0.0500	mg/L wet	5.00		109	70-130			
Magnesium	5.45	0.0500	"	5.00		109	70-130			
Sodium	5.30	0.0500	"	5.00		106	70-130			

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: Leonard & Son 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/26/21 15:58

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

Summit Scientific

Analyte	Result	Reporting		Spike	Source		%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

Batch BEG0245 - General Preparation

Duplicate (BEG0245-DUP1)	Source: 2106380-03			Prepared: 07/14/21 Analyzed: 07/15/21	
% Solids	81.5		%	81.1	0.530 20

Summit Scientific

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/26/21 15:58

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch BEG0258 - General Preparation

Blank (BEG0258-BLK1)

Prepared & Analyzed: 07/15/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEG0258-BS1)

Prepared & Analyzed: 07/15/21

Specific Conductance (EC) 0.151 0.0100 mmhos/cm 0.150 100 90-110

Duplicate (BEG0258-DUP1)

Source: 2106436-01

Prepared & Analyzed: 07/15/21

Specific Conductance (EC) 3.26 0.0100 mmhos/cm 3.26 0.0614 20

Summit Scientific

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 07/26/21 15:58

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD		

Batch BEG0257 - General Preparation

LCS (BEG0257-BS1)

Prepared & Analyzed: 07/15/21

pH	9.33		pH Units	9.21		101	95-105		
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Duplicate (BEG0257-DUP1)

Source: 2106436-01

Prepared & Analyzed: 07/15/21

pH	8.34		pH Units			8.33		0.120	20
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Batch BEG0422 - General Preparation

LCS (BEG0422-BS1)

Prepared & Analyzed: 07/23/21

pH	9.31		pH Units	9.21		101	95-105		
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Duplicate (BEG0422-DUP1)

Source: 2107137-05

Prepared & Analyzed: 07/23/21

pH	8.25		pH Units			8.23		0.243	20
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Summit Scientific

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

Project: Leonard & Son 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/26/21 15:58

Notes and Definitions

- 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