

**PDC Energy, Inc.**  
**Second Quarter 2021 Groundwater Monitoring Summary**

June 30, 2021

Former LH Miller Unit 1 Tank Battery  
NWNW Section 25 T4N R66W  
Remediation # 16033

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the former LH Miller Unit 1 Tank Battery. On April 9, 2021, five monitoring wells (BH01 – BH05) were installed to delineate dissolved-phase hydrocarbon impacts and establish point of compliance in all cardinal directions of the former excavation extent. Lithologic descriptions and volatile organic compound (VOC) concentrations measured using a photoionization detector (PID) were recorded for each monitoring well. Per the approved site investigation plan for this location, one soil sample was collected from the southern point-of-compliance (POC) well (BH01) at approximately 2.5 feet bgs and submitted to Summit Scientific Laboratories (Summit) for analysis of Table 915-1 soil suitability constituents. Based on field measurements and observations encountered in borehole BH03, one soil sample was collected from the interval exhibiting the highest VOC concentration as well as from the terminus. Two soil samples were submitted) for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, and total petroleum hydrocarbons (TPH) [C6-C36] by EPA Methods 8260B and 8015. Boring and well completion logs are provided in Attachment A.

Soil analytical results collected during monitoring well installation activities indicated that organic compounds and soil suitability constituents were in compliance with the applicable COGCC Table 915-1 Protection of Groundwater SSLs in all soil samples collected. Soil analytical results are summarized in Tables 1 and 2 and the laboratory analytical report is included in Attachment B.

On May 27, 2021, groundwater monitoring was conducted at all five monitoring wells (BH01 – BH05). Five groundwater samples were submitted to Summit for analysis of BTEX, naphthalene, 1,2,4-TMB, and 1,3,5-TMB by EPA Method 8260B. Additionally, BH01, BH03, BH04, and BH05 were submitted to Summit for analysis of total dissolved solids (TDS) by Method SM 2540C, chloride, and sulfate anions by EPA Method 300.0.

Second quarter 2021 analytical results indicated that organic compound concentrations were below the applicable COGCC Table 915-1 groundwater standard in all five monitoring wells. Additionally, inorganic compound concentrations were in exceedance of the applicable

regulatory standard and 1.25x the background concentration of the up-gradient well (BH01) in monitoring well BH05. Sample locations and corresponding analytical results are illustrated on Figure 1. Groundwater elevation data is illustrated on Figure 2. Groundwater analytical results are summarized in Tables 3 and 4. The laboratory analytical report is included in Attachment B.

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the second quarter 2021 and will remain the selected remediation strategy through the third quarter 2021.

Third quarter 2021 groundwater sampling will be conducted in August 2021.



BH03	
Compound (µg/L)	5/27/2021
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Naphthalene	<1.0
1, 2, 4-TMB	<1.0
1, 3, 5-TMB	<1.0
Depth to Water (ft. bgs)	3.72

BH05	
Compound (µg/L)	5/27/2021
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Naphthalene	<1.0
1, 2, 4-TMB	<1.0
1, 3, 5-TMB	<1.0
Depth to Water (ft. bgs)	4.14

BH04	
Compound (µg/L)	5/27/2021
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Naphthalene	<1.0
1, 2, 4-TMB	<1.0
1, 3, 5-TMB	<1.0
Depth to Water (ft. bgs)	4.69

BH02	
Compound (µg/L)	5/27/2021
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Naphthalene	<1.0
1, 2, 4-TMB	<1.0
1, 3, 5-TMB	<1.0
Depth to Water (ft. bgs)	3.52

BH01	
Compound (µg/L)	5/27/2021
Benzene	<1.0
Toluene	<1.0
Ethylbenzene	<1.0
Total Xylenes	<2.0
Naphthalene	<1.0
1, 2, 4-TMB	<1.0
1, 3, 5-TMB	<1.0
Depth to Water (ft. bgs)	4.17

**Legend**

- Excavation Extent (Collected via Trimble GPS)
- Monitoring Well Location (Collected via Trimble GPS)
- Excavation Groundwater Sample Location
- Groundwater Flow Direction (2Q21)

**Notes**

All locations are approximate unless otherwise noted.

GPS – Global Positioning System

TMB - Trimethylbenzene

µg/L – Micrograms per liter

ft. bgs – Feet below ground surface

0 ft.20 ft.40 ft.

