

**TABLE 1**  
**FORMER LARSON FARMS 3-24 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 <sup>(4)</sup> (mg/kg)
<b>Residential SSL<sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL<sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
WH04 @ 7'	8/5/2021	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50
FLR04 @ 5'	8/5/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50

**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.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

**TABLE 2**  
**FORMER LARSON FARMS 3-24 WELLHEAD**  
**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>
WH04 @ 7'	8/5/2021	7 ft. bgs	<b>8.43</b>	3.26	<b>16.5</b>	0.427
FLR04 @ 5'	8/5/2021	5 ft. bgs	<b>8.51</b>	1.19	10.4	0.417
BKG01 @ 5'	8/6/2021	5 ft. bgs	<b>8.96</b>	1.62	5.20	NA
BKG01 @ 7'	8/6/2021	7 ft. bgs	<b>8.81</b>	NA	<b>26.2</b>	NA

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

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

**BOLD** = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

NA = Constituent not analyzed

**TABLE 3**  
**FORMER LARSON FARMS 3-24 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 <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH04 @ 7'	8/5/2021	7 ft. bgs	<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
FLR04 @ 5'	8/5/2021	5 ft. bgs	<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:**

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

**TABLE 4**  
**FORMER LARSON FARMS 3-24 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 <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	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7	NA

**Notes:**

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

2. 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

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

NA = Not applicable

**TABLE 5**  
**FORMER LARSON FARMS 3-24 WELLHEAD**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
WH04 @ 7'	8/5/2021	7 ft. bgs	40.470806	-104.498997	0.9	1.1
FLR04 @ 5'	8/5/2021	5 ft. bgs	40.470798	-104.499027	0.9	0.1
WHS04-N @ 0-6"	8/5/2021	0-6 in. bgs	40.470832	-104.499017	0.9	0.0
WHS04-W @ 0-6"	8/5/2021	0-6 in. bgs	40.470792	-104.499034	0.9	0.0
WHS04-S @ 0-6"	8/5/2021	0-6 in. bgs	40.470785	-104.498962	0.9	0.0
WHS04-E @ 0-6"	8/5/2021	0-6 in. bgs	40.470834	-104.498964	0.9	0.0
FL04-01 @ 5'	8/5/2021	5 ft. bgs	NC	NC	NC	0.7
BKG01 @ 5'	8/6/2021	5 ft. bgs	40.470334	-104.499261	0.9	0.0
BKG01 @ 7'	8/6/2021	7 ft. bgs	40.470334	-104.499261	0.9	0.0

**Notes:**

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

3-24 Wellhead  
Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 06, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Larson Farms 3-24 Wellhead

Work Order #2108065

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/21 17:50. 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: Larson Farms 3-24 Wellhead  
Project Number: LARSON FARMS 3-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:14

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	2108065-01	Water	08/05/21 13:02	08/05/21 17:50

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.*



2108065

## Summit Scientific

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

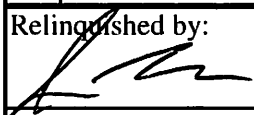
Phone: 303-487-1228

Project Name: Larson Farms 3-24 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 <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	GW01	8/5/21	1302	3			X		X					X		X					pH, EC, SAR by saturated paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 8/5/21 1630	Received by: Tasman's Lock Box	Date/Time: 8/5/21 1630	Turn Around Time (Check)	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 8/5/21 1758	Received by: Will Mohr	Date/Time: 8/5/21 1758	Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
				24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
				48 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
				Temperature Upon Receipt: 10.2	
				Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

# Sample Receipt Checklist

S2 Work Order 2108065

Client: PDC/TASMAN Client Project ID: Larson Farms 3-24 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>10.2</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> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>on ice</u>
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 <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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>same day</u>
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> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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.

WG  
Custodian Printed Name or Initials

Will Galin  
Signature of Custodian

8/5/21  
Date/Time



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

Project: Larson Farms 3-24 Wellhead  
Project Number: LARSON FARMS 3-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:14

**GW01**  
**2108065-01 (Water)**

**Summit Scientific**

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

Date Sampled: **08/05/21 13:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0068	08/05/21	08/05/21	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: **08/05/21 13:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		77.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: LARSON FARMS 3-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:14

## 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 BEH0068 - EPA 5030 Water MS

##### Blank (BEH0068-BLK1)

Prepared: 08/04/21 Analyzed: 08/05/21

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	10.5		"	13.3		78.5	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.2	20-170			
Surrogate: 4-Bromofluorobenzene	11.7		"	13.3		88.0	21-167			

##### LCS (BEH0068-BS1)

Prepared: 08/04/21 Analyzed: 08/05/21

Benzene	38.2	1.0	ug/l	33.3		114	51-132			
Toluene	41.4	1.0	"	33.3		124	51-138			
Ethylbenzene	46.0	1.0	"	33.3		138	58-146			
m,p-Xylene	94.5	2.0	"	66.7		142	57-144			
o-Xylene	47.4	1.0	"	33.3		142	53-146			
Naphthalene	33.3	1.0	"	33.3		100	70-130			
1,2,4-Trimethylbenzene	41.3	1.0	"	33.3		124	70-130			
1,3,5-Trimethylbenzene	30.3	1.0	"	33.3		90.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	10.8		"	13.3		80.9	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	11.9		"	13.3		89.5	21-167			

##### Matrix Spike (BEH0068-MS1)

Source: 2108030-01

Prepared: 08/04/21 Analyzed: 08/05/21

Benzene	37.6	1.0	ug/l	33.3	ND	113	34-141			
Toluene	40.6	1.0	"	33.3	ND	122	27-151			
Ethylbenzene	46.0	1.0	"	33.3	ND	138	29-160			
m,p-Xylene	94.5	2.0	"	66.7	ND	142	20-166			
o-Xylene	47.5	1.0	"	33.3	ND	143	33-159			
Naphthalene	42.7	1.0	"	33.3	9.76	98.8	70-130			
1,2,4-Trimethylbenzene	41.3	1.0	"	33.3	ND	124	70-130			
1,3,5-Trimethylbenzene	30.6	1.0	"	33.3	ND	91.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	10.7		"	13.3		80.0	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	11.8		"	13.3		88.4	21-167			

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: LARSON FARMS 3-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:14

**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 BEH0068 - EPA 5030 Water MS**

Matrix Spike Dup (BEH0068-MSD1)	Source: 2108030-01			Prepared: 08/04/21 Analyzed: 08/05/21						
Benzene	37.7	1.0	ug/l	33.3	ND	113	34-141	0.239	30	
Toluene	41.4	1.0	"	33.3	ND	124	27-151	1.95	30	
Ethylbenzene	45.8	1.0	"	33.3	ND	138	29-160	0.392	30	
m,p-Xylene	95.2	2.0	"	66.7	ND	143	20-166	0.780	30	
o-Xylene	47.4	1.0	"	33.3	ND	142	33-159	0.274	30	
Naphthalene	44.3	1.0	"	33.3	9.76	104	70-130	3.70	30	
1,2,4-Trimethylbenzene	41.4	1.0	"	33.3	ND	124	70-130	0.266	30	
1,3,5-Trimethylbenzene	40.8	1.0	"	33.3	ND	122	70-130	28.6	30	
Surrogate: 1,2-Dichloroethane-d4	11.3		"	13.3		84.8	23-173			
Surrogate: Toluene-d8	12.9		"	13.3		97.1	20-170			
Surrogate: 4-Bromofluorobenzene	12.0		"	13.3		90.0	21-167			

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: LARSON FARMS 3-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:14

### Notes and Definitions

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

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 13, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

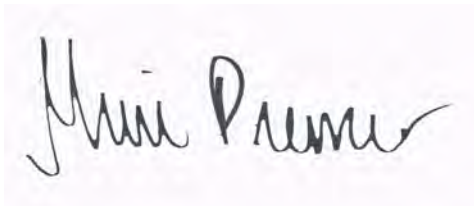
Denver, CO 80203

RE: Larson Farms 3-24 Wellhead

Work Order #2108072

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/21 17:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premer". The signature is written in a cursive style with a large, stylized "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury  
President



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

Project: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH04@7'	2108072-01	Soil	08/05/21 12:59	08/05/21 17:50
FLR04@5'	2108072-02	Soil	08/05/21 13:01	08/05/21 17:50

Summit Scientific


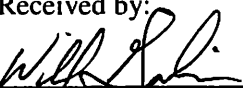
*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Summit Scientific  
S<sub>2</sub>

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:	Larson Farms 3-24 wellhead
Sampler Name:	J. Marcus	Project Number:	n/a

					Preservative				Matrix				Analysis Requested								Special Instructions				
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAH-qis							pH, EC, SAR by saturated paste
1	WH04@7'	8/5/21	1259	3			X			X			X	X	X	X	X	X	X						
2	FLR04@5'	↓	1301	3			X			X			X	X	X	X	X	X	X						
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time				(Check)				Notes:									
		8/5/21 1630		Tasman's Lock Box		8/5/21 1630		Same Day				72 hours													
Relinquished by:		Date/Time:		Received by:		Date/Time:		24 hours				Standard													
Tasman's Lock Box		8/5/21 1750				8/5/21 1750		48 hours								Sample Integrity:									
Relinquished by:		Date/Time:		Received by:		Date/Time:		Temperature Upon Receipt:				10.2													
								Samples Intact:				Yes No													

# Sample Receipt Checklist

S2 Work Order 2108072

Client: PDC/TASHAM

Client Project ID: Larson Farms 3-24 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)

10.2

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> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>on ice</u>
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 <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> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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.

