

TABLE 1
FORMER LEAFGREN 1-17 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 @ 5'	3/3/2021	5 ft. bgs	<0.0020	<0.0050	0.12	1.6	0.66	0.061	0.17	2,042
FLR01 @ 4'	3/3/2021	4 ft. bgs	0.021	<0.0050	0.064	0.48	0.094	0.014	0.043	246
SS01 @ 20'	3/8/2021	20 ft. bgs	0.011	0.20	0.34	2.9	0.62	0.10	0.40	156
SS02 @ 20'	3/8/2021	20 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS03 @ 20'	3/8/2021	20 ft. bgs	<0.0020	<0.0050	<0.0050	0.11	0.044	<0.0050	0.031	1,771
SS04 @ 20'	3/8/2021	20 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	0.016	<0.0050	0.014	190
SS05 @ 12'	3/8/2021	12 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS06 @ 20'	3/8/2021	20 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS07 @ 12'	3/8/2021	12 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS08 @ 20'	3/8/2021	20 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS09 @ 12'	3/8/2021	12 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS10 @ 20'	3/8/2021	20 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS11 @ 20'	3/8/2021	20 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS12 @ 20'	3/8/2021	20 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS13 @ 24'	3/9/2021	24 ft. bgs	<0.0020	0.066	0.097	0.93	0.16	0.027	0.064	31
SS14 @ 24'	3/9/2021	24 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS15 @ 24'	3/9/2021	24 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	0.0075	<0.0050	<0.0038	1.4
SS16 @ 24'	3/9/2021	24 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SS17 @ 24'	3/9/2021	24 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<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.

TMB = Trimethylbenzene

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

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

TABLE 2
FORMER LEAFGREN 1-17 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH01 @ 5'	3/3/2021	5	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

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
COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
Benz(a) = Benzanthracene
Benzo(a) = Benzopyrene
Benzo(b) = Benzofluoranthene
Benzo(k) = Benzofluoranthene
A,H = Dibenzoanthracene
1,2,3-CD = Indenopyrene
1-M = 1-methylnaphthalene
2-M = 2-methylnaphthalene
mg/kg = Milligrams per kilogram
ft. = Feet
bgs = Below ground surface

TABLE 3
FORMER LEAFGREN 1-17 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
METALS

Sample ID	Date Sampled	Depth	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ^(1,2)			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^(1,2,3)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
WH01 @ 5'	3/3/2021	5 ft. bgs	7.84	211	0.504	<0.30 ⁽⁴⁾	24.3	20.3	16.70	<0.324	0.0934	134
BKG @ 2.5'	3/3/2021	2.5 ft. bgs	8.16	131	0.362	<0.30 ⁽⁴⁾	16.7	12.1	15.1	<0.305	0.0731	63.4

Notes:

- Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.
- Compound falls within COGCC Table 915-1 Footnote 9.

COGCC = Colorado Oil and Gas Conservation Commission

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

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

TABLE 4
FORMER LEAFGREN 1-17 WELLHEAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	Depth to Water ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-	-
GW01	3/10/2021	<1.0	<1.0	<1.0	12	1.4	<1.0	2.8	~23	NM

Notes:

- Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.
 - Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.
- TMB = Trimethylbenzene
COGCC = Colorado Oil and Gas Conservation Commission
µg/L = Micrograms per liter
(<) = Analytical result is less than the indicated laboratory reporting limit.
ft. = Feet
AMSL = Above Mean Sea Level

TABLE 5
FORMER LEAFGREN 1-17 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
WH01 @ 5'	3/3/2021	5 ft. bgs	40.485901	-104.694929	1.3	800.6
FLR01 @ 4'	3/3/2021	4 ft. bgs	40.485916	-104.694926	1.4	400.2
BKG @ 2.5'	3/3/2021	2.5 ft. bgs	40.485783	-104.694578	1.0	0.3
SS01 @ 20'	3/8/2021	20 ft. bgs	NC	NC	NC	300.1
SS02 @ 20'	3/8/2021	20 ft. bgs	40.482639	-104.694913	1.1	135.7
SS03 @ 20'	3/8/2021	20 ft. bgs	40.482661	-104.694906	1.2	753.8
SS04 @ 20'	3/8/2021	20 ft. bgs	40.482657	-104.694937	1.1	746.5
SS05 @ 12'	3/8/2021	12 ft. bgs	40.482673	-104.694940	1.1	3.1
SS06 @ 20'	3/8/2021	20 ft. bgs	40.482673	-104.694940	1.1	6.8
SS07 @ 12'	3/8/2021	12 ft. bgs	40.482712	-104.694926	1.1	9.2
SS08 @ 20'	3/8/2021	20 ft. bgs	40.482712	-104.694926	1.1	2.1
SS09 @ 12'	3/8/2021	12 ft. bgs	40.482672	-104.694868	1.1	0.4
SS10 @ 20'	3/8/2021	20 ft. bgs	40.482672	-104.694868	1.1	0.2
SS11 @ 20'	3/8/2021	20 ft. bgs	NC	NC	NC	0.4
SS12 @ 20'	3/8/2021	20 ft. bgs	NC	NC	NC	1.2
SS13 @ 24'	3/9/2021	24 ft. bgs	NC	NC	NC	179.9
SS14 @ 24'	3/9/2021	24 ft. bgs	40.482673	-104.694940	1.1	7.0
SS15 @ 24'	3/9/2021	24 ft. bgs	NC	NC	NC	5.3
SS16 @ 24'	3/9/2021	24 ft. bgs	40.482672	-104.694868	1.1	0.3
SS17 @ 24'	3/9/2021	24 ft. bgs	40.482712	-104.694926	1.1	0.1
SS18 @ 2.5'	3/9/2021	2.5 ft. bgs	40.482702	-104.694923	1.3	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).

ft. = Feet

bgs = Below ground surface

PDOP = Position Dilution of Precision

ppm = Parts per million

NC = Data not collected

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 11, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Leafgren 1-17 Wellhead

Work Order #2103059

Enclosed are the results of analyses for samples received by Summit Scientific on 03/03/21 17:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@5'	2103059-01	Soil	03/03/21 13:14	03/03/21 17:55
FLR01@4'	2103059-02	Soil	03/03/21 13:15	03/03/21 17:55
BKG01@2.5'	2103059-03	Soil	03/03/21 13:53	03/03/21 17:55

Summit Scientific

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Summit Scientific

303-277-9310

Project Number: *N/A*

Temperature Upon Receipt: 22
Samples Intact: Yes No

Sample Receipt Checklist

S2 Work Order 2103059

Client: HBWASH/POC

Client Project ID: Leaferen 1-17 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)	<u>2.7</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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⁾ ?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.			<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.