Image Source: Google Earth; 2019 Google  
Projection: WGS 84 UTM Zone 13 North

DATE:	June 30, 2021
DESIGNED BY:	C. Hamlin
DRAWN BY:	J. Marcus

**Tasman Geosciences, Inc.**  
6855 W. 119<sup>th</sup> Ave.  
Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**Former LH Miller Unit 1 Tank Battery**  
NWNW, Section 25, Township 4 North, Range 66 West  
Weld County, Colorado

**GROUNDWATER  
ANALYTICAL RESULTS  
MAP**

**FIGURE  
1**





DATE:	June 16, 2021
DESIGNED BY:	C. Hamlin
DRAWN BY:	C. Ambler



**TASMAN**  
GEOSCIENCES

**Tasman Geosciences, Inc.**  
6855 W. 119<sup>th</sup> Ave.  
Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**Former LH Miller Unit 1 Tank Battery**  
NWNW, Section 25, Township 4 North, Range 66 West  
Weld County, Colorado

**GROUNDWATER  
ELEVATION CONTOUR  
MAP (05/27/2021)**

**FIGURE  
2**



**TABLE 1**  
**FORMER LH MILLER UNIT 1 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(5)</sup> (mg/kg)
COGCC Table 910-1 Soil Standard (mg/kg) <sup>(1)</sup>			0.17	85	100	175	-	-	23	500
COGCC Table 915-1 Residential SSL <sup>(2,3)</sup>			1.2	490	5.8	58	30	27	2	500
COGCC Table 915-1 Protection of Groundwater SSL <sup>(2,3,4)</sup>			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500
SS01 @ 5'	1/6/2021	5	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	0.019	57
SS02 @ 3'	1/8/2021	3	0.26	<0.0050	3.6	48	NA	NA	0.15	1,580
SS03 @ 10'	1/11/2021	10	<0.0020	<0.0050	<0.0050	0.038	NA	NA	<0.010	0.92
SS04 @ 3'	1/11/2021	3	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	26
SS05 @ 9'	1/11/2021	9	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS06 @ 8'	1/12/2021	8	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS07 @ 3'	1/12/2021	3	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS08 @ 7'	1/12/2021	7	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS09 @ 3'	1/12/2021	3	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	6.3
SS10 @ 7'	1/12/2021	7	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	0.023	10
SS11 @ 3'	1/13/2021	3	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS12 @ 7'	1/13/2021	7	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS13 @ 3'	1/13/2021	3	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS14 @ 7'	1/13/2021	7	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS15 @ 3'	1/13/2021	3	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS16 @ 7'	1/13/2021	7	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	8.9
SS17 @ 3'	1/13/2021	3	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS18 @ 7'	1/13/2021	7	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	4.9
SS19 @ 3'	1/13/2021	3	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS20 @ 7'	1/13/2021	7	<0.0020	<0.0050	0.0074	<0.010	NA	NA	0.043	15
SS21 @ 8'	1/13/2021	8	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
SS22 @ 8'	1/13/2021	8	<0.0020	<0.0050	<0.0050	<0.010	NA	NA	<0.010	<50
BH03 @ 5-6'	4/9/2021	5-6	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
BH03 @ 11-12'	4/9/2021	11-12	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

**Notes:**

- Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
- 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.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

NA = Constituent not analyzed

**BOLD** = Analytical result is in exceedance of applicable standard.

**TABLE 2**  
**FORMER LH MILLER UNIT 1 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC COMPOUNDS**

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
<b>Soil Suitability for Reclamation Standard <sup>(1)</sup></b>			<b>6-8.3</b>	<b>&lt;4</b>	<b>&lt;6</b>	<b>2</b>
BH01 @ 2.5'	4/9/2021	2.5 ft. bgs	8.12	1.37	1.93	<0.0100

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

**TABLE 3**  
**FORMER LH MILLER UNIT 1 TANK BATTERY**  
**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 <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
<b>COGCC Table 915-1 Groundwater Standard (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	<b>140</b>	<b>67</b>	<b>67</b>	<b>-</b>	<b>-</b>
GW01	1/14/2021	<1.0	<1.0	<1.0	6.6	NA	NA	NA	~ 6	NM
BH01	5/27/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.17	4742.29
BH02	5/27/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.52	4741.99
BH03	5/27/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.72	4741.58
BH04	5/27/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.69	4741.90
BH05	5/27/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.14	4741.74

**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

NA = Constituent not analyzed

NM = Not measured

**TABLE 4**  
**FORMER LH MILLER UNIT 1 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
<b>COGCC Table 915-1 Groundwater Standard (mg/L) <sup>(1)</sup></b>		<b>&lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>
BH01	5/27/2021	1020	120	122
BH03	5/27/2021	957	112	118
BH04	5/27/2021	1090	134	147
BH05	5/27/2021	<b>1310</b>	<b>251</b>	<b>1090</b>

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.

TDS = Total dissolved solids

COGCC = Colorado Oil and Gas Conservation Commission

BCKG = Background

mg/L = Milligrams per liter

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

  = Up-gradient well location used for background concentration.