WS  
Custodian Printed Name or Initials

Will Hall  
Signature of Custodian

8/5/21  
Date/Time



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

Project: Larson Farms 3-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**WH04@7'**  
**2108072-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0173	08/11/21	08/12/21	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: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.8 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0174	08/11/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		105 %	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: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**WH04@7'**  
**2108072-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0097	08/06/21	08/08/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		51.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		62.9 %	40-150		"	"	"	"	

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

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.427</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**WH04@7'**  
**2108072-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	116	0.0693	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	28.7	0.0693	"	"	"	"	"	"	
Sodium	766	0.0693	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	16.5	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	72.1		%	1	BEH0093	08/06/21	08/06/21	Calculation	

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

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.26	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.43		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**FLR04@5'**  
**2108072-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0173	08/11/21	08/12/21	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: **08/05/21 13:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0174	08/11/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		105 %	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: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**FLR04@5'**  
**2108072-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0097	08/06/21	08/08/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		43.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		57.5 %	40-150		"	"	"	"	

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

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.417</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**FLR04@5'**  
**2108072-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	28.4	0.0717	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	15.2	0.0717	"	"	"	"	"	"	
Sodium	277	0.0717	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	10.4	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	69.7		%	1	BEH0093	08/06/21	08/06/21	Calculation	

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

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.19	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.51		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

## 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 BEH0173 - EPA 5030 Soil MS

##### Blank (BEH0173-BLK1)

Prepared: 08/11/21 Analyzed: 08/12/21

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	0.0440		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	21-167			

##### LCS (BEH0173-BS1)

Prepared: 08/11/21 Analyzed: 08/12/21

Benzene	0.169	0.0020	mg/kg	0.175		96.7	70-130			
Toluene	0.178	0.0050	"	0.175		102	70-130			
Ethylbenzene	0.203	0.0050	"	0.175		116	70-130			
m,p-Xylene	0.391	0.010	"	0.350		112	70-130			
o-Xylene	0.206	0.0050	"	0.175		118	70-130			
1,2,4-Trimethylbenzene	0.201	0.0050	"	0.175		115	70-130			
1,3,5-Trimethylbenzene	0.203	0.0050	"	0.175		116	70-130			
Naphthalene	0.189	0.0038	"	0.175		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0439		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	21-167			

##### Matrix Spike (BEH0173-MS1)

Source: 2108002-03

Prepared: 08/11/21 Analyzed: 08/12/21

Benzene	0.134	0.0020	mg/kg	0.175	ND	76.7	70-130			
Toluene	0.140	0.0050	"	0.175	ND	79.7	70-130			
Ethylbenzene	0.154	0.0050	"	0.175	ND	88.1	70-130			
m,p-Xylene	0.297	0.010	"	0.350	ND	85.0	70-130			
o-Xylene	0.156	0.0050	"	0.175	ND	88.9	70-130			
1,2,4-Trimethylbenzene	0.145	0.0050	"	0.175	ND	83.0	70-130			
1,3,5-Trimethylbenzene	0.147	0.0050	"	0.175	ND	83.8	70-130			
Naphthalene	0.185	0.0038	"	0.175	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0458		"	0.0400		114	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		97.9	21-167			

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**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 BEH0173 - EPA 5030 Soil MS**

Matrix Spike Dup (BEH0173-MSD1)	Source: 2108002-03			Prepared: 08/11/21 Analyzed: 08/12/21						
Benzene	0.137	0.0020	mg/kg	0.175	ND	78.2	70-130	1.90	30	
Toluene	0.144	0.0050	"	0.175	ND	82.1	70-130	2.88	30	
Ethylbenzene	0.153	0.0050	"	0.175	ND	87.7	70-130	0.507	30	
m,p-Xylene	0.297	0.010	"	0.350	ND	85.0	70-130	0.0303	30	
o-Xylene	0.157	0.0050	"	0.175	ND	89.8	70-130	1.04	30	
1,2,4-Trimethylbenzene	0.149	0.0050	"	0.175	ND	85.1	70-130	2.45	30	
1,3,5-Trimethylbenzene	0.150	0.0050	"	0.175	ND	85.6	70-130	2.09	30	
Naphthalene	0.190	0.0038	"	0.175	ND	109	70-130	2.90	30	
Surrogate: 1,2-Dichloroethane-d4	0.0475		"	0.0400		119	23-173			
Surrogate: Toluene-d8	0.0426		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	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: Larson Farms 3-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEH0174 - EPA 3550A**

**Blank (BEH0174-BLK1)**

Prepared & Analyzed: 08/11/21

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

**LCS (BEH0174-BS1)**

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	468	50	mg/kg	500	93.6	70-130
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**Matrix Spike (BEH0174-MS1)**

Source: 2108063-01

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	453	50	mg/kg	500	17.6	87.1	70-130
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**Matrix Spike Dup (BEH0174-MSD1)**

Source: 2108063-01

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	433	50	mg/kg	500	17.6	83.1	70-130	4.51	20
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Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

### 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 BEH0097 - EPA 5030 Soil MS

##### Blank (BEH0097-BLK1)

Prepared: 08/06/21 Analyzed: 08/07/21

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	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0166		"	0.0333		49.9	40-150			
Surrogate: Fluoranthene-d10	0.0190		"	0.0333		57.1	40-150			

##### LCS (BEH0097-BS1)

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0303	0.00500	mg/kg	0.0333		91.0	31-137			
Anthracene	0.0315	0.00500	"	0.0333		94.5	30-120			
Benzo (a) anthracene	0.0269	0.00500	"	0.0333		80.7	30-120			
Benzo (a) pyrene	0.0236	0.00500	"	0.0333		70.9	30-120			
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333		69.9	30-120			
Benzo (k) fluoranthene	0.0254	0.00500	"	0.0333		76.3	30-120			
Chrysene	0.0268	0.00500	"	0.0333		80.5	30-120			
Dibenz (a,h) anthracene	0.0399	0.00500	"	0.0333		120	30-120			
Fluoranthene	0.0305	0.00500	"	0.0333		91.5	30-120			
Fluorene	0.0318	0.00500	"	0.0333		95.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0385	0.00500	"	0.0333		115	30-120			
Naphthalene	0.0303	0.00500	"	0.0333		90.8	30-120			
Pyrene	0.0207	0.00500	"	0.0333		62.2	35-142			
1-Methylnaphthalene	0.0320	0.00500	"	0.0333		95.9	35-142			
2-Methylnaphthalene	0.0310	0.00500	"	0.0333		92.9	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0290		"	0.0333		87.1	40-150			
Surrogate: Fluoranthene-d10	0.0322		"	0.0333		96.5	40-150			