Custodian Printed Name or Initials

Signature of Custodian

Date/Time

03/03/0021



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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

WH01@5'
2103059-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0112	03/04/21	03/10/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.12	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.6	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.66	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.061	0.0050	"	"	"	"	"	"	
Naphthalene	0.17	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	72	5.0	"	10	"	"	"	"	

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		42.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		111 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		265 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1700	50	mg/kg	1	BEC0088	03/03/21	03/03/21	EPA 8015M	
C28-C36 (ORO)	270	50	"	"	"	"	"	"	

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		100 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

WH01@5'
2103059-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEC0143	03/06/21	03/09/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		66.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		52.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	7.84	0.249	mg/kg dry	1	BEC0131	03/05/21	03/06/21	EPA 6020B	
Barium	211	0.498	"	"	"	"	"	"	
Cadmium	0.504	0.249	"	"	"	"	"	"	
Copper	24.3	0.498	"	"	"	"	"	"	
Lead	20.3	0.249	"	"	"	"	"	"	
Nickel	16.7	0.498	"	"	"	"	"	"	
Selenium	ND	0.324	"	"	"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

WH01@5'
2103059-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Silver	0.0934	0.0249	mg/kg dry	1	BEC0131	03/05/21	03/06/21	EPA 6020B
Zinc	134	0.498	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEC0197	03/10/21	03/10/21	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/03/21 13:14**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	80.4		%	1	BEC0116	03/05/21	03/05/21	Calculation	

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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

FLR01@4'
2103059-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/03/21 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	0.021	0.0020	mg/kg	1	BEC0087	03/03/21	03/03/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.064	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.48	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.094	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.014	0.0050	"	"	"	"	"	"	
Naphthalene	0.043	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	13	0.50	"	"	"	"	"	"	

Date Sampled: **03/03/21 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		71.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		88.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/03/21 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	170	50	mg/kg	1	BEC0088	03/03/21	03/03/21	EPA 8015M	
C28-C36 (ORO)	63	50	"	"	"	"	"	"	

Date Sampled: **03/03/21 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		91.6 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

BKG01@2.5'
2103059-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/03/21 13:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	8.16	0.234	mg/kg dry	1	BEC0131	03/05/21	03/06/21	EPA 6020B	
Barium	131	0.469	"	"	"	"	"	"	
Cadmium	0.362	0.234	"	"	"	"	"	"	
Copper	16.7	0.469	"	"	"	"	"	"	
Lead	12.1	0.234	"	"	"	"	"	"	
Nickel	15.1	0.469	"	"	"	"	"	"	
Selenium	ND	0.305	"	"	"	"	"	"	
Silver	0.0731	0.0234	"	"	"	"	"	"	
Zinc	63.4	0.469	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/03/21 13:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEC0197	03/10/21	03/10/21	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/03/21 13:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	85.3		%	1	BEC0116	03/05/21	03/05/21	Calculation	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

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 BEC0087 - EPA 5030 Soil MS

Blank (BEC0087-BLK1)

Prepared & Analyzed: 03/03/21

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	"

Surrogate: 1,2-Dichloroethane-d4	0.0429	"	0.0400	107	23-173
Surrogate: Toluene-d8	0.0422	"	0.0400	106	20-170
Surrogate: 4-Bromofluorobenzene	0.0420	"	0.0400	105	21-167

LCS (BEC0087-BS1)

Prepared & Analyzed: 03/03/21

Benzene	0.0817	0.0020	mg/kg	0.100	81.7	70-130
Toluene	0.109	0.0050	"	0.100	109	70-130
Ethylbenzene	0.105	0.0050	"	0.100	105	70-130
m,p-Xylene	0.206	0.010	"	0.200	103	70-130
o-Xylene	0.103	0.0050	"	0.100	103	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0416	"	0.0400	104	23-173
Surrogate: Toluene-d8	0.0413	"	0.0400	103	20-170
Surrogate: 4-Bromofluorobenzene	0.0416	"	0.0400	104	21-167

Matrix Spike (BEC0087-MS1)

Source: 2103056-01

Prepared & Analyzed: 03/03/21

Benzene	0.0836	0.0020	mg/kg	0.100	ND	83.6	70-130
Toluene	0.111	0.0050	"	0.100	ND	111	70-130
Ethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130
m,p-Xylene	0.205	0.010	"	0.200	ND	103	70-130
o-Xylene	0.102	0.0050	"	0.100	ND	102	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0457	"	0.0400	114	23-173
Surrogate: Toluene-d8	0.0424	"	0.0400	106	20-170
Surrogate: 4-Bromofluorobenzene	0.0411	"	0.0400	103	21-167

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

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 BEC0087 - EPA 5030 Soil MS

Matrix Spike Dup (BEC0087-MSD1)			Source: 2103056-01		Prepared & Analyzed: 03/03/21					
Benzene	0.0804	0.0020	mg/kg	0.100	ND	80.4	70-130	3.88	30	
Toluene	0.107	0.0050	"	0.100	ND	107	70-130	4.10	30	
Ethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	0.606	30	
m,p-Xylene	0.205	0.010	"	0.200	ND	102	70-130	0.219	30	
o-Xylene	0.103	0.0050	"	0.100	ND	103	70-130	1.49	30	
Surrogate: 1,2-Dichloroethane-d4	0.0439		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0417		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167			

Batch BEC0112 - EPA 5030 Soil MS

Blank (BEC0112-BLK1)			Prepared & Analyzed: 03/04/21							
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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0454		"	0.0400		114	23-173			
Surrogate: Toluene-d8	0.0426		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167			

LCS (BEC0112-BS1)			Prepared & Analyzed: 03/04/21							
Benzene	0.0793	0.0020	mg/kg	0.100		79.3	70-130			
Toluene	0.111	0.0050	"	0.100		111	70-130			
Ethylbenzene	0.106	0.0050	"	0.100		106	70-130			
m,p-Xylene	0.210	0.010	"	0.200		105	70-130			
o-Xylene	0.104	0.0050	"	0.100		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0434		"	0.0400		108	23-173			
Surrogate: Toluene-d8	0.0422		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0419		"	0.0400		105	21-167			

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

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 BEC0112 - EPA 5030 Soil MS

Matrix Spike (BEC0112-MS1)

Source: 2103081-01

Prepared & Analyzed: 03/04/21

Benzene	0.0818	0.0020	mg/kg	0.100	ND	81.8	70-130			
Toluene	0.115	0.0050	"	0.100	ND	115	70-130			
Ethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130			
m,p-Xylene	0.219	0.010	"	0.200	0.00423	108	70-130			
o-Xylene	0.109	0.0050	"	0.100	ND	109	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130			
1,3,5-Trimethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130			
Naphthalene	0.110	0.0038	"	0.100	ND	110	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0455		"	0.0400		114	23-173			
Surrogate: Toluene-d8	0.0426		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0421		"	0.0400		105	21-167			

Matrix Spike Dup (BEC0112-MSD1)

Source: 2103081-01

Prepared & Analyzed: 03/04/21

Benzene	0.0790	0.0020	mg/kg	0.100	ND	79.0	70-130	3.51	30	
Toluene	0.111	0.0050	"	0.100	ND	111	70-130	3.08	30	
Ethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	4.64	30	
m,p-Xylene	0.209	0.010	"	0.200	0.00423	102	70-130	4.93	30	
o-Xylene	0.104	0.0050	"	0.100	ND	104	70-130	4.27	30	
1,2,4-Trimethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	3.36	30	
1,3,5-Trimethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130	3.75	30	
Naphthalene	0.110	0.0038	"	0.100	ND	110	70-130	0.272	30	
Surrogate: 1,2-Dichloroethane-d4	0.0462		"	0.0400		116	23-173			
Surrogate: Toluene-d8	0.0432		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0424		"	0.0400		106	21-167			