**BOLD** = Analytical result is in exceedance of applicable standard.



## Attachment A

# Borehole Logging Form

BOREHOLE ID: <u>BH01</u>	SITE NAME: <u>LH Miller Unit 1</u>	CLIENT NAME: <u>PDC ENERGY</u>
Date Completed: <u>4/9/2021</u>	Location: <u>S POC</u>	
Drilling Company: <u>Tasman</u>	Surface Completion: <u>Flush Monitor</u> DTW: <u>7'</u> TD: <u>12'</u>	
Type of Drill: <u>AMS 9580 Power Probe</u>	Geologist: <u>M. Dahlgen</u>	Project Manager: <u>B. Nelson</u>
Bit Size: <u>2 3/8"</u>	Logging Method: <u>Hand Auger / Continuous Macro Liner</u>	
Well Const. Material: Diameter: <u>1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>		

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1				0.1		SM	Brown Silty Sand, Poorly sorted fine to coarse grain, clay no order
2					BH 0.25' 1030		
3		HA	95%	1.1			Brown Silty Clay, low Plasticity, dry, no order
4						CL	
5				26.1			Gray Silty clay, low Plasticity, dry, slight order
6				16.0			
7				6.9			Gray no same as above, moist, no order
8		Macro		0.2		CL	Tan Silty clay, low Plasticity, saturated no order
9		Macro	90%	0.3			Tan Silty Clay, Moderately sorted, fine to medium grain, saturated, no order
10							
11				0.2			
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							




# Borehole Logging Form

BOREHOLE ID: <u>BH02</u>		SITE NAME: <u>LH Miller Unit 1</u>		CLIENT NAME: <u>PDC ENERGY</u>	
Date Completed: <u>4/9/2021</u>		Location: <u>E POC</u>			
Drilling Company: <u>Tasman</u>		Surface Completion: <u>Flush Monument</u>		DTW: <u>7'</u>	TD: <u>12'</u>
Type of Drill: <u>AMS 9580</u> Power Probe		Geologist: <u>J. Marcus</u>		Project Manager: <u>B. Nelson</u>	
Bit Size: <u>2 3/8"</u>		Logging Method: <u>Hand Auger / Continuous Macro Lines</u>			
Well Const. Material: Diameter: <u>1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>					

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1		↑		26.5		SM	dark brown, silty sand, partly sorted, silt to med grain, dry, no odor
2				1.3			↓
3		HA	95%	0.5		CL	light brown, silty clay, med plasticity, dry, no odor
4				0.5			↓
5				1.0			↓
6		↓		3.14			gray, silty clay, med plasticity, moist, slight odor - H <sub>2</sub> S
7		↑		21.3		CL	same as above
8		Macro		2.7			↓
9		Liner	50%	1.7		SM	tan silty sand, moderately sorted, fine to medium grain, saturated, no odor
10							↓
11				1.5			↓
12		↓					↓
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

# Borehole Logging Form

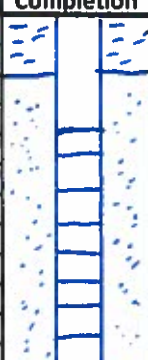
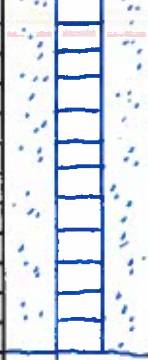
BOREHOLE ID: <b>BH03</b>		SITE NAME: <b>LH Miller Unit 1</b>		CLIENT NAME: <b>PDC ENERGY</b>	
Date Completed: <b>4/9/2021</b>		Location: <b>N POC</b>			
Drilling Company: <b>Tasman</b>		Surface Completion: <b>Flush Monument</b> DTW: <b>6'</b> TD: <b>12'</b>			
Type of Drill: <b>AMS 9580</b> Power Probe		Geologist: <b>A. Dahlgren</b>		Project Manager: <b>B. Nelson</b>	
Bit Size: <b>2 3/8"</b>		Logging Method: <b>Hand Auger / Continuous Macro Liner</b>			
Well Const. Material: Diameter: <b>1"</b> Screen: <b>Sch 40 PVC Slotted 0.010</b> Riser: <b>Sch 40 PVC Blank</b>					

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1		A	↑	0.4		SM	S. lt. Sand, Brown, Pretty Sorted, Fine to coarse grain, Dry, no odor
2		HA		0.1		CL	lt. Brown, S. lt. clay, medium plasticity, Dry, no odor
3			95%	0.1			
4				0.1			
5				0.4			lt. brown, S. lt. clay, medium plasticity, moist, no odor
6		↓	↓	103.8	BH03 0.5-6' 1135	↓	Gray, S. lt. clay, low plasticity, moist, HC odor
7		↑	↑	61.7		CL	to same as above, saturated
8		Macro		1.9		↑	tan S. lt. Sand, Moderately Sorted, Fine to medium grain, Saturated, no odor
9		Liner	95%			SM	
10				0.8			
11							Same as above
12		↓	↓		BH03 0.11-12' 1155	↓	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