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

### 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 BEH0097 - EPA 5030 Soil MS

##### Matrix Spike (BEH0097-MS1)

Source: 2108049-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0272	0.00500	mg/kg	0.0333	ND	81.6	31-137		
Anthracene	0.0298	0.00500	"	0.0333	ND	89.5	30-120		
Benzo (a) anthracene	0.0263	0.00500	"	0.0333	ND	78.8	30-120		
Benzo (a) pyrene	0.0221	0.00500	"	0.0333	ND	66.3	30-120		
Benzo (b) fluoranthene	0.0237	0.00500	"	0.0333	ND	71.2	30-120		
Benzo (k) fluoranthene	0.0226	0.00500	"	0.0333	ND	67.9	30-120		
Chrysene	0.0262	0.00500	"	0.0333	ND	78.7	30-120		
Dibenz (a,h) anthracene	0.0347	0.00500	"	0.0333	ND	104	30-120		
Fluoranthene	0.0279	0.00500	"	0.0333	ND	83.6	30-120		
Fluorene	0.0292	0.00500	"	0.0333	ND	87.5	30-120		
Indeno (1,2,3-cd) pyrene	0.0333	0.00500	"	0.0333	ND	99.8	30-120		
Naphthalene	0.0267	0.00500	"	0.0333	ND	80.0	30-120		
Pyrene	0.0216	0.00500	"	0.0333	ND	64.7	35-142		
1-Methylnaphthalene	0.0277	0.00500	"	0.0333	ND	83.2	15-130		
2-Methylnaphthalene	0.0273	0.00500	"	0.0333	ND	81.9	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0252		"	0.0333		75.7	40-150		
Surrogate: Fluoranthene-d10	0.0290		"	0.0333		87.1	40-150		

##### Matrix Spike Dup (BEH0097-MSD1)

Source: 2108049-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0276	0.00500	mg/kg	0.0333	ND	82.7	31-137	1.34	30
Anthracene	0.0293	0.00500	"	0.0333	ND	87.9	30-120	1.81	30
Benzo (a) anthracene	0.0263	0.00500	"	0.0333	ND	78.8	30-120	0.00255	30
Benzo (a) pyrene	0.0214	0.00500	"	0.0333	ND	64.3	30-120	2.97	30
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333	ND	70.0	30-120	1.76	30
Benzo (k) fluoranthene	0.0218	0.00500	"	0.0333	ND	65.5	30-120	3.70	30
Chrysene	0.0262	0.00500	"	0.0333	ND	78.6	30-120	0.0534	30
Dibenz (a,h) anthracene	0.0342	0.00500	"	0.0333	ND	103	30-120	1.33	30
Fluoranthene	0.0279	0.00500	"	0.0333	ND	83.8	30-120	0.165	30
Fluorene	0.0294	0.00500	"	0.0333	ND	88.3	30-120	0.935	30
Indeno (1,2,3-cd) pyrene	0.0322	0.00500	"	0.0333	ND	96.7	30-120	3.17	30
Naphthalene	0.0262	0.00500	"	0.0333	ND	78.7	30-120	1.61	30
Pyrene	0.0211	0.00500	"	0.0333	ND	63.3	35-142	2.12	30
1-Methylnaphthalene	0.0282	0.00500	"	0.0333	ND	84.7	15-130	1.83	50
2-Methylnaphthalene	0.0288	0.00500	"	0.0333	ND	86.4	15-130	5.43	50
Surrogate: 2-Methylnaphthalene-d10	0.0261		"	0.0333		78.4	40-150		
Surrogate: Fluoranthene-d10	0.0292		"	0.0333		87.5	40-150		

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**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 BEH0104 - EPA 3050B**

**Blank (BEH0104-BLK1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron ND 0.0100 mg/L

**LCS (BEH0104-BS1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 4.99 0.0100 mg/L 5.00 99.8 80-120

**Duplicate (BEH0104-DUP1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 0.517 0.0100 mg/L 0.517 0.0167 20

**Matrix Spike (BEH0104-MS1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125

**Matrix Spike Dup (BEH0104-MSD1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125 0.0349 25

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**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 BEH0115 - General Preparation**

**Blank (BEH0115-BLK1)**

Prepared & Analyzed: 08/09/21

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

**LCS (BEH0115-BS1)**

Prepared & Analyzed: 08/09/21

Calcium	5.12	0.0500	mg/L wet	5.00	102	70-130
Magnesium	5.02	0.0500	"	5.00	100	70-130
Sodium	4.96	0.0500	"	5.00	99.1	70-130

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/13/21 13:18

**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 BEH0093 - General Preparation**

**Duplicate (BEH0093-DUP1)**

**Source: 2108059-01**

Prepared & Analyzed: 08/06/21

% Solids	75.5	%	75.1	0.531	20
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Summit Scientific

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

Project: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**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 BEH0118 - General Preparation**

**Blank (BEH0118-BLK1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0118-BS1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.139 0.0100 mmhos/cm 0.150 92.5 90-110

**Duplicate (BEH0118-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.750 0.0100 mmhos/cm 0.751 0.0666 20

Summit Scientific

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

Project: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

**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 BEH0117 - General Preparation**

**LCS (BEH0117-BS1)**

Prepared & Analyzed: 08/09/21

pH	9.30	pH Units	9.21	101	95-105
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**Duplicate (BEH0117-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

pH	8.27	pH Units	8.27	0.00	20
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Summit Scientific

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

Project: Larson Farms 3-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:18

### 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

August 18, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

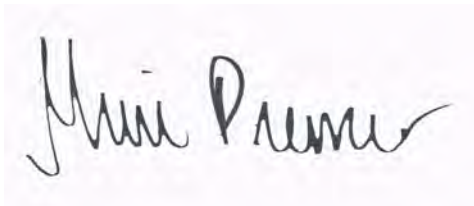
Denver, CO 80203

RE: Larson Farms 3,4,5,6,7-24 Tank Battery

Work Order #2108107

Enclosed are the results of analyses for samples received by Summit Scientific on 08/06/21 18:00. 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 shown on a light pink background.

Muri Premer For Paul Shrewsbury

President



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2108107-01	Soil	08/06/21 12:25	08/06/21 18:00
AST02@0-6"	2108107-02	Soil	08/06/21 12:26	08/06/21 18:00
AST03@0-6"	2108107-03	Soil	08/06/21 12:27	08/06/21 18:00
AST04@0-6"	2108107-04	Soil	08/06/21 12:28	08/06/21 18:00
AST05@0-6"	2108107-05	Soil	08/06/21 12:29	08/06/21 18:00
AST06@0-6"	2108107-06	Soil	08/06/21 12:30	08/06/21 18:00
AST07@0-6"	2108107-07	Soil	08/06/21 12:31	08/06/21 18:00
BKG01@5'	2108107-09	Soil	08/06/21 12:10	08/06/21 18:00
BKG01@7'	2108107-10	Soil	08/06/21 12:11	08/06/21 18:00

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.*

2108102

303-277-9310

Page 1 of 1

Project Number: n/a

U

# Sample Receipt Checklist

S2 Work Order 2108107

Client: PDC/TASMAN Client Project ID: Larson Farms 3,4,5,6, 7-24 Tank Battery

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

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	same day
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.

NG  
Custodian Printed Name or Initials

W.H. Miller  
Signature of Custodian

8/6/20  
Date/Time



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST01@0-6"**  
**2108107-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST02@0-6"**  
**2108107-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		84.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		78.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST03@0-6"**  
**2108107-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		87.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST04@0-6"**  
**2108107-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		81.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST05@0-6"**  
**2108107-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST06@0-6"**  
**2108107-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		93.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:30**

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST07@0-6"**  
**2108107-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.65	0.254	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	177	0.508	"	"	"	"	"	"	
Cadmium	ND	0.254	"	"	"	"	"	"	
Copper	10.7	0.508	"	"	"	"	"	"	
Lead	9.83	0.254	"	"	"	"	"	"	
Nickel	9.58	0.508	"	"	"	"	"	"	
Selenium	1.02	0.330	"	"	"	"	"	"	
Silver	0.0528	0.0254	"	"	"	"	"	"	
Zinc	40.6	0.508	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	18.9	0.0635	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	4.96	0.0635	"	"	"	"	"	"	
Sodium	98.2	0.0635	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.20	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	78.7			%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	1.62	0.0100		mmhos/cm	1	BEH0202	08/13/21	08/13/21	EPA 120.1	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.96			pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.42	0.265	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	192	0.530	"	"	"	"	"	"	
Cadmium	ND	0.265	"	"	"	"	"	"	
Copper	9.52	0.530	"	"	"	"	"	"	
Lead	9.39	0.265	"	"	"	"	"	"	
Nickel	8.85	0.530	"	"	"	"	"	"	
Selenium	1.01	0.345	"	"	"	"	"	"	
Silver	0.0510	0.0265	"	"	"	"	"	"	
Zinc	39.1	0.530	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	17.3	0.0663	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	7.80	0.0663	"	"	"	"	"	"	
Sodium	523	0.0663	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	26.2	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.4		%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.81		pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