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEC0088 - EPA 3550A

Blank (BEC0088-BLK1)

Prepared & Analyzed: 03/03/21

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

LCS (BEC0088-BS1)

Prepared & Analyzed: 03/03/21

C10-C28 (DRO)	382	50	mg/kg	500	76.4	70-130
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Matrix Spike (BEC0088-MS1)

Source: 2103056-01

Prepared & Analyzed: 03/03/21

C10-C28 (DRO)	373	50	mg/kg	500	17.2	71.1	70-130
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Matrix Spike Dup (BEC0088-MSD1)

Source: 2103056-01

Prepared & Analyzed: 03/03/21

C10-C28 (DRO)	398	50	mg/kg	500	17.2	76.1	70-130	6.38	20
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Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEC0143 - EPA 5030 Soil MS

Blank (BEC0143-BLK1)

Prepared: 03/06/21 Analyzed: 03/09/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0164		"	0.0333		49.1	40-150			
Surrogate: Fluoranthene-d10	0.0165		"	0.0333		49.4	40-150			

LCS (BEC0143-BS1)

Prepared: 03/06/21 Analyzed: 03/09/21

Acenaphthene	0.0337	0.00500	mg/kg	0.0333	101	31-137
Anthracene	0.0351	0.00500	"	0.0333	105	30-120
Benzo (a) anthracene	0.0339	0.00500	"	0.0333	102	30-120
Benzo (a) pyrene	0.0354	0.00500	"	0.0333	106	30-120
Benzo (b) fluoranthene	0.0394	0.00500	"	0.0333	118	30-120
Benzo (k) fluoranthene	0.0388	0.00500	"	0.0333	116	30-120
Chrysene	0.0334	0.00500	"	0.0333	100	30-120
Dibenz (a,h) anthracene	0.0220	0.00500	"	0.0333	66.1	30-120
Fluoranthene	0.0317	0.00500	"	0.0333	95.1	30-120
Fluorene	0.0321	0.00500	"	0.0333	96.4	30-120
Indeno (1,2,3-cd) pyrene	0.0205	0.00500	"	0.0333	61.6	30-120
Pyrene	0.0296	0.00500	"	0.0333	88.8	35-142
1-Methylnaphthalene	0.0303	0.00500	"	0.0333	90.9	35-142
2-Methylnaphthalene	0.0329	0.00500	"	0.0333	98.7	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0202		"	0.0333	60.5	40-150
Surrogate: Fluoranthene-d10	0.0202		"	0.0333	60.6	40-150

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEC0143 - EPA 5030 Soil MS

Matrix Spike (BEC0143-MS1)

Source: 2103035-01

Prepared: 03/06/21 Analyzed: 03/09/21

Acenaphthene	0.0306	0.00500	mg/kg	0.0333	ND	91.9	31-137				
Anthracene	0.0324	0.00500	"	0.0333	ND	97.1	30-120				
Benzo (a) anthracene	0.0308	0.00500	"	0.0333	ND	92.5	30-120				
Benzo (a) pyrene	0.0332	0.00500	"	0.0333	ND	99.7	30-120				
Benzo (b) fluoranthene	0.0374	0.00500	"	0.0333	ND	112	30-120				
Benzo (k) fluoranthene	0.0369	0.00500	"	0.0333	ND	111	30-120				
Chrysene	0.0310	0.00500	"	0.0333	ND	93.0	30-120				
Dibenz (a,h) anthracene	0.0197	0.00500	"	0.0333	ND	59.0	30-120				
Fluoranthene	0.0301	0.00500	"	0.0333	ND	90.4	30-120				
Fluorene	0.0290	0.00500	"	0.0333	ND	87.0	30-120				
Indeno (1,2,3-cd) pyrene	0.0182	0.00500	"	0.0333	ND	54.6	30-120				
Pyrene	0.0272	0.00500	"	0.0333	ND	81.7	35-142				
1-Methylnaphthalene	0.0291	0.00500	"	0.0333	ND	87.3	15-130				
2-Methylnaphthalene	0.0318	0.00500	"	0.0333	ND	95.5	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0195		"	0.0333		58.4	40-150				
Surrogate: Fluoranthene-d10	0.0191		"	0.0333		57.4	40-150				

Matrix Spike Dup (BEC0143-MSD1)

Source: 2103035-01

Prepared: 03/06/21 Analyzed: 03/09/21

Acenaphthene	0.0315	0.00500	mg/kg	0.0333	ND	94.5	31-137	2.80	30		
Anthracene	0.0324	0.00500	"	0.0333	ND	97.1	30-120	0.0227	30		
Benzo (a) anthracene	0.0311	0.00500	"	0.0333	ND	93.2	30-120	0.746	30		
Benzo (a) pyrene	0.0333	0.00500	"	0.0333	ND	99.8	30-120	0.0972	30		
Benzo (b) fluoranthene	0.0378	0.00500	"	0.0333	ND	114	30-120	1.17	30		
Benzo (k) fluoranthene	0.0376	0.00500	"	0.0333	ND	113	30-120	1.87	30		
Chrysene	0.0312	0.00500	"	0.0333	ND	93.5	30-120	0.539	30		
Dibenz (a,h) anthracene	0.0201	0.00500	"	0.0333	ND	60.4	30-120	2.31	30		
Fluoranthene	0.0293	0.00500	"	0.0333	ND	87.8	30-120	2.97	30		
Fluorene	0.0302	0.00500	"	0.0333	ND	90.7	30-120	4.18	30		
Indeno (1,2,3-cd) pyrene	0.0187	0.00500	"	0.0333	ND	56.0	30-120	2.55	30		
Pyrene	0.0278	0.00500	"	0.0333	ND	83.4	35-142	2.06	30		
1-Methylnaphthalene	0.0293	0.00500	"	0.0333	ND	87.9	15-130	0.744	50		
2-Methylnaphthalene	0.0312	0.00500	"	0.0333	ND	93.7	15-130	1.89	50		
Surrogate: 2-Methylnaphthalene-d10	0.0192		"	0.0333		57.6	40-150				
Surrogate: Fluoranthene-d10	0.0184		"	0.0333		55.1	40-150				

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEC0131 - EPA 3050B

Blank (BEC0131-BLK1)

Prepared & Analyzed: 03/05/21

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

LCS (BEC0131-BS1)

Prepared & Analyzed: 03/05/21

Arsenic	44.7	0.200	mg/kg wet	40.0	112	80-120
Barium	40.6	0.400	"	40.0	101	80-120
Cadmium	2.09	0.200	"	2.00	105	80-120
Copper	41.6	0.400	"	40.0	104	80-120
Lead	20.0	0.200	"	20.0	100	80-120
Nickel	41.3	0.400	"	40.0	103	80-120
Selenium	3.37	0.260	"	4.00	84.3	80-120
Silver	1.98	0.0200	"	2.00	99.0	80-120
Zinc	45.8	0.400	"	40.0	115	80-120