# Borehole Logging Form

BOREHOLE ID: <u>BH04</u>		SITE NAME: <u>LH Miller Unit 1</u>		CLIENT NAME: <u>PDC ENERGY</u>	
Date Completed: <u>4/9/2021</u>		Location: <u>W POC</u>			
Drilling Company: <u>Tasman</u>		Surface Completion: <u>Flush Monument</u> DTW: <u>7'</u> TD: <u>12</u>			
Type of Drill: <u>AMS 9580</u> Power Probe		Geologist: <u>M. Dahlgren</u>		Project Manager: <u>B. Nelson</u>	
Bit Size: <u>2 3/8"</u>		Logging Method: <u>Hand Auger / Continuous Macro Liner</u>			
Well Const. Material: Diameter: <u>1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>					

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1		HA	↑ 95%	2.7		CL	Brown silty clay, low plasticity, dry, no odor
2				2.3			
3				0.9			
4				0.7			
5				0.4			
6				0.4			
7		Macro Lwr	↑ 90%	0.1		CL	light brown, silty clay, low plasticity, moist, no odor
8				0.1			
9				0.1			
10							
11							
12			↓	0.0		SM	light brown, silty sand, moderately sorted, silt to med grained, subrounded, no odor
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



# Borehole Logging Form

BOREHOLE ID: BH05 SITE NAME: LH Miller Unit 1 CLIENT NAME: PDC ENERGY

Date Completed: 4/9/2021 Location: Source

Drilling Company: Tasman Surface Completion: Flush Manifold DTW: 7' TD: 12'

Type of Drill: AMS 9580 Power Probe Geologist: M. Dahlyren Project Manager: B. Nelson

Bit Size: 2 3/8" Logging Method: Hand Auger / Continuous Macro liner

Well Const. Material: Diameter: 1" Screen: Sch 40 PVC Slotted 0.010 Riser: Sch 40 PVC Blank

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1				1.4			Dark brown silty clay w/ fine gravel, low plasticity, dry, no odor
2		HA	95%			CL	
3							Same as above
4				0.8			
5							
6				0.6			Same as above, moist
7							No recovery due to broken sample core - lithology not logged
8		Macro					Water depth assumed 0.7' based on other monitoring well observations
9		Liner	0%				
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



## Attachment B

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 20, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: LH Miller Unit 1

Work Order #2104167

Enclosed are the results of analyses for samples received by Summit Scientific on 04/09/21 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Muri Premer", is displayed on a light purple rectangular background.

Muri Premer For Paul Shrewsbury  
President



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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@2.5'	2104167-01	Soil	04/09/21 10:30	04/09/21 17:00
BH03@5-6'	2104167-02	Soil	04/09/21 11:35	04/09/21 17:00
BH03@11-12'	2104167-03	Soil	04/09/21 11:55	04/09/21 17:00

Summit Scientific

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# Summit Scientific

S<sub>2</sub>

2104167

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:	970-481-6909	Project Name:	LH Miller Unit 1
Sampler Name:	Max Dahlgren	Project Number:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEX <sup>915</sup>	TPH - (C6 - C36) <sup>915</sup>	Naphthalene <sup>915</sup>	1,2,4,6,1,3,5 TMBs <sup>915</sup>	PH, EC, SAR <sup>915</sup>	Bacteria - HWS <sup>915</sup>	HOLD		
1	BH01 @ 2.5'	4/9/21	1030	2			X			X											
2	BH03 @ 5-6'		1135											X	X	X	X				
3	BH03 @ 11-12'		1155											X	X	X	X				
4	BKG01 @ 2.5'		1130																	X	
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
	4/9/21		4/9/21 1700	Same Day	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:		
				Temperature Upon Receipt:		5
				Samples Intact:		Yes No

# Sample Receipt Checklist

S2 Work Order 2104168

Client: PDC / Tasman Client Project ID: LH Miller Unit 1

Shipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other ☒ Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

Temp (°C)	<u>5</u>
-----------	----------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? 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"/>	<u>On ice</u>
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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) <sup>(1)</sup> ? 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 <sup>(1)</sup> ? 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):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

JB  
Custodian Printed Name or Initials

Jim B  
Signature of Custodian

4/9/21 1830  
Date/Time



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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

**BH01@2.5'**  
**2104167-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **04/09/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	0.0100	mg/L	1	BED0296	04/16/21	04/17/21	EPA 6020B	