## 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 BEH0195 - EPA 5030 Soil MS

##### LCS (BEH0195-BS1)

Prepared & Analyzed: 08/12/21

Benzene	0.0911	0.0020	mg/kg	0.125		72.9	70-130			
Toluene	0.0978	0.0050	"	0.125		78.3	70-130			
Ethylbenzene	0.0996	0.0050	"	0.125		79.7	70-130			
m,p-Xylene	0.215	0.010	"	0.250		85.8	70-130			
o-Xylene	0.0955	0.0050	"	0.125		76.4	70-130			
1,2,4-Trimethylbenzene	0.118	0.0050	"	0.125		94.7	70-130			
1,3,5-Trimethylbenzene	0.0998	0.0050	"	0.125		79.8	70-130			
Naphthalene	0.0940	0.0038	"	0.125		75.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0400		89.6	23-173			
Surrogate: Toluene-d8	0.0457		"	0.0400		114	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

##### Matrix Spike (BEH0195-MS1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0910	0.0020	mg/kg	0.125	ND	72.8	70-130			
Toluene	0.104	0.0050	"	0.125	ND	83.1	70-130			
Ethylbenzene	0.0975	0.0050	"	0.125	ND	78.0	70-130			
m,p-Xylene	0.212	0.010	"	0.250	ND	84.8	70-130			
o-Xylene	0.0969	0.0050	"	0.125	ND	77.5	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.125	ND	92.2	70-130			
1,3,5-Trimethylbenzene	0.0960	0.0050	"	0.125	ND	76.8	70-130			
Naphthalene	0.102	0.0038	"	0.125	ND	81.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0362		"	0.0400		90.4	23-173			
Surrogate: Toluene-d8	0.0496		"	0.0400		124	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167			

##### Matrix Spike Dup (BEH0195-MSD1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0914	0.0020	mg/kg	0.125	ND	73.2	70-130	0.460	30	
Toluene	0.0988	0.0050	"	0.125	ND	79.0	70-130	4.97	30	
Ethylbenzene	0.0936	0.0050	"	0.125	ND	74.9	70-130	4.02	30	
m,p-Xylene	0.203	0.010	"	0.250	ND	81.2	70-130	4.34	30	
o-Xylene	0.0926	0.0050	"	0.125	ND	74.1	70-130	4.53	30	
1,2,4-Trimethylbenzene	0.116	0.0050	"	0.125	ND	92.5	70-130	0.338	30	
1,3,5-Trimethylbenzene	0.0897	0.0050	"	0.125	ND	71.7	70-130	6.85	30	
Naphthalene	0.104	0.0038	"	0.125	ND	83.2	70-130	2.19	30	
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0474		"	0.0400		118	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.5	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: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0196 - EPA 3550A**

**LCS (BEH0196-BS1)**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	429	50	mg/kg	500	85.8	70-130
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**Matrix Spike (BEH0196-MS1)**

**Source: 2108107-01**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	502	50	mg/kg	500	16.6	97.0	70-130
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**Matrix Spike Dup (BEH0196-MSD1)**

**Source: 2108107-01**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	487	50	mg/kg	500	16.6	94.1	70-130	2.96	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: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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 BEH0189 - EPA 3050B

##### Blank (BEH0189-BLK1)

Prepared & Analyzed: 08/12/21

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 (BEH0189-BS1)

Prepared & Analyzed: 08/12/21

Arsenic	37.9	0.200	mg/kg wet	40.0	94.8	80-120
Barium	35.0	0.400	"	40.0	87.4	80-120
Cadmium	1.82	0.200	"	2.00	91.1	80-120
Copper	34.1	0.400	"	40.0	85.2	80-120
Lead	17.0	0.200	"	20.0	85.2	80-120
Nickel	33.6	0.400	"	40.0	83.9	80-120
Selenium	3.39	0.260	"	4.00	84.9	80-120
Silver	1.65	0.0200	"	2.00	82.6	80-120
Zinc	38.4	0.400	"	40.0	96.0	80-120

##### Duplicate (BEH0189-DUP1)

Source: 2106461-01

Prepared & Analyzed: 08/12/21

Arsenic	5.81	0.242	mg/kg dry	5.93	1.94	20
Barium	24.4	0.484	"	27.2	10.6	20
Cadmium	0.0836	0.242	"	0.0851	1.75	20
Copper	10.2	0.484	"	12.2	17.3	20
Lead	9.50	0.242	"	10.6	10.9	20
Nickel	12.6	0.484	"	12.6	0.430	20
Selenium	0.745	0.314	"	0.744	0.174	20
Silver	0.0478	0.0242	"	0.0561	15.9	20
Zinc	59.1	0.484	"	63.5	7.29	20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0189 - EPA 3050B**

**Matrix Spike (BEH0189-MS1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	52.9	0.242	mg/kg dry	48.4	5.93	97.1	75-125
Barium	71.7	0.484	"	48.4	27.2	92.1	75-125
Cadmium	2.33	0.242	"	2.42	0.0851	92.7	75-125
Copper	53.4	0.484	"	48.4	12.2	85.2	75-125
Lead	33.3	0.242	"	24.2	10.6	94.0	75-125
Nickel	56.4	0.484	"	48.4	12.6	90.5	75-125
Selenium	4.48	0.314	"	4.84	0.744	77.2	75-125
Silver	2.09	0.0242	"	2.42	0.0561	84.2	75-125
Zinc	103	0.484	"	48.4	63.5	82.2	75-125

**Matrix Spike Dup (BEH0189-MSD1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	54.9	0.242	mg/kg dry	48.4	5.93	101	75-125	3.64	25
Barium	66.6	0.484	"	48.4	27.2	81.6	75-125	7.34	25
Cadmium	2.42	0.242	"	2.42	0.0851	96.7	75-125	4.04	25
Copper	54.2	0.484	"	48.4	12.2	86.8	75-125	1.43	25
Lead	32.9	0.242	"	24.2	10.6	92.1	75-125	1.39	25
Nickel	58.5	0.484	"	48.4	12.6	94.8	75-125	3.64	25
Selenium	4.64	0.314	"	4.84	0.744	80.5	75-125	3.48	25
Silver	2.15	0.0242	"	2.42	0.0561	86.5	75-125	2.62	25
Zinc	100	0.484	"	48.4	63.5	75.8	75-125	3.00	25

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0162 - 3060A Mod**

**Blank (BEH0162-BLK1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEH0162-BS1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 24.2 0.30 mg/kg wet 25.0 97.0 80-120

**Duplicate (BEH0162-DUP1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEH0162-MS1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.0 0.30 mg/kg dry 30.6 ND 85.0 75-125

**Matrix Spike Dup (BEH0162-MSD1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.1 0.30 mg/kg dry 30.6 ND 85.4 75-125 0.469 20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0194 - General Preparation**

**Blank (BEH0194-BLK1)**

Prepared: 08/12/21 Analyzed: 08/17/21

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

**LCS (BEH0194-BS1)**

Prepared: 08/12/21 Analyzed: 08/17/21

Calcium	5.31	0.0500	mg/L wet	5.00	106	70-130
Magnesium	5.04	0.0500	"	5.00	101	70-130
Sodium	4.98	0.0500	"	5.00	99.6	70-130

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/18/21 12:12

**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 BEH0243 - General Preparation**

**Duplicate (BEH0243-DUP1)**

**Source: 2108009-04**

**Prepared & Analyzed: 08/16/21**

% Solids	91.7	%	92.0	0.375	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: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0202 - General Preparation**

**Blank (BEH0202-BLK1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0202-BS1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.4 90-110

**Duplicate (BEH0202-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 1.61 0.0100 mmhos/cm 1.62 0.433 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: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

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

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

**Batch BEH0201 - General Preparation**

**LCS (BEH0201-BS1)**

Prepared & Analyzed: 08/13/21

pH	9.26	pH Units	9.21	101	95-105
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**Duplicate (BEH0201-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

pH	8.95	pH Units	8.96	0.112	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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

**TABLE 1**  
**FORMER LARSON FARMS 4-24 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 <sup>(4)</sup> (mg/kg)
<b>Residential SSL<sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL<sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
WH05 @ 7'	8/5/2021	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50
FLR05 @ 5'	8/5/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50