Duplicate (BEC0131-DUP1)

Source: 2103039-01

Prepared: 03/05/21 Analyzed: 03/06/21

Arsenic	6.75	0.213	mg/kg dry	6.29	7.13	30
Barium	178	0.425	"	182	2.31	30
Cadmium	0.166	0.213	"	0.160	4.09	30
Copper	14.3	0.425	"	13.4	6.43	30
Lead	10.2	0.213	"	9.05	11.8	30
Nickel	18.4	0.425	"	16.7	9.74	30
Selenium	ND	0.276	"	ND		30
Silver	0.0899	0.0213	"	0.0839	6.79	30
Zinc	46.8	0.425	"	42.8	8.97	30

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEC0131 - EPA 3050B

Matrix Spike (BEC0131-MS1)	Source: 2103039-01			Prepared: 03/05/21 Analyzed: 03/06/21						
Arsenic	50.0	0.213	mg/kg dry	42.5	6.29	103	75-125			
Barium	220	0.425	"	42.5	182	88.8	75-125			
Cadmium	2.15	0.213	"	2.13	0.160	93.4	75-125			
Copper	55.1	0.425	"	42.5	13.4	98.2	75-125			
Lead	27.6	0.213	"	21.3	9.05	87.4	75-125			
Nickel	58.4	0.425	"	42.5	16.7	97.9	75-125			
Selenium	3.32	0.276	"	4.25	ND	78.2	75-125			
Silver	2.02	0.0213	"	2.13	0.0839	91.1	75-125			
Zinc	94.4	0.425	"	42.5	42.8	121	75-125			

Matrix Spike Dup (BEC0131-MSD1)	Source: 2103039-01			Prepared: 03/05/21 Analyzed: 03/06/21						
Arsenic	51.9	0.213	mg/kg dry	42.5	6.29	107	75-125	3.80	25	
Barium	222	0.425	"	42.5	182	94.3	75-125	1.07	25	
Cadmium	2.26	0.213	"	2.13	0.160	99.0	75-125	5.38	25	
Copper	57.2	0.425	"	42.5	13.4	103	75-125	3.69	25	
Lead	28.5	0.213	"	21.3	9.05	91.6	75-125	3.19	25	
Nickel	61.8	0.425	"	42.5	16.7	106	75-125	5.72	25	
Selenium	3.84	0.276	"	4.25	ND	90.2	75-125	14.4	25	
Silver	2.10	0.0213	"	2.13	0.0839	94.9	75-125	3.92	25	
Zinc	86.7	0.425	"	42.5	42.8	103	75-125	8.45	25	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BEC0197 - 3060A Mod

Blank (BEC0197-BLK1)

Prepared & Analyzed: 03/10/21

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BEC0197-BS1)

Prepared & Analyzed: 03/10/21

Chromium, Hexavalent 23.9 0.30 mg/kg wet 25.0 95.6 80-120

Duplicate (BEC0197-DUP1)

Source: 2102366-03

Prepared & Analyzed: 03/10/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BEC0197-MS1)

Source: 2102366-03

Prepared & Analyzed: 03/10/21

Chromium, Hexavalent 25.8 0.30 mg/kg dry 27.5 ND 94.0 75-125

Matrix Spike Dup (BEC0197-MSD1)

Source: 2102366-03

Prepared & Analyzed: 03/10/21

Chromium, Hexavalent 25.8 0.30 mg/kg dry 27.5 ND 93.8 75-125 0.213 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.



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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

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

Summit Scientific

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

Batch BEC0116 - General Preparation

Duplicate (BEC0116-DUP1)		Source: 2103038-01		Prepared & Analyzed: 03/05/21						
% Solids	91.6		%		91.5			0.109	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.



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 13:58

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
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

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 12, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Leafgren 1-17 Wellhead

Work Order #2103127

Enclosed are the results of analyses for samples received by Summit Scientific on 03/08/21 18:52. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President



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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@20'	2103127-01	Soil	03/08/21 12:58	03/08/21 18:52
SS02@20'	2103127-02	Soil	03/08/21 13:09	03/08/21 18:52
SS03@20'	2103127-03	Soil	03/08/21 13:54	03/08/21 18:52
SS04@20'	2103127-04	Soil	03/08/21 13:55	03/08/21 18:52
SS05@12'	2103127-05	Soil	03/08/21 13:56	03/08/21 18:52
SS06@20'	2103127-06	Soil	03/08/21 14:37	03/08/21 18:52
SS07@12'	2103127-07	Soil	03/08/21 14:38	03/08/21 18:52
SS08@20'	2103127-08	Soil	03/08/21 14:39	03/08/21 18:52
SS09@12'	2103127-09	Soil	03/08/21 14:40	03/08/21 18:52
SS10@20'	2103127-10	Soil	03/08/21 14:41	03/08/21 18:52
SS11@12'	2103127-11	Soil	03/08/21 14:43	03/08/21 18:52
SS12@20'	2103127-12	Soil	03/08/21 14:44	03/08/21 18:52

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


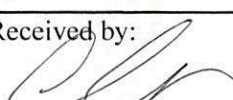
2/03/27.1

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 2

Client: PDC / Tasman Project Manager: Mark Longhurst
 Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com
 City/State/Zip: Broomfield/ CO/ 80020
 Phone: 303-487-1228 Project Name: Leafgren 1-17 wellhead
 Sampler Name: J. Marcus Project Number: n/a

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Analysis Requested								Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	VOC - 915	PAH - 915		Metals - 915	
1	SS01@20'	3/8/21	1258	2			X			X			X	X							pH, EC, SAR by saturated paste SS02, SS04-SS12 ON HOLD TMB/12.4+1.3/95
2	SS02@20'		1309	2			X			X											
3	SS03@20'		1354	2			X			X			X	X							
4	SS04@20'		1355	2			X			X											
5	SS05@12'		1356	2			X			X											
6	SS06@20'		1437	2			X			X											
7	SS07@12'		1438	2			X			X											
8	SS08@20'		1439	2			X			X											
9	SS09@12'		1440	2			X			X											
10	SS10@20'		1441	2			X			X											
Relinquished by: 		Date/Time: 3/8/21 1640		Received by: Tasman's Lock Box		Date/Time: 3/8/21 1640		Turn Around Time (Check)				Notes:									
Relinquished by: Tasman's Lock Box		Date/Time:		Received by: 		Date/Time: 3/8/21 18:15		Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>													
Relinquished by:		Date/Time:		Received by:		Date/Time:		24 hours <input type="checkbox"/> Standard <input type="checkbox"/>													
Relinquished by:		Date/Time:		Received by:		Date/Time:		48 hours <input type="checkbox"/>				Sample Integrity:									
								Temperature Upon Receipt: 6.0				Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No									

Summit Scientific

2103127.2

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 2 of 2

Client: PDC / Tasman

Project Manager: Mark Longhurst

Address: 6855 W 119th Ave

E-Mail: mark.longhurst@PDCE.com

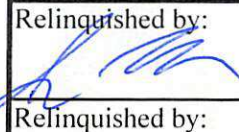
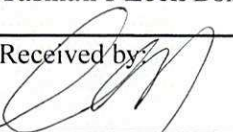
City/State/Zip: Broomfield/ CO/ 80020