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

Date Sampled: **04/09/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	95.0	0.0572	mg/L dry	1	BED0300	04/16/21	04/20/21	EPA 6020B	
Magnesium	23.2	0.0572	"	"	"	"	"	"	
Sodium	80.7	0.0572	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **04/09/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.93	0.100	units	1	BED0332	04/20/21	04/20/21	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **04/09/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.5		%	1	BED0276	04/15/21	04/16/21	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **04/09/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.37	0.0100	mmhos/cm	1	BED0324	04/19/21	04/19/21	EPA 120.1	

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

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

**BH01@2.5'**  
**2104167-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **04/09/21 10:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>8.12</b>			pH Units	1	BED0325	04/19/21	04/19/21	EPA 9045D	

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

**BH03@5-6'**  
**2104167-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **04/09/21 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0254	04/14/21	04/15/21	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: **04/09/21 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		72.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/09/21 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0267	04/15/21	04/16/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/09/21 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		120 %	30-150		"	"	"	"	

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

**BH03@11-12'**  
**2104167-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **04/09/21 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BED0254	04/14/21	04/15/21	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: **04/09/21 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		94.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/09/21 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BED0267	04/15/21	04/16/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/09/21 11:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		124 %	30-150		"	"	"	"	

Summit Scientific

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

Project: LH Miller Unit 1

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

## 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 BED0254 - EPA 5030 Soil MS

##### Blank (BED0254-BLK1)

Prepared & Analyzed: 04/14/21

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	0.0285		"	0.0400		71.2	23-173			
Surrogate: Toluene-d8	0.0478		"	0.0400		120	20-170			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	21-167			

##### LCS (BED0254-BS1)

Prepared & Analyzed: 04/14/21

Benzene	0.0759	0.0020	mg/kg	0.100		75.9	70-130			
Toluene	0.108	0.0050	"	0.100		108	70-130			
Ethylbenzene	0.0992	0.0050	"	0.100		99.2	70-130			
m,p-Xylene	0.179	0.010	"	0.200		89.7	70-130			
o-Xylene	0.0902	0.0050	"	0.100		90.2	70-130			
1,2,4-Trimethylbenzene	0.0936	0.0050	"	0.100		93.6	70-130			
1,3,5-Trimethylbenzene	0.0904	0.0050	"	0.100		90.4	70-130			
Naphthalene	0.0902	0.0038	"	0.100		90.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0229		"	0.0400		57.2	23-173			
Surrogate: Toluene-d8	0.0436		"	0.0400		109	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		99.9	21-167			

##### Matrix Spike (BED0254-MS1)

Source: 2104164-01

Prepared: 04/14/21 Analyzed: 04/15/21

Benzene	0.0829	0.0020	mg/kg	0.100	ND	82.9	70-130			
Toluene	0.109	0.0050	"	0.100	ND	109	70-130			
Ethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
m,p-Xylene	0.182	0.010	"	0.200	ND	91.0	70-130			
o-Xylene	0.0906	0.0050	"	0.100	ND	90.6	70-130			
1,2,4-Trimethylbenzene	0.100	0.0050	"	0.100	ND	100	70-130			
1,3,5-Trimethylbenzene	0.0946	0.0050	"	0.100	ND	94.6	70-130			
Naphthalene	0.103	0.0038	"	0.100	ND	103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0279		"	0.0400		69.8	23-173			
Surrogate: Toluene-d8	0.0456		"	0.0400		114	20-170			
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400		101	21-167			

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

**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 BED0254 - EPA 5030 Soil MS**

Matrix Spike Dup (BED0254-MSD1)		Source: 2104164-01			Prepared: 04/14/21 Analyzed: 04/15/21					
Benzene	0.0808	0.0020	mg/kg	0.100	ND	80.8	70-130	2.57	30	
Toluene	0.103	0.0050	"	0.100	ND	103	70-130	5.43	30	
Ethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130	4.84	30	
m,p-Xylene	0.189	0.010	"	0.200	ND	94.4	70-130	3.61	30	
o-Xylene	0.0932	0.0050	"	0.100	ND	93.2	70-130	2.81	30	
1,2,4-Trimethylbenzene	0.0991	0.0050	"	0.100	ND	99.1	70-130	1.14	30	
1,3,5-Trimethylbenzene	0.0956	0.0050	"	0.100	ND	95.6	70-130	1.10	30	
Naphthalene	0.0997	0.0038	"	0.100	ND	99.7	70-130	3.61	30	
Surrogate: 1,2-Dichloroethane-d4		0.0259	"	0.0400		64.8	23-173			
Surrogate: Toluene-d8		0.0426	"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene		0.0400	"	0.0400		99.9	21-167			