**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.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

**TABLE 2**  
**FORMER LARSON FARMS 4-24 WELLHEAD**  
**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>
WH05 @ 7'	8/5/2021	7 ft. bgs	<b>8.60</b>	1.09	<b>7.29</b>	0.438
FLR05 @ 5'	8/5/2021	5 ft. bgs	<b>8.35</b>	0.419	1.16	0.312
BKG01 @ 5'	8/6/2021	5 ft. bgs	<b>8.96</b>	1.62	5.20	NA
BKG01 @ 7'	8/6/2021	7 ft. bgs	<b>8.81</b>	NA	<b>26.2</b>	NA

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

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

**BOLD** = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

NA = Constituent not analyzed

**TABLE 3**  
**FORMER LARSON FARMS 4-24 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 <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH05 @ 7'	8/5/2021	7 ft. bgs	<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
FLR05 @ 5'	8/5/2021	5 ft. bgs	<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:**

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

**TABLE 4**  
**FORMER LARSON FARMS 4-24 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 <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>
GW02	8/5/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7	NA

**Notes:**

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

2. 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

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

NA = Not applicable



**TABLE 5**  
**FORMER LARSON FARMS 4-24 WELLHEAD**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
WH05 @ 7'	8/5/2021	7 ft. bgs	40.470839	-104.498924	1.0	0.5
FLR05 @ 5'	8/5/2021	5 ft. bgs	40.470829	-104.498947	NC	0.1
WHS05-N @ 0-6"	8/5/2021	0-6 in. bgs	40.470864	-104.498933	NC	0.0
WHS05-W @ 0-6"	8/5/2021	0-6 in. bgs	NC	NC	NC	0.1
WHS05-S @ 0-6"	8/5/2021	0-6 in. bgs	40.470818	-104.498918	0.9	0.5
WHS05-E @ 0-6"	8/5/2021	0-6 in. bgs	NC	NC	NC	0.0
FL05-01 @ 4'	8/5/2021	4 ft. bgs	40.471007	-104.499082	1.1	0.3
BKG01 @ 5'	8/6/2021	5 ft. bgs	40.470334	-104.499261	0.9	0.0
BKG01 @ 7'	8/6/2021	7 ft. bgs	40.470334	-104.499261	0.9	0.0

**Notes:**

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

4-24 Wellhead  
Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 06, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Larson Farms 4-24 Wellhead

Work Order #2108064

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/21 17:50. 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: Larson Farms 4-24 Wellhead  
Project Number: LARSON FARMS 4-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:13

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW02	2108064-01	Water	08/05/21 14:12	08/05/21 17:50

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

S<sub>2</sub>

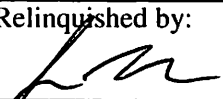

2108064

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: Larson Farms 4-24 wellhead  
Sampler Name: J. Marcos Project Number: N/A

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	QW02	8/5/21	1417	3			X		X				X		X				pH, EC, SAR by saturated paste
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: 	Date/Time: 8/5/21 1630	Received by: Tasman's Lock Box	Date/Time: 8/5/21 1630	<b>Turn Around Time</b> (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ <b>Sample Integrity:</b> Temperature Upon Receipt: 10.2 Samples Intact: <input checked="" type="radio"/> Yes No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box	Date/Time: 8/5/21 1750	Received by: 	Date/Time: 8/5/21 1750		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

# Sample Receipt Checklist

S2 Work Order 210P064

Client: PDC/TASMAN Client Project ID: Larson Farms 4-24 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>10.2</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> ?	<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.				<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>same day</u>
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> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
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.

WG  
Custodian Printed Name or Initials

Will Fabin  
Signature of Custodian

8/5/21  
Date/Time



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

Project: Larson Farms 4-24 Wellhead  
Project Number: LARSON FARMS 4-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:13

**GW02**  
**2108064-01 (Water)**

**Summit Scientific**

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

Date Sampled: **08/05/21 14:12**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEH0068	08/05/21	08/05/21	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: **08/05/21 14:12**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		78.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.9 %	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: Larson Farms 4-24 Wellhead  
Project Number: LARSON FARMS 4-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:13

## 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 BEH0068 - EPA 5030 Water MS

##### Blank (BEH0068-BLK1)

Prepared: 08/04/21 Analyzed: 08/05/21

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	10.5		"	13.3		78.5	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.2	20-170			
Surrogate: 4-Bromofluorobenzene	11.7		"	13.3		88.0	21-167			

##### LCS (BEH0068-BS1)

Prepared: 08/04/21 Analyzed: 08/05/21

Benzene	38.2	1.0	ug/l	33.3		114	51-132			
Toluene	41.4	1.0	"	33.3		124	51-138			
Ethylbenzene	46.0	1.0	"	33.3		138	58-146			
m,p-Xylene	94.5	2.0	"	66.7		142	57-144			
o-Xylene	47.4	1.0	"	33.3		142	53-146			
Naphthalene	33.3	1.0	"	33.3		100	70-130			
1,2,4-Trimethylbenzene	41.3	1.0	"	33.3		124	70-130			
1,3,5-Trimethylbenzene	30.3	1.0	"	33.3		90.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	10.8		"	13.3		80.9	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	11.9		"	13.3		89.5	21-167			

##### Matrix Spike (BEH0068-MS1)

Source: 2108030-01

Prepared: 08/04/21 Analyzed: 08/05/21

Benzene	37.6	1.0	ug/l	33.3	ND	113	34-141			
Toluene	40.6	1.0	"	33.3	ND	122	27-151			
Ethylbenzene	46.0	1.0	"	33.3	ND	138	29-160			
m,p-Xylene	94.5	2.0	"	66.7	ND	142	20-166			
o-Xylene	47.5	1.0	"	33.3	ND	143	33-159			
Naphthalene	42.7	1.0	"	33.3	9.76	98.8	70-130			
1,2,4-Trimethylbenzene	41.3	1.0	"	33.3	ND	124	70-130			
1,3,5-Trimethylbenzene	30.6	1.0	"	33.3	ND	91.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	10.7		"	13.3		80.0	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	11.8		"	13.3		88.4	21-167			

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead  
Project Number: LARSON FARMS 4-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:13

**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 BEH0068 - EPA 5030 Water MS**

Matrix Spike Dup (BEH0068-MSD1)	Source: 2108030-01			Prepared: 08/04/21 Analyzed: 08/05/21						
Benzene	37.7	1.0	ug/l	33.3	ND	113	34-141	0.239	30	
Toluene	41.4	1.0	"	33.3	ND	124	27-151	1.95	30	
Ethylbenzene	45.8	1.0	"	33.3	ND	138	29-160	0.392	30	
m,p-Xylene	95.2	2.0	"	66.7	ND	143	20-166	0.780	30	
o-Xylene	47.4	1.0	"	33.3	ND	142	33-159	0.274	30	
Naphthalene	44.3	1.0	"	33.3	9.76	104	70-130	3.70	30	
1,2,4-Trimethylbenzene	41.4	1.0	"	33.3	ND	124	70-130	0.266	30	
1,3,5-Trimethylbenzene	40.8	1.0	"	33.3	ND	122	70-130	28.6	30	
Surrogate: 1,2-Dichloroethane-d4	11.3		"	13.3		84.8	23-173			
Surrogate: Toluene-d8	12.9		"	13.3		97.1	20-170			
Surrogate: 4-Bromofluorobenzene	12.0		"	13.3		90.0	21-167			

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead  
Project Number: LARSON FARMS 4-24 WELLHEAD  
Project Manager: Mark Longhurst

**Reported:**  
08/06/21 06:13

### Notes and Definitions

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

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 18, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

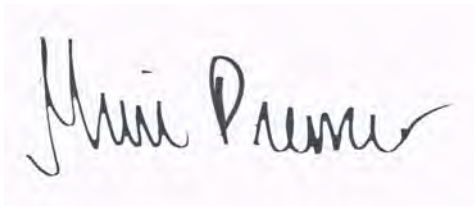
Denver, CO 80203

RE: Larson Farms 4-24 Wellhead

Work Order #2108073

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/21 17:50. 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 shown on a light pink background.