Phone: 303-487-1228

Project Name: LeaFgren 1-17 wellhead

Sampler Name: J. Marous

Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	VOC - 915	PAH - 915	Metals - 915		
1	SS11 @ 12'	3/8/21	1443	2			X			X										pH, EC, SAR by saturated paste SS02, SS04-SS12 ON HOLD	
2	SS12 @ 20'	↓	1444	2			X			X											
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
Relinquished by: 		Date/Time: 3/8/21 1640		Received by: Tasman's Lock Box		Date/Time: 3/8/21 1640		Turn Around Time (Check)				Notes:									
Relinquished by: Tasman's Lock Box		Date/Time:		Received by: 		Date/Time: 3/8/21 18:15		Same Day <input checked="" type="checkbox"/> 72 hours													
Relinquished by:		Date/Time:		Received by:		Date/Time:		24 hours								Standard					
Relinquished by:		Date/Time:		Received by:		Date/Time:		48 hours				Sample Integrity:									
Relinquished by:		Date/Time:		Received by:		Date/Time:		Temperature Upon Receipt: 6.0				Samples Intact: Yes No									

2103127

Sample Receipt Checklist

S2 Work Order _____

Client: PDC/Tasman

Client Project ID: Leafgren 1-17 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)	6.0
-----------	-----

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"/>	
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.

CS

Custodian Printed Name or Initials

Signature of Custodian

3/8/21

Date/Time



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS01@20'
2103127-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.011	0.0020	mg/kg	1	BEC0163	03/08/21	03/08/21	EPA 8260B	
Toluene	0.20	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.34	0.0050	"	"	"	"	"	"	
Xylenes (total)	2.9	0.10	"	10	"	"	"	"	
1,2,4-Trimethylbenzene	0.62	0.050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.10	0.0050	"	1	"	"	"	"	
Naphthalene	0.40	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	88	5.0	"	10	"	"	"	"	

Date Sampled: **03/08/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		44.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		118 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		145 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	68	50	mg/kg	1	BEC0164	03/08/21	03/08/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		86.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS02@20'
2103127-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 13:09**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 13:09**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		69.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		129 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 13:09**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 13:09**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		115 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS03@20'
2103127-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 13:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0163	03/08/21	03/08/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.11	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.044	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	0.031	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	11	0.50	"	"	"	"	"	"	

Date Sampled: **03/08/21 13:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		79.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		124 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 13:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1500	50	mg/kg	1	BEC0164	03/08/21	03/08/21	EPA 8015M	
C28-C36 (ORO)	260	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 13:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS04@20'
2103127-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	03/11/21	"	
1,2,4-Trimethylbenzene	0.016	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	03/11/21	"	
Naphthalene	0.014	0.0038	"	"	"	"	03/11/21	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	03/11/21	"	

Date Sampled: **03/08/21 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		67.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		136 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	190	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 13:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		94.9 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS05@12'
2103127-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 13:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 13:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		77.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 13:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 13:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		87.6 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS06@20'
2103127-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 14:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 14:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		62.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		116 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 14:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 14:37**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS07@12'
2103127-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 14:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 14:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		67.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 14:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 14:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		96.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS08@20'
2103127-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		89.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		93.0 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS09@12'
2103127-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		112 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 14:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		115 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS10@20'
2103127-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 14:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 14:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		89.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 14:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 14:41**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		95.5 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS11@12'
2103127-11 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 14:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 14:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		90.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 14:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 14:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		95.9 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

SS12@20'
2103127-12 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/08/21 14:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/08/21 14:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/08/21 14:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/08/21 14:44**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

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 BEC0163 - EPA 5030 Soil MS

Blank (BEC0163-BLK1)

Prepared & Analyzed: 03/08/21

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	"

Surrogate: 1,2-Dichloroethane-d4	0.0415	"	0.0400	104	23-173
Surrogate: Toluene-d8	0.0421	"	0.0400	105	20-170
Surrogate: 4-Bromofluorobenzene	0.0424	"	0.0400	106	21-167

LCS (BEC0163-BS1)

Prepared & Analyzed: 03/08/21

Benzene	0.0734	0.0020	mg/kg	0.100	73.4	70-130
Toluene	0.109	0.0050	"	0.100	109	70-130
Ethylbenzene	0.101	0.0050	"	0.100	101	70-130
m,p-Xylene	0.201	0.010	"	0.200	101	70-130
o-Xylene	0.101	0.0050	"	0.100	101	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0425	"	0.0400	106	23-173
Surrogate: Toluene-d8	0.0423	"	0.0400	106	20-170
Surrogate: 4-Bromofluorobenzene	0.0416	"	0.0400	104	21-167

Matrix Spike (BEC0163-MS1)

Source: 2103125-01

Prepared & Analyzed: 03/08/21

Benzene	0.0763	0.0020	mg/kg	0.100	ND	76.3	70-130
Toluene	0.125	0.0050	"	0.100	0.0127	112	70-130
Ethylbenzene	0.117	0.0050	"	0.100	0.0146	102	70-130
m,p-Xylene	0.246	0.010	"	0.200	0.0429	102	70-130
o-Xylene	0.135	0.0050	"	0.100	0.0283	106	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0445	"	0.0400	111	23-173
Surrogate: Toluene-d8	0.0428	"	0.0400	107	20-170
Surrogate: 4-Bromofluorobenzene	0.0450	"	0.0400	112	21-167

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

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

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

Batch BEC0163 - EPA 5030 Soil MS

Matrix Spike Dup (BEC0163-MSD1)			Source: 2103125-01		Prepared & Analyzed: 03/08/21						
Benzene	0.0746	0.0020	mg/kg	0.100	ND	74.6	70-130	2.19	30		
Toluene	0.124	0.0050	"	0.100	0.0127	111	70-130	0.676	30		
Ethylbenzene	0.116	0.0050	"	0.100	0.0146	101	70-130	0.722	30		
m,p-Xylene	0.248	0.010	"	0.200	0.0429	102	70-130	0.693	30		
o-Xylene	0.134	0.0050	"	0.100	0.0283	106	70-130	0.156	30		
Surrogate: 1,2-Dichloroethane-d4	0.0445		"	0.0400		111	23-173				
Surrogate: Toluene-d8	0.0425		"	0.0400		106	20-170				
Surrogate: 4-Bromofluorobenzene	0.0448		"	0.0400		112	21-167				

Batch BEC0210 - EPA 5030 Soil MS

Blank (BEC0210-BLK1)			Prepared: 03/10/21 Analyzed: 03/11/21								
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	"								
Surrogate: 1,2-Dichloroethane-d4	0.0375		"	0.0400		93.7	23-173				
Surrogate: Toluene-d8	0.0413		"	0.0400		103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.3	21-167				