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

**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 BED0267 - EPA 3550A**

**Blank (BED0267-BLK1)**

Prepared & Analyzed: 04/15/21

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

**LCS (BED0267-BS1)**

Prepared & Analyzed: 04/15/21

C10-C28 (DRO)	524	50	mg/kg	500	105	70-130					
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**Matrix Spike (BED0267-MS1)**

Source: 2104163-01

Prepared & Analyzed: 04/15/21

C10-C28 (DRO)	499	50	mg/kg	500	48.7	90.0	70-130				
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**Matrix Spike Dup (BED0267-MSD1)**

Source: 2104163-01

Prepared & Analyzed: 04/15/21

C10-C28 (DRO)	445	50	mg/kg	500	48.7	79.2	70-130	11.5	20		
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Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

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

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

**Batch BED0296 - EPA 3050B**

**Blank (BED0296-BLK1)**

Prepared: 04/16/21 Analyzed: 04/17/21

Boron ND 0.0100 mg/L

**LCS (BED0296-BS1)**

Prepared: 04/16/21 Analyzed: 04/17/21

Boron 5.06 0.0100 mg/L 5.00 101 80-120

**Duplicate (BED0296-DUP1)**

**Source: 2103484-09**

Prepared: 04/16/21 Analyzed: 04/17/21

Boron ND 0.0100 mg/L ND 20

**Matrix Spike (BED0296-MS1)**

**Source: 2103484-09**

Prepared: 04/16/21 Analyzed: 04/17/21

Boron 4.94 0.0100 mg/L 5.00 ND 98.7 75-125

**Matrix Spike Dup (BED0296-MSD1)**

**Source: 2103484-09**

Prepared: 04/16/21 Analyzed: 04/17/21

Boron 4.93 0.0100 mg/L 5.00 ND 98.6 75-125 0.133 25

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

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

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

**Batch BED0300 - General Preparation**

**Blank (BED0300-BLK1)**

Prepared: 04/16/21 Analyzed: 04/20/21

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

**LCS (BED0300-BS1)**

Prepared: 04/16/21 Analyzed: 04/20/21

Calcium	5.36	0.0500	mg/L wet	5.00	107	70-130
Magnesium	5.54	0.0500	"	5.00	111	70-130
Sodium	4.67	0.0500	"	5.00	93.4	70-130

Summit Scientific

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

Project: LH Miller Unit 1

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

04/20/21 14:28

**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 BED0276 - General Preparation**

**Duplicate (BED0276-DUP1)**

**Source: 2104070-06**

Prepared: 04/15/21 Analyzed: 04/16/21

% Solids	93.9	%	95.8	2.09	20
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Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

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

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

**Batch BED0324 - General Preparation**

**Blank (BED0324-BLK1)**

Prepared & Analyzed: 04/19/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BED0324-BS1)**

Prepared & Analyzed: 04/19/21

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 99.7 90-110

**Duplicate (BED0324-DUP1)**

**Source: 2103484-09**

Prepared & Analyzed: 04/19/21

Specific Conductance (EC) 0.680 0.0100 mmhos/cm 0.678 0.191 20

Summit Scientific

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

Project: LH Miller Unit 1

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

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

**Summit Scientific**

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

**Batch BED0325 - General Preparation**

**LCS (BED0325-BS1)**

Prepared & Analyzed: 04/19/21

pH	9.27	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BED0325-DUP1)**

**Source: 2103484-09**

Prepared & Analyzed: 04/19/21

pH	7.93	pH Units	8.06	1.63	20
----	------	----------	------	------	----

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/20/21 14:28

### 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

July 06, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: LH Miller Unit 1

Work Order #2105477

Enclosed are the results of analyses for samples received by Summit Scientific on 05/27/21 19:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury

President



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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2105477-01	Water	05/27/21 14:49	05/27/21 19:00
BH02	2105477-02	Water	05/27/21 14:57	05/27/21 19:00
BH03	2105477-03	Water	05/27/21 15:04	05/27/21 19:00
BH04	2105477-04	Water	05/27/21 14:50	05/27/21 19:00
BH05	2105477-05	Water	05/27/21 15:02	05/27/21 19:00

Summit Scientific

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# Summit Scientific 2105477

S<sub>2</sub>

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: <u>LH Miller Unit 1</u>
Sampler Name: <u>J. Muscus</u>	Project Number: <u>n/a</u>