Muri Premer For Paul Shrewsbury  
President



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

Project: Larson Farms 4-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH05@7'	2108073-01	Soil	08/05/21 10:04	08/05/21 17:50
FLR05@5'	2108073-02	Soil	08/05/21 10:05	08/05/21 17:50

Summit Scientific

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# Summit Scientific

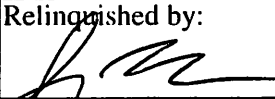
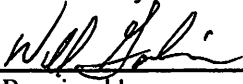
S<sub>2</sub>

2108073

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: Larson Farms 4-24 well head  
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 <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	PAH		
1	WHOS@7'	8/5/21	1004	3			X			X				X	X	X	X	X	X	pH, EC, SAR by saturated paste
2	FLROS@5'		1005	3			X			X				X	X	X	X	X		
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
Relinquished by: 		Date/Time: 8/5/21 1630		Received by: Tasman's Lock Box		Date/Time: 8/5/21 1630		Turn Around Time (Check)						Notes:						
Relinquished by: Tasman's Lock Box		Date/Time: 8/5/21 1750		Received by: 		Date/Time: 8/5/21 1750		Same Day _____ 72 hours _____												
								24 hours _____ Standard <input checked="" type="checkbox"/>												
Relinquished by:		Date/Time:		Received by:		Date/Time:		48 hours _____												
								Sample Integrity:												
								Temperature Upon Receipt: 10.2												
								Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No												

# Sample Receipt Checklist

S2 Work Order 2108073

Client: PDC/TASMAN

Client Project ID: Larson Farms 4-24 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) 10.2

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 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.

NG  
Custodian Printed Name or Initials

Will Holm  
Signature of Custodian

8/5/21  
Date/Time



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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**WH05@7'**  
**2108073-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0173	08/11/21	08/12/21	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: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.3 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0174	08/11/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	08/12/21	"	

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	08/12/21	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**WH05@7'**  
**2108073-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0097	08/06/21	08/08/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		57.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		66.4 %	40-150		"	"	"	"	

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

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.438</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**WH05@7'**  
**2108073-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	43.4	0.0641	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	9.73	0.0641	"	"	"	"	"	"	
Sodium	204	0.0641	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	7.29	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	78.0		%	1	BEH0093	08/06/21	08/06/21	Calculation	

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

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.09	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 10:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.60		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**FLR05@5'**  
**2108073-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0173	08/11/21	08/12/21	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: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.9 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0174	08/11/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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

Project: Larson Farms 4-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**FLR05@5'**  
**2108073-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0097	08/06/21	08/08/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		44.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		54.9 %	40-150		"	"	"	"	

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

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.312</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**FLR05@5'**  
**2108073-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	31.6	0.0660	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	7.35	0.0660	"	"	"	"	"	"	
Sodium	27.9	0.0660	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.16	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.8		%	1	BEH0093	08/06/21	08/06/21	Calculation	

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

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.419	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 10:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.35		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

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

Project: Larson Farms 4-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

## 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 BEH0173 - EPA 5030 Soil MS

##### Blank (BEH0173-BLK1)

Prepared: 08/11/21 Analyzed: 08/12/21

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	0.0440		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	21-167			

##### LCS (BEH0173-BS1)

Prepared: 08/11/21 Analyzed: 08/12/21

Benzene	0.169	0.0020	mg/kg	0.175		96.7	70-130			
Toluene	0.178	0.0050	"	0.175		102	70-130			
Ethylbenzene	0.203	0.0050	"	0.175		116	70-130			
m,p-Xylene	0.391	0.010	"	0.350		112	70-130			
o-Xylene	0.206	0.0050	"	0.175		118	70-130			
1,2,4-Trimethylbenzene	0.201	0.0050	"	0.175		115	70-130			
1,3,5-Trimethylbenzene	0.203	0.0050	"	0.175		116	70-130			
Naphthalene	0.189	0.0038	"	0.175		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0439		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	21-167			

##### Matrix Spike (BEH0173-MS1)

Source: 2108002-03

Prepared: 08/11/21 Analyzed: 08/12/21

Benzene	0.134	0.0020	mg/kg	0.175	ND	76.7	70-130			
Toluene	0.140	0.0050	"	0.175	ND	79.7	70-130			
Ethylbenzene	0.154	0.0050	"	0.175	ND	88.1	70-130			
m,p-Xylene	0.297	0.010	"	0.350	ND	85.0	70-130			
o-Xylene	0.156	0.0050	"	0.175	ND	88.9	70-130			
1,2,4-Trimethylbenzene	0.145	0.0050	"	0.175	ND	83.0	70-130			
1,3,5-Trimethylbenzene	0.147	0.0050	"	0.175	ND	83.8	70-130			
Naphthalene	0.185	0.0038	"	0.175	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0458		"	0.0400		114	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		97.9	21-167			

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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**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 BEH0173 - EPA 5030 Soil MS**

Matrix Spike Dup (BEH0173-MSD1)	Source: 2108002-03			Prepared: 08/11/21 Analyzed: 08/12/21						
Benzene	0.137	0.0020	mg/kg	0.175	ND	78.2	70-130	1.90	30	
Toluene	0.144	0.0050	"	0.175	ND	82.1	70-130	2.88	30	
Ethylbenzene	0.153	0.0050	"	0.175	ND	87.7	70-130	0.507	30	
m,p-Xylene	0.297	0.010	"	0.350	ND	85.0	70-130	0.0303	30	
o-Xylene	0.157	0.0050	"	0.175	ND	89.8	70-130	1.04	30	
1,2,4-Trimethylbenzene	0.149	0.0050	"	0.175	ND	85.1	70-130	2.45	30	
1,3,5-Trimethylbenzene	0.150	0.0050	"	0.175	ND	85.6	70-130	2.09	30	
Naphthalene	0.190	0.0038	"	0.175	ND	109	70-130	2.90	30	
Surrogate: 1,2-Dichloroethane-d4	0.0475		"	0.0400		119	23-173			
Surrogate: Toluene-d8	0.0426		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	21-167			

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEH0174 - EPA 3550A**

**Blank (BEH0174-BLK1)**

Prepared & Analyzed: 08/11/21

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

**LCS (BEH0174-BS1)**

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	468	50	mg/kg	500	93.6	70-130
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**Matrix Spike (BEH0174-MS1)**

Source: 2108063-01

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	453	50	mg/kg	500	17.6	87.1	70-130
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**Matrix Spike Dup (BEH0174-MSD1)**

Source: 2108063-01

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	433	50	mg/kg	500	17.6	83.1	70-130	4.51	20
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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**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 BEH0097 - EPA 5030 Soil MS**

**Blank (BEH0097-BLK1)**

Prepared: 08/06/21 Analyzed: 08/07/21

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	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0166		"	0.0333		49.9	40-150			
Surrogate: Fluoranthene-d10	0.0190		"	0.0333		57.1	40-150			

**LCS (BEH0097-BS1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0303	0.00500	mg/kg	0.0333		91.0	31-137			
Anthracene	0.0315	0.00500	"	0.0333		94.5	30-120			
Benzo (a) anthracene	0.0269	0.00500	"	0.0333		80.7	30-120			
Benzo (a) pyrene	0.0236	0.00500	"	0.0333		70.9	30-120			
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333		69.9	30-120			
Benzo (k) fluoranthene	0.0254	0.00500	"	0.0333		76.3	30-120			
Chrysene	0.0268	0.00500	"	0.0333		80.5	30-120			
Dibenz (a,h) anthracene	0.0399	0.00500	"	0.0333		120	30-120			
Fluoranthene	0.0305	0.00500	"	0.0333		91.5	30-120			
Fluorene	0.0318	0.00500	"	0.0333		95.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0385	0.00500	"	0.0333		115	30-120			
Naphthalene	0.0303	0.00500	"	0.0333		90.8	30-120			
Pyrene	0.0207	0.00500	"	0.0333		62.2	35-142			
1-Methylnaphthalene	0.0320	0.00500	"	0.0333		95.9	35-142			
2-Methylnaphthalene	0.0310	0.00500	"	0.0333		92.9	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0290		"	0.0333		87.1	40-150			
Surrogate: Fluoranthene-d10	0.0322		"	0.0333		96.5	40-150			

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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