LCS (BEC0210-BS1)			Prepared: 03/10/21 Analyzed: 03/11/21								
Benzene	0.0733	0.0020	mg/kg	0.100		73.3	70-130				
Toluene	0.106	0.0050	"	0.100		106	70-130				
Ethylbenzene	0.107	0.0050	"	0.100		107	70-130				
m,p-Xylene	0.215	0.010	"	0.200		107	70-130				
o-Xylene	0.107	0.0050	"	0.100		107	70-130				
1,2,4-Trimethylbenzene	0.113	0.0050	"	0.100		113	70-130				
1,3,5-Trimethylbenzene	0.114	0.0050	"	0.100		114	70-130				
Naphthalene	0.0886	0.0038	"	0.100		88.6	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0375		"	0.0400		93.8	23-173				
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0430		"	0.0400		107	21-167				

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

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 BEC0210 - EPA 5030 Soil MS

Matrix Spike (BEC0210-MS1)

Source: 2103127-02

Prepared: 03/10/21 Analyzed: 03/11/21

Benzene	0.0696	0.0020	mg/kg	0.100	ND	69.6	70-130			
Toluene	0.111	0.0050	"	0.100	ND	111	70-130			
Ethylbenzene	0.0990	0.0050	"	0.100	ND	99.0	70-130			
m,p-Xylene	0.198	0.010	"	0.200	ND	98.9	70-130			
o-Xylene	0.0971	0.0050	"	0.100	ND	97.1	70-130			
1,2,4-Trimethylbenzene	0.0973	0.0050	"	0.100	ND	97.3	70-130			
1,3,5-Trimethylbenzene	0.0982	0.0050	"	0.100	ND	98.2	70-130			
Naphthalene	0.109	0.0038	"	0.100	ND	109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0371		"	0.0400		92.8	23-173			
Surrogate: Toluene-d8	0.0427		"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.7	21-167			

Matrix Spike Dup (BEC0210-MSD1)

Source: 2103127-02

Prepared: 03/10/21 Analyzed: 03/11/21

Benzene	0.0709	0.0020	mg/kg	0.100	ND	70.9	70-130	1.75	30	
Toluene	0.113	0.0050	"	0.100	ND	113	70-130	2.33	30	
Ethylbenzene	0.0988	0.0050	"	0.100	ND	98.8	70-130	0.243	30	
m,p-Xylene	0.199	0.010	"	0.200	ND	99.7	70-130	0.755	30	
o-Xylene	0.0998	0.0050	"	0.100	ND	99.8	70-130	2.68	30	
1,2,4-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130	9.46	30	
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	6.07	30	
Naphthalene	0.0989	0.0038	"	0.100	ND	98.9	70-130	9.53	30	
Surrogate: 1,2-Dichloroethane-d4	0.0377		"	0.0400		94.2	23-173			
Surrogate: Toluene-d8	0.0431		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.6	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.



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEC0164 - EPA 3550A

Blank (BEC0164-BLK1)

Prepared: 03/08/21 Analyzed: 03/09/21

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

LCS (BEC0164-BS1)

Prepared: 03/08/21 Analyzed: 03/09/21

C10-C28 (DRO)	389	50	mg/kg	500	77.8	70-130
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Matrix Spike (BEC0164-MS1)

Source: 2103125-01

Prepared: 03/08/21 Analyzed: 03/09/21

C10-C28 (DRO)	1200	50	mg/kg	500	1290	NR	70-130			QM-07
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Matrix Spike Dup (BEC0164-MSD1)

Source: 2103125-01

Prepared: 03/08/21 Analyzed: 03/09/21

C10-C28 (DRO)	1290	50	mg/kg	500	1290	0.887	70-130	7.17	20	QM-07
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Batch BEC0211 - EPA 3550A

Blank (BEC0211-BLK1)

Prepared: 03/10/21 Analyzed: 03/11/21

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

LCS (BEC0211-BS1)

Prepared: 03/10/21 Analyzed: 03/11/21

C10-C28 (DRO)	386	50	mg/kg	500	77.1	70-130
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Matrix Spike (BEC0211-MS1)

Source: 2103127-02

Prepared: 03/10/21 Analyzed: 03/11/21

C10-C28 (DRO)	445	50	mg/kg	500	46.1	79.8	70-130
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Matrix Spike Dup (BEC0211-MSD1)

Source: 2103127-02

Prepared: 03/10/21 Analyzed: 03/11/21

C10-C28 (DRO)	452	50	mg/kg	500	46.1	81.1	70-130	1.46	20
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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: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:47

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

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 12, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Leafgren 1-17 Wellhead

Work Order #2103145

Enclosed are the results of analyses for samples received by Summit Scientific on 03/09/21 17:32. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS13@24'	2103145-01	Soil	03/09/21 12:09	03/09/21 17:32
SS14@24'	2103145-02	Soil	03/09/21 12:33	03/09/21 17:32
SS15@24'	2103145-03	Soil	03/09/21 12:46	03/09/21 17:32
SS16@24'	2103145-04	Soil	03/09/21 13:27	03/09/21 17:32
SS17@24'	2103145-05	Soil	03/09/21 14:01	03/09/21 17:32

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 2103145

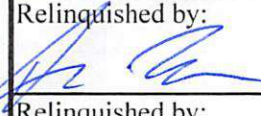
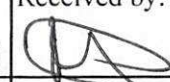
S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 1

Client: PDC / Tasman Project Manager: Mark Longhurst
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com
City/State/Zip: Broomfield/ CO/ 80020
Phone: 303-487-1228 Project Name: Leafygreen 1-17 wellhead
Sampler Name: J. Marcus Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested								Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B ⁹¹⁵	TPH - (C6 - C36) ⁹¹⁵	pH, EC, SAR	Boron - HWS	VOC - 915	PAH - 915	Metals - 915		
1	SS13@24'	3/9/21	1209	2			X			X			X	X							pH, EC, SAR by saturated paste SS14-SS18 ON HOLD
2	SS14@24'		1233	2			X			X											
3	SS15@24'		1246	2			X			X											
4	SS16@24'		1327	2			X			X											
5	SS17@24'		1401	2			X			X											
6	SS18@2.5'		1416	2			X			X											
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 3/9/21 1550	Received by: Tasman's Lock Box	Date/Time: 3/9/21 1550	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours 24 hours 48 hours	Standard	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 3-9-21 17:10	Received by: 	Date/Time: 3-9-21 17:10	Sample Integrity: 4.2		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 4.2	Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

Sample Receipt Checklist

S2 Work Order 2103145

Client: PDC/Tasman Client Project ID: Leafgren 1-17 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)	4.2
-----------	-----

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Same Day TAT
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.