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR				
1	BH01	5/27/21	1449	4	X				X					X		X					pH, EC, SAR by saturated paste  <u>Inorganic analysis ON HOLD</u>
2	BH02		1457	4	X				X					X		X					
3	BH03		1504	4	X				X					X		X					
4	BH04		1450	4	X				X					X		X					
5	BH05		1502	4	X				X					X		X					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <u>[Signature]</u>	Date/Time: <u>5/27/21 1700</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>5/27/21 1700</u>	<b>Turn Around Time</b> (Check) Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/> <b>Sample Integrity:</b> Temperature Upon Receipt: <u>4</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Notes:</b>
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: <u>5/27/21 1900</u>	Received by: <u>Guh Ben</u>	Date/Time: <u>5/27/21 1900</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

2105477

## Sample Receipt Checklist

S2 Work Order \_\_\_\_\_

Client: PDC / TasmanClient Project ID: LH Miller Unit 1Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: \_\_\_\_\_
☐ ☒ ☐ ☐ ☐
Matrix (check all that apply): ☐ Air ☐ Soil/Solid ☒ Water ☐ Other: \_\_\_\_\_  
(Describe)

Temp (°C)	4
-----------	---

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? 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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? 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):

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

JB  
Custodian Printed Name or Initials

John Br  
Signature of Custodian

5/27/21  
Date/Time



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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

**BH01**  
**2105477-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/27/21 14:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEE0555	05/29/21	06/04/21	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **05/27/21 14:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		99.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/27/21 14:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	<b>120</b>	12.0	mg/L	200	BEF0381	06/17/21	06/17/21	EPA 300.0	
Sulfate	<b>122</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/27/21 14:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	<b>1020</b>	10.0	mg/L	1	BEF0366	06/17/21	06/17/21	SM2540C	

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: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

**BH02**  
**2105477-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/27/21 14:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEE0555	05/29/21	06/04/21	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **05/27/21 14:57**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		91.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		117 %	21-167		"	"	"	"	

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

**BH03**  
**2105477-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/27/21 15:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEE0555	05/29/21	06/04/21	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **05/27/21 15:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		111 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		117 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/27/21 15:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	112	12.0	mg/L	200	BEF0381	06/17/21	06/17/21	EPA 300.0	
Sulfate	118	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/27/21 15:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	957	10.0	mg/L	1	BEF0366	06/17/21	06/17/21	SM2540C	

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

**BH04**  
**2105477-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/27/21 14:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEE0555	05/29/21	06/04/21	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **05/27/21 14:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		111 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/27/21 14:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	134	12.0	mg/L	200	BEF0381	06/17/21	06/17/21	EPA 300.0	
Sulfate	147	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/27/21 14:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	1090	10.0	mg/L	1	BEF0366	06/17/21	06/17/21	SM2540C	

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

**BH05**  
**2105477-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/27/21 15:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEE0555	05/29/21	06/04/21	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **05/27/21 15:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **05/27/21 15:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>251</b>	12.0	mg/L	200	BEF0621	06/30/21	07/02/21	EPA 300.0	
Sulfate	<b>1090</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **05/27/21 15:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>1310</b>	10.0	mg/L	1	BEG0037	07/02/21	07/02/21	SM2540C	

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

## 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 BEE0555 - EPA 5030 Water MS

##### Blank (BEE0555-BLK1)

Prepared: 05/29/21 Analyzed: 06/04/21

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	14.8		"	13.3		111	23-173			
Surrogate: Toluene-d8	16.2		"	13.3		122	20-170			
Surrogate: 4-Bromofluorobenzene	15.6		"	13.3		117	21-167			

##### LCS (BEE0555-BS1)

Prepared: 05/29/21 Analyzed: 06/04/21

Benzene	37.4	1.0	ug/l	33.3		112	51-132			
Toluene	39.0	1.0	"	33.3		117	51-138			
Ethylbenzene	30.6	1.0	"	33.3		91.9	58-146			
m,p-Xylene	62.1	2.0	"	66.7		93.1	57-144			
o-Xylene	32.1	1.0	"	33.3		96.2	53-146			
Naphthalene	32.9	1.0	"	33.3		98.7	70-130			
1,2,4-Trimethylbenzene	35.4	1.0	"	33.3		106	70-130			
1,3,5-Trimethylbenzene	36.0	1.0	"	33.3		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.3		103	23-173			
Surrogate: Toluene-d8	16.7		"	13.3		125	20-170			
Surrogate: 4-Bromofluorobenzene	16.0		"	13.3		120	21-167			

##### Matrix Spike (BEE0555-MS1)

Source: 2105477-01

Prepared: 05/29/21 Analyzed: 06/04/21

Benzene	36.9	1.0	ug/l	33.3	ND	111	34-141			
Toluene	46.0	1.0	"	33.3	ND	138	27-151			
Ethylbenzene	30.6	1.0	"	33.3	ND	91.7	29-160			
m,p-Xylene	61.8	2.0	"	66.7	ND	92.7	20-166			
o-Xylene	32.0	1.0	"	33.3	ND	96.1	33-159			
Naphthalene	32.6	1.0	"	33.3	ND	97.9	70-130			
1,2,4-Trimethylbenzene	35.3	1.0	"	33.3	ND	106	70-130			
1,3,5-Trimethylbenzene	36.3	1.0	"	33.3	ND	109	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.3		108	23-173			
Surrogate: Toluene-d8	16.0		"	13.3		120	20-170			
Surrogate: 4-Bromofluorobenzene	16.1		"	13.3		121	21-167			