### 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 BEH0097 - EPA 5030 Soil MS

##### Matrix Spike (BEH0097-MS1)

Source: 2108049-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0272	0.00500	mg/kg	0.0333	ND	81.6	31-137		
Anthracene	0.0298	0.00500	"	0.0333	ND	89.5	30-120		
Benzo (a) anthracene	0.0263	0.00500	"	0.0333	ND	78.8	30-120		
Benzo (a) pyrene	0.0221	0.00500	"	0.0333	ND	66.3	30-120		
Benzo (b) fluoranthene	0.0237	0.00500	"	0.0333	ND	71.2	30-120		
Benzo (k) fluoranthene	0.0226	0.00500	"	0.0333	ND	67.9	30-120		
Chrysene	0.0262	0.00500	"	0.0333	ND	78.7	30-120		
Dibenz (a,h) anthracene	0.0347	0.00500	"	0.0333	ND	104	30-120		
Fluoranthene	0.0279	0.00500	"	0.0333	ND	83.6	30-120		
Fluorene	0.0292	0.00500	"	0.0333	ND	87.5	30-120		
Indeno (1,2,3-cd) pyrene	0.0333	0.00500	"	0.0333	ND	99.8	30-120		
Naphthalene	0.0267	0.00500	"	0.0333	ND	80.0	30-120		
Pyrene	0.0216	0.00500	"	0.0333	ND	64.7	35-142		
1-Methylnaphthalene	0.0277	0.00500	"	0.0333	ND	83.2	15-130		
2-Methylnaphthalene	0.0273	0.00500	"	0.0333	ND	81.9	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0252		"	0.0333		75.7	40-150		
Surrogate: Fluoranthene-d10	0.0290		"	0.0333		87.1	40-150		

##### Matrix Spike Dup (BEH0097-MSD1)

Source: 2108049-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0276	0.00500	mg/kg	0.0333	ND	82.7	31-137	1.34	30
Anthracene	0.0293	0.00500	"	0.0333	ND	87.9	30-120	1.81	30
Benzo (a) anthracene	0.0263	0.00500	"	0.0333	ND	78.8	30-120	0.00255	30
Benzo (a) pyrene	0.0214	0.00500	"	0.0333	ND	64.3	30-120	2.97	30
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333	ND	70.0	30-120	1.76	30
Benzo (k) fluoranthene	0.0218	0.00500	"	0.0333	ND	65.5	30-120	3.70	30
Chrysene	0.0262	0.00500	"	0.0333	ND	78.6	30-120	0.0534	30
Dibenz (a,h) anthracene	0.0342	0.00500	"	0.0333	ND	103	30-120	1.33	30
Fluoranthene	0.0279	0.00500	"	0.0333	ND	83.8	30-120	0.165	30
Fluorene	0.0294	0.00500	"	0.0333	ND	88.3	30-120	0.935	30
Indeno (1,2,3-cd) pyrene	0.0322	0.00500	"	0.0333	ND	96.7	30-120	3.17	30
Naphthalene	0.0262	0.00500	"	0.0333	ND	78.7	30-120	1.61	30
Pyrene	0.0211	0.00500	"	0.0333	ND	63.3	35-142	2.12	30
1-Methylnaphthalene	0.0282	0.00500	"	0.0333	ND	84.7	15-130	1.83	50
2-Methylnaphthalene	0.0288	0.00500	"	0.0333	ND	86.4	15-130	5.43	50
Surrogate: 2-Methylnaphthalene-d10	0.0261		"	0.0333		78.4	40-150		
Surrogate: Fluoranthene-d10	0.0292		"	0.0333		87.5	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: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**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 BEH0104 - EPA 3050B**

**Blank (BEH0104-BLK1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron ND 0.0100 mg/L

**LCS (BEH0104-BS1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 4.99 0.0100 mg/L 5.00 99.8 80-120

**Duplicate (BEH0104-DUP1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 0.517 0.0100 mg/L 0.517 0.0167 20

**Matrix Spike (BEH0104-MS1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125

**Matrix Spike Dup (BEH0104-MSD1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125 0.0349 25

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**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 BEH0115 - General Preparation**

**Blank (BEH0115-BLK1)**

Prepared & Analyzed: 08/09/21

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

**LCS (BEH0115-BS1)**

Prepared & Analyzed: 08/09/21

Calcium	5.12	0.0500	mg/L wet	5.00	102	70-130
Magnesium	5.02	0.0500	"	5.00	100	70-130
Sodium	4.96	0.0500	"	5.00	99.1	70-130

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**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 BEH0093 - General Preparation**

Duplicate (BEH0093-DUP1)			Source: 2108059-01		Prepared & Analyzed: 08/06/21					
% Solids	75.5		%		75.1			0.531	20	

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

**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 BEH0118 - General Preparation**

**Blank (BEH0118-BLK1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0118-BS1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.139 0.0100 mmhos/cm 0.150 92.5 90-110

**Duplicate (BEH0118-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.750 0.0100 mmhos/cm 0.751 0.0666 20

Summit Scientific

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

Project: Larson Farms 4-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

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

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

**Batch BEH0117 - General Preparation**

**LCS (BEH0117-BS1)**

Prepared & Analyzed: 08/09/21

pH	9.30	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEH0117-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

pH	8.27	pH Units	8.27	0.00	20
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Summit Scientific

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

Project: Larson Farms 4-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 16:41

### 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

August 18, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

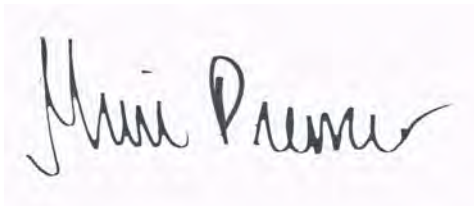
Denver, CO 80203

RE: Larson Farms 3,4,5,6,7-24 Tank Battery

Work Order #2108107

Enclosed are the results of analyses for samples received by Summit Scientific on 08/06/21 18:00. 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 shown on a light pink background.

Muri Premer For Paul Shrewsbury

President





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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2108107-01	Soil	08/06/21 12:25	08/06/21 18:00
AST02@0-6"	2108107-02	Soil	08/06/21 12:26	08/06/21 18:00
AST03@0-6"	2108107-03	Soil	08/06/21 12:27	08/06/21 18:00
AST04@0-6"	2108107-04	Soil	08/06/21 12:28	08/06/21 18:00
AST05@0-6"	2108107-05	Soil	08/06/21 12:29	08/06/21 18:00
AST06@0-6"	2108107-06	Soil	08/06/21 12:30	08/06/21 18:00
AST07@0-6"	2108107-07	Soil	08/06/21 12:31	08/06/21 18:00
BKG01@5'	2108107-09	Soil	08/06/21 12:10	08/06/21 18:00
BKG01@7'	2108107-10	Soil	08/06/21 12:11	08/06/21 18:00

Summit Scientific

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2108107

303-277-9310

Page 1 of 1

Project Number: n/a

					Preservative				Matrix				Analysis Requested							Special Instructions				
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	ON HOLD					pH, EC, SAR by saturated paste	
1	ASTO100-6"	8/6/21	1225	2			X			X			X	X	X									
2	ASTO200-6"		1226	2			X			X			X	X	X									
3	ASTO300-6"		1227	2			X			X			X	X	X									
4	ASTO400-6"		1228	2			X			X			X	X	X									
5	ASTO500-6"		1229	2			X			X			X	X	X									
6	ASTO600-6"		1230	2			X			X			X	X	X									
7	ASTO700-6"		1231	2			X			X			X	X	X									
8	BKG01CZ.5'		1204	1			X			X									X					
9	BKG01CS'		1210	1			X			X									X					
10	BKG01CT'		1211	1			X			X									X					
Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time		(Check)		Notes:												
[Signature]		8/6/21 1430		Tasman's Lock Box		8/6/21 1430		Same Day		72 hours														
								24 hours		Standard		X												
Relinquished by:		Date/Time:		Received by:		Date/Time:		48 hours				Sample Integrity:												
Tasman's Lock Box		8/6/21 1800		Will Galin		8/6/21 1800						Temperature Upon Receipt: 6												
Relinquished by:		Date/Time:		Received by:		Date/Time:		Samples Intact:		Yes		No												

# Sample Receipt Checklist

S2 Work Order 2108107

Client: PDC/TASMAN Client Project ID: Larson Farms 3,4,5,6, 7-24 Tank Battery

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

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"/>	<i>on ice</i>
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>same day</i>
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? <b>If yes, contact client and note in narrative.</b>	<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.