MP

Custodian Printed Name or Initials

Muri Premier

Signature of Custodian

3/9/21

Date/Time



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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

SS13@24'
2103145-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/09/21 12:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0189	03/09/21	03/09/21	EPA 8260B	
Toluene	0.066	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.097	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.93	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.16	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.027	0.0050	"	"	"	"	"	"	
Naphthalene	0.064	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	31	0.50	"	"	"	"	"	"	

Date Sampled: **03/09/21 12:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		42.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		124 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		118 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/09/21 12:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0190	03/09/21	03/10/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/09/21 12:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		80.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

SS14@24'
2103145-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/09/21 12:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/09/21 12:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		78.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		130 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/09/21 12:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/11/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/09/21 12:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.7 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

SS15@24'
2103145-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/09/21 12:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.0075	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.4	0.50	"	"	"	"	"	"	

Date Sampled: **03/09/21 12:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		85.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		133 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/09/21 12:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/11/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/09/21 12:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.0 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

SS16@24'
2103145-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/09/21 13:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/09/21 13:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		89.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		126 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/09/21 13:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/11/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/09/21 13:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		77.0 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

SS17@24'
2103145-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/09/21 14:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEC0210	03/10/21	03/11/21	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: **03/09/21 14:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		67.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		124 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/09/21 14:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEC0211	03/10/21	03/11/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/09/21 14:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		83.4 %	30-150		"	"	"	"	

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: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEC0189 - EPA 5030 Soil MS

Blank (BEC0189-BLK1)

Prepared: 03/09/21 Analyzed: 03/10/21

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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0295		"	0.0400	73.8	23-173				
Surrogate: Toluene-d8	0.0535		"	0.0400	134	20-170				
Surrogate: 4-Bromofluorobenzene	0.0424		"	0.0400	106	21-167				

LCS (BEC0189-BS1)

Prepared: 03/09/21 Analyzed: 03/10/21

Benzene	0.0906	0.0020	mg/kg	0.100	90.6	70-130				
Toluene	0.105	0.0050	"	0.100	105	70-130				
Ethylbenzene	0.0961	0.0050	"	0.100	96.1	70-130				
m,p-Xylene	0.176	0.010	"	0.200	87.9	70-130				
o-Xylene	0.0893	0.0050	"	0.100	89.3	70-130				
1,2,4-Trimethylbenzene	0.0907	0.0050	"	0.100	90.7	70-130				
1,3,5-Trimethylbenzene	0.0935	0.0050	"	0.100	93.5	70-130				
Naphthalene	0.0931	0.0038	"	0.100	93.1	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0236		"	0.0400	59.0	23-173				
Surrogate: Toluene-d8	0.0465		"	0.0400	116	20-170				
Surrogate: 4-Bromofluorobenzene	0.0420		"	0.0400	105	21-167				

Matrix Spike (BEC0189-MS1)

Source: 2103144-01

Prepared: 03/09/21 Analyzed: 03/10/21

Benzene	0.0914	0.0020	mg/kg	0.100	ND	91.4	70-130			
Toluene	0.0951	0.0050	"	0.100	ND	95.1	70-130			
Ethylbenzene	0.0935	0.0050	"	0.100	ND	93.5	70-130			
m,p-Xylene	0.170	0.010	"	0.200	ND	85.2	70-130			
o-Xylene	0.0865	0.0050	"	0.100	ND	86.5	70-130			
1,2,4-Trimethylbenzene	0.0876	0.0050	"	0.100	ND	87.6	70-130			
1,3,5-Trimethylbenzene	0.0912	0.0050	"	0.100	ND	91.2	70-130			
Naphthalene	0.0997	0.0038	"	0.100	ND	99.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0224		"	0.0400	56.0	23-173				
Surrogate: Toluene-d8	0.0428		"	0.0400	107	20-170				
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400	100	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.



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

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 BEC0189 - EPA 5030 Soil MS

Matrix Spike Dup (BEC0189-MSD1)		Source: 2103144-01		Prepared: 03/09/21 Analyzed: 03/10/21						
Benzene	0.0908	0.0020	mg/kg	0.100	ND	90.8	70-130	0.626	30	
Toluene	0.0915	0.0050	"	0.100	ND	91.5	70-130	3.92	30	
Ethylbenzene	0.0926	0.0050	"	0.100	ND	92.6	70-130	1.03	30	
m,p-Xylene	0.169	0.010	"	0.200	ND	84.5	70-130	0.814	30	
o-Xylene	0.0852	0.0050	"	0.100	ND	85.2	70-130	1.57	30	
1,2,4-Trimethylbenzene	0.0866	0.0050	"	0.100	ND	86.6	70-130	1.17	30	
1,3,5-Trimethylbenzene	0.0926	0.0050	"	0.100	ND	92.6	70-130	1.50	30	
Naphthalene	0.0951	0.0038	"	0.100	ND	95.1	70-130	4.74	30	
Surrogate: 1,2-Dichloroethane-d4	0.0218		"	0.0400		54.4	23-173			
Surrogate: Toluene-d8	0.0413		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0400		94.5	21-167			

Batch BEC0210 - EPA 5030 Soil MS

Blank (BEC0210-BLK1)		Prepared: 03/10/21 Analyzed: 03/11/21								
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	"							
Surrogate: 1,2-Dichloroethane-d4	0.0375		"	0.0400		93.7	23-173			
Surrogate: Toluene-d8	0.0413		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.3	21-167			

Summit Scientific

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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

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 BEC0210 - EPA 5030 Soil MS

LCS (BEC0210-BS1)

Prepared: 03/10/21 Analyzed: 03/11/21

Benzene	0.0733	0.0020	mg/kg	0.100		73.3	70-130			
Toluene	0.106	0.0050	"	0.100		106	70-130			
Ethylbenzene	0.107	0.0050	"	0.100		107	70-130			
m,p-Xylene	0.215	0.010	"	0.200		107	70-130			
o-Xylene	0.107	0.0050	"	0.100		107	70-130			
1,2,4-Trimethylbenzene	0.113	0.0050	"	0.100		113	70-130			
1,3,5-Trimethylbenzene	0.114	0.0050	"	0.100		114	70-130			
Naphthalene	0.0886	0.0038	"	0.100		88.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0375		"	0.0400		93.8	23-173			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0430		"	0.0400		107	21-167			

Matrix Spike (BEC0210-MS1)

Source: 2103127-02

Prepared: 03/10/21 Analyzed: 03/11/21

Benzene	0.0696	0.0020	mg/kg	0.100	ND	69.6	70-130			
Toluene	0.111	0.0050	"	0.100	ND	111	70-130			
Ethylbenzene	0.0990	0.0050	"	0.100	ND	99.0	70-130			
m,p-Xylene	0.198	0.010	"	0.200	ND	98.9	70-130			
o-Xylene	0.0971	0.0050	"	0.100	ND	97.1	70-130			
1,2,4-Trimethylbenzene	0.0973	0.0050	"	0.100	ND	97.3	70-130			
1,3,5-Trimethylbenzene	0.0982	0.0050	"	0.100	ND	98.2	70-130			
Naphthalene	0.109	0.0038	"	0.100	ND	109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0371		"	0.0400		92.8	23-173			
Surrogate: Toluene-d8	0.0427		"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.7	21-167			

Matrix Spike Dup (BEC0210-MSD1)

Source: 2103127-02

Prepared: 03/10/21 Analyzed: 03/11/21

Benzene	0.0709	0.0020	mg/kg	0.100	ND	70.9	70-130	1.75	30	
Toluene	0.113	0.0050	"	0.100	ND	113	70-130	2.33	30	
Ethylbenzene	0.0988	0.0050	"	0.100	ND	98.8	70-130	0.243	30	
m,p-Xylene	0.199	0.010	"	0.200	ND	99.7	70-130	0.755	30	
o-Xylene	0.0998	0.0050	"	0.100	ND	99.8	70-130	2.68	30	
1,2,4-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130	9.46	30	
1,3,5-Trimethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	6.07	30	
Naphthalene	0.0989	0.0038	"	0.100	ND	98.9	70-130	9.53	30	
Surrogate: 1,2-Dichloroethane-d4	0.0377		"	0.0400		94.2	23-173			
Surrogate: Toluene-d8	0.0431		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.6	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.