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

**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 BEE0555 - EPA 5030 Water MS**

Matrix Spike Dup (BEE0555-MSD1)	Source: 2105477-01			Prepared: 05/29/21 Analyzed: 06/04/21						
Benzene	38.3	1.0	ug/l	33.3	ND	115	34-141	3.62	30	
Toluene	48.2	1.0	"	33.3	ND	145	27-151	4.75	30	
Ethylbenzene	30.8	1.0	"	33.3	ND	92.3	29-160	0.685	30	
m,p-Xylene	62.6	2.0	"	66.7	ND	93.8	20-166	1.22	30	
o-Xylene	32.4	1.0	"	33.3	ND	97.3	33-159	1.24	30	
Naphthalene	24.1	1.0	"	33.3	ND	72.2	70-130	30.2	30	
1,2,4-Trimethylbenzene	35.2	1.0	"	33.3	ND	106	70-130	0.369	30	
1,3,5-Trimethylbenzene	36.0	1.0	"	33.3	ND	108	70-130	0.968	30	
Surrogate: 1,2-Dichloroethane-d4	16.9		"	13.3		127	23-173			
Surrogate: Toluene-d8	16.0		"	13.3		120	20-170			
Surrogate: 4-Bromofluorobenzene	15.8		"	13.3		119	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: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

**Anions by EPA Method 300.0 - Quality Control**  
**Summit Scientific**

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

**Batch BEF0381 - General Preparation**

**Blank (BEF0381-BLK1)**

Prepared & Analyzed: 06/17/21

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

**LCS (BEF0381-BS1)**

Prepared & Analyzed: 06/17/21

Chloride	2.81	0.0600	mg/L	3.00	93.7	90-110
Sulfate	14.9	0.300	"	15.0	99.1	90-110

**Duplicate (BEF0381-DUP1)**

Source: 2105477-01

Prepared & Analyzed: 06/17/21

Chloride	119	12.0	mg/L	120	1.00	20
Sulfate	125	60.0	"	122	2.59	20

**Matrix Spike (BEF0381-MS1)**

Source: 2105477-01

Prepared & Analyzed: 06/17/21

Chloride	543	12.0	mg/L	600	120	70.5	80-120	QM-07
Sulfate	1750	60.0	"	3000	122	54.4	80-120	QM-07

**Batch BEF0621 - General Preparation**

**Blank (BEF0621-BLK1)**

Prepared: 06/30/21 Analyzed: 07/01/21

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

**LCS (BEF0621-BS1)**

Prepared: 06/30/21 Analyzed: 07/01/21

Chloride	3.27	0.0600	mg/L	3.00	109	90-110
Sulfate	16.5	0.300	"	15.0	110	90-110

**Duplicate (BEF0621-DUP1)**

Source: 2106324-01

Prepared: 06/30/21 Analyzed: 07/01/21

Chloride	359	12.0	mg/L	414	14.2	20
Sulfate	1010	60.0	"	995	1.83	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: LH Miller Unit 1

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

### Anions by EPA Method 300.0 - Quality Control

#### Summit Scientific

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

#### Batch BEF0621 - General Preparation

##### Matrix Spike (BEF0621-MS1)

Source: 2106324-01

Prepared: 06/30/21 Analyzed: 07/01/21

Chloride	1010	12.0	mg/L	600	414	99.4	80-120
Sulfate	4060	60.0	"	3000	995	102	80-120

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

**Total Dissolved Solids by SM2540C - Quality Control**  
**Summit Scientific**

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

**Batch BEF0366 - General Preparation**

**Blank (BEF0366-BLK1)**

Prepared & Analyzed: 06/17/21

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BEF0366-DUP1)**

**Source: 2105056-02**

Prepared & Analyzed: 06/17/21

Total Dissolved Solids 629 10.0 mg/L 626 0.430 20

**Batch BEG0037 - General Preparation**

**Blank (BEG0037-BLK1)**

Prepared & Analyzed: 07/02/21

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BEG0037-DUP1)**

**Source: 2105477-05**

Prepared & Analyzed: 07/02/21

Total Dissolved Solids 1310 10.0 mg/L 1310 0.152 20

Summit Scientific

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

Project: LH Miller Unit 1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
07/06/21 09:26

### 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