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEC0190 - EPA 3550A

Blank (BEC0190-BLK1)

Prepared: 03/09/21 Analyzed: 03/10/21

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

LCS (BEC0190-BS1)

Prepared: 03/09/21 Analyzed: 03/10/21

C10-C28 (DRO)	373	50	mg/kg	500	74.7	70-130
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Matrix Spike (BEC0190-MS1)

Source: 2103144-01

Prepared: 03/09/21 Analyzed: 03/10/21

C10-C28 (DRO)	374	50	mg/kg	500	14.6	71.9	70-130
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Matrix Spike Dup (BEC0190-MSD1)

Source: 2103144-01

Prepared: 03/09/21 Analyzed: 03/10/21

C10-C28 (DRO)	372	50	mg/kg	500	14.6	71.5	70-130	0.604	20
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Batch BEC0211 - EPA 3550A

Blank (BEC0211-BLK1)

Prepared: 03/10/21 Analyzed: 03/11/21

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

LCS (BEC0211-BS1)

Prepared: 03/10/21 Analyzed: 03/11/21

C10-C28 (DRO)	386	50	mg/kg	500	77.1	70-130
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Matrix Spike (BEC0211-MS1)

Source: 2103127-02

Prepared: 03/10/21 Analyzed: 03/11/21

C10-C28 (DRO)	445	50	mg/kg	500	46.1	79.8	70-130
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Matrix Spike Dup (BEC0211-MSD1)

Source: 2103127-02

Prepared: 03/10/21 Analyzed: 03/11/21

C10-C28 (DRO)	452	50	mg/kg	500	46.1	81.1	70-130	1.46	20
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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: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/12/21 09:48

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

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 11, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Leafgren 1-17 Wellhead

Work Order #2103168

Enclosed are the results of analyses for samples received by Summit Scientific on 03/10/21 17:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President



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

Project: Leafgren 1-17 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
03/11/21 06:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	2103168-01	Water	03/10/21 10:36	03/10/21 17:55

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

S₂

2103168

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 1

Client:	PDC / Tasman	Project Manager:	Mark Longhurst
Address:	6855 W. 119th Ave	E-Mail:	mark.longhurst@PDCE.com
City/State/Zip:	Broomfield / CO/ 80020		
Phone:	303-487-1228	Project Name:	LeFagen 1-17 Wallhead
Sampler Name:	Kevin Fletcher	Project Number:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX 915	8260B GBTEXN	8015 DRO	pH, EC	Naphthalene 915	THB5 (124,135) 915	
1	GW01	3/10/21	1036	3			X		X				X				X	X	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: 4.1 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Kevin Fletcher	3/10/21 1510	Tasman's Lock Box	3/10/21 1510		
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Tasman's Lock Box	3-10-21 17:15		3-10-21 17:15		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 2103168

Client: PDC/TASMAN Client Project ID: LEAFGREN 1-17 WELLHEAD

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

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

Temp (°C)	<u>4.1</u>
-----------	------------

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

Additional Comments (if any):

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

Muri P.
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

3-10-21
Date/Time



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 06:21

GW01
2103168-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/10/21 10:36**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEC0220	03/10/21	03/10/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	12	2.0		"	"	"	"	"	"	
Naphthalene	1.4	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	2.8	1.0		"	"	"	"	"	"	

Date Sampled: **03/10/21 10:36**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		102 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %		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.



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 06:21

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 BEC0220 - EPA 5030 Water MS

Blank (BEC0220-BLK1)

Prepared: 03/10/21 Analyzed: 03/11/21

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Naphthalene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		101	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		99.5	20-170			
Surrogate: 4-Bromofluorobenzene	12.3		"	13.3		92.4	21-167			

LCS (BEC0220-BS1)

Prepared: 03/10/21 Analyzed: 03/11/21

Benzene	37.6	1.0	ug/l	33.3		113	51-132			
Toluene	41.1	1.0	"	33.3		123	51-138			
Ethylbenzene	34.8	1.0	"	33.3		104	58-146			
m,p-Xylene	63.5	2.0	"	66.7		95.3	57-144			
o-Xylene	40.5	1.0	"	33.3		121	53-146			
Naphthalene	39.7	1.0	"	33.3		119	70-130			
1,2,4-Trimethylbenzene	41.2	1.0	"	33.3		124	70-130			
1,3,5-Trimethylbenzene	34.8	1.0	"	33.3		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	12.2		"	13.3		91.8	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3		93.5	21-167			

Matrix Spike (BEC0220-MS1)

Source: 2103167-01

Prepared: 03/10/21 Analyzed: 03/11/21

Benzene	38.0	1.0	ug/l	33.3	ND	114	34-141			
Toluene	41.6	1.0	"	33.3	ND	125	27-151			
Ethylbenzene	35.8	1.0	"	33.3	ND	107	29-160			
m,p-Xylene	107	2.0	"	66.7	ND	160	20-166			
o-Xylene	41.2	1.0	"	33.3	ND	123	33-159			
Naphthalene	32.1	1.0	"	33.3	ND	96.2	70-130			
1,2,4-Trimethylbenzene	37.2	1.0	"	33.3	ND	112	70-130			
1,3,5-Trimethylbenzene	35.7	1.0	"	33.3	ND	107	70-130			
Surrogate: 1,2-Dichloroethane-d4	12.3		"	13.3		92.6	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.0	20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.6	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.



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

Project: Leafgren 1-17 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 06:21

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 BEC0220 - EPA 5030 Water MS

Matrix Spike Dup (BEC0220-MSD1)	Source: 2103167-01			Prepared: 03/10/21 Analyzed: 03/11/21						
Benzene	38.4	1.0	ug/l	33.3	ND	115	34-141	0.968	30	
Toluene	39.7	1.0	"	33.3	ND	119	27-151	4.72	30	
Ethylbenzene	33.1	1.0	"	33.3	ND	99.4	29-160	7.83	30	
m,p-Xylene	102	2.0	"	66.7	ND	153	20-166	4.60	30	
o-Xylene	40.2	1.0	"	33.3	ND	121	33-159	2.29	30	
Naphthalene	33.7	1.0	"	33.3	ND	101	70-130	5.02	30	
1,2,4-Trimethylbenzene	30.3	1.0	"	33.3	ND	90.9	70-130	20.5	30	
1,3,5-Trimethylbenzene	34.9	1.0	"	33.3	ND	105	70-130	2.24	30	
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		101	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.1	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.



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

Project: Leafgren 1-17 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/11/21 06:21

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