NG  
Custodian Printed Name or Initials

W.H. Miller  
Signature of Custodian

8/6/20  
Date/Time



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST01@0-6"**  
**2108107-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST02@0-6"**  
**2108107-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		84.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		78.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST03@0-6"**  
**2108107-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		87.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST04@0-6"**  
**2108107-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		81.0 %	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: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST05@0-6"**  
**2108107-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST06@0-6"**  
**2108107-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		93.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:30**

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST07@0-6"**  
**2108107-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.65	0.254	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	177	0.508	"	"	"	"	"	"	
Cadmium	ND	0.254	"	"	"	"	"	"	
Copper	10.7	0.508	"	"	"	"	"	"	
Lead	9.83	0.254	"	"	"	"	"	"	
Nickel	9.58	0.508	"	"	"	"	"	"	
Selenium	1.02	0.330	"	"	"	"	"	"	
Silver	0.0528	0.0254	"	"	"	"	"	"	
Zinc	40.6	0.508	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	18.9	0.0635	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	4.96	0.0635	"	"	"	"	"	"	
Sodium	98.2	0.0635	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.20	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	78.7			%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	1.62	0.0100		mmhos/cm	1	BEH0202	08/13/21	08/13/21	EPA 120.1	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.96			pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.42	0.265	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	192	0.530	"	"	"	"	"	"	
Cadmium	ND	0.265	"	"	"	"	"	"	
Copper	9.52	0.530	"	"	"	"	"	"	
Lead	9.39	0.265	"	"	"	"	"	"	
Nickel	8.85	0.530	"	"	"	"	"	"	
Selenium	1.01	0.345	"	"	"	"	"	"	
Silver	0.0510	0.0265	"	"	"	"	"	"	
Zinc	39.1	0.530	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	17.3	0.0663	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	7.80	0.0663	"	"	"	"	"	"	
Sodium	523	0.0663	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	26.2	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.4		%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.81		pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

## 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 BEH0195 - EPA 5030 Soil MS

##### LCS (BEH0195-BS1)

Prepared & Analyzed: 08/12/21

Benzene	0.0911	0.0020	mg/kg	0.125		72.9	70-130			
Toluene	0.0978	0.0050	"	0.125		78.3	70-130			
Ethylbenzene	0.0996	0.0050	"	0.125		79.7	70-130			
m,p-Xylene	0.215	0.010	"	0.250		85.8	70-130			
o-Xylene	0.0955	0.0050	"	0.125		76.4	70-130			
1,2,4-Trimethylbenzene	0.118	0.0050	"	0.125		94.7	70-130			
1,3,5-Trimethylbenzene	0.0998	0.0050	"	0.125		79.8	70-130			
Naphthalene	0.0940	0.0038	"	0.125		75.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0400		89.6	23-173			
Surrogate: Toluene-d8	0.0457		"	0.0400		114	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

##### Matrix Spike (BEH0195-MS1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0910	0.0020	mg/kg	0.125	ND	72.8	70-130			
Toluene	0.104	0.0050	"	0.125	ND	83.1	70-130			
Ethylbenzene	0.0975	0.0050	"	0.125	ND	78.0	70-130			
m,p-Xylene	0.212	0.010	"	0.250	ND	84.8	70-130			
o-Xylene	0.0969	0.0050	"	0.125	ND	77.5	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.125	ND	92.2	70-130			
1,3,5-Trimethylbenzene	0.0960	0.0050	"	0.125	ND	76.8	70-130			
Naphthalene	0.102	0.0038	"	0.125	ND	81.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0362		"	0.0400		90.4	23-173			
Surrogate: Toluene-d8	0.0496		"	0.0400		124	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167			

##### Matrix Spike Dup (BEH0195-MSD1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0914	0.0020	mg/kg	0.125	ND	73.2	70-130	0.460	30	
Toluene	0.0988	0.0050	"	0.125	ND	79.0	70-130	4.97	30	
Ethylbenzene	0.0936	0.0050	"	0.125	ND	74.9	70-130	4.02	30	
m,p-Xylene	0.203	0.010	"	0.250	ND	81.2	70-130	4.34	30	
o-Xylene	0.0926	0.0050	"	0.125	ND	74.1	70-130	4.53	30	
1,2,4-Trimethylbenzene	0.116	0.0050	"	0.125	ND	92.5	70-130	0.338	30	
1,3,5-Trimethylbenzene	0.0897	0.0050	"	0.125	ND	71.7	70-130	6.85	30	
Naphthalene	0.104	0.0038	"	0.125	ND	83.2	70-130	2.19	30	
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0474		"	0.0400		118	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.5	21-167			

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEH0196 - EPA 3550A**

**LCS (BEH0196-BS1)**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	429	50	mg/kg	500	85.8	70-130
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**Matrix Spike (BEH0196-MS1)**

Source: 2108107-01

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	502	50	mg/kg	500	16.6	97.0	70-130
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**Matrix Spike Dup (BEH0196-MSD1)**

Source: 2108107-01

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	487	50	mg/kg	500	16.6	94.1	70-130	2.96	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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 BEH0189 - EPA 3050B

##### Blank (BEH0189-BLK1)

Prepared & Analyzed: 08/12/21

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 (BEH0189-BS1)

Prepared & Analyzed: 08/12/21

Arsenic	37.9	0.200	mg/kg wet	40.0	94.8	80-120
Barium	35.0	0.400	"	40.0	87.4	80-120
Cadmium	1.82	0.200	"	2.00	91.1	80-120
Copper	34.1	0.400	"	40.0	85.2	80-120
Lead	17.0	0.200	"	20.0	85.2	80-120
Nickel	33.6	0.400	"	40.0	83.9	80-120
Selenium	3.39	0.260	"	4.00	84.9	80-120
Silver	1.65	0.0200	"	2.00	82.6	80-120
Zinc	38.4	0.400	"	40.0	96.0	80-120

##### Duplicate (BEH0189-DUP1)

Source: 2106461-01

Prepared & Analyzed: 08/12/21

Arsenic	5.81	0.242	mg/kg dry	5.93	1.94	20
Barium	24.4	0.484	"	27.2	10.6	20
Cadmium	0.0836	0.242	"	0.0851	1.75	20
Copper	10.2	0.484	"	12.2	17.3	20
Lead	9.50	0.242	"	10.6	10.9	20
Nickel	12.6	0.484	"	12.6	0.430	20
Selenium	0.745	0.314	"	0.744	0.174	20
Silver	0.0478	0.0242	"	0.0561	15.9	20
Zinc	59.1	0.484	"	63.5	7.29	20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0189 - EPA 3050B**

**Matrix Spike (BEH0189-MS1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	52.9	0.242	mg/kg dry	48.4	5.93	97.1	75-125
Barium	71.7	0.484	"	48.4	27.2	92.1	75-125
Cadmium	2.33	0.242	"	2.42	0.0851	92.7	75-125
Copper	53.4	0.484	"	48.4	12.2	85.2	75-125
Lead	33.3	0.242	"	24.2	10.6	94.0	75-125
Nickel	56.4	0.484	"	48.4	12.6	90.5	75-125
Selenium	4.48	0.314	"	4.84	0.744	77.2	75-125
Silver	2.09	0.0242	"	2.42	0.0561	84.2	75-125
Zinc	103	0.484	"	48.4	63.5	82.2	75-125

**Matrix Spike Dup (BEH0189-MSD1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	54.9	0.242	mg/kg dry	48.4	5.93	101	75-125	3.64	25
Barium	66.6	0.484	"	48.4	27.2	81.6	75-125	7.34	25
Cadmium	2.42	0.242	"	2.42	0.0851	96.7	75-125	4.04	25
Copper	54.2	0.484	"	48.4	12.2	86.8	75-125	1.43	25
Lead	32.9	0.242	"	24.2	10.6	92.1	75-125	1.39	25
Nickel	58.5	0.484	"	48.4	12.6	94.8	75-125	3.64	25
Selenium	4.64	0.314	"	4.84	0.744	80.5	75-125	3.48	25
Silver	2.15	0.0242	"	2.42	0.0561	86.5	75-125	2.62	25
Zinc	100	0.484	"	48.4	63.5	75.8	75-125	3.00	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: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0162 - 3060A Mod**

**Blank (BEH0162-BLK1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEH0162-BS1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 24.2 0.30 mg/kg wet 25.0 97.0 80-120

**Duplicate (BEH0162-DUP1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEH0162-MS1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.0 0.30 mg/kg dry 30.6 ND 85.0 75-125

**Matrix Spike Dup (BEH0162-MSD1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.1 0.30 mg/kg dry 30.6 ND 85.4 75-125 0.469 20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/18/21 12:12

**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 BEH0194 - General Preparation**

**Blank (BEH0194-BLK1)**

Prepared: 08/12/21 Analyzed: 08/17/21

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

**LCS (BEH0194-BS1)**

Prepared: 08/12/21 Analyzed: 08/17/21

Calcium	5.31	0.0500	mg/L wet	5.00	106	70-130
Magnesium	5.04	0.0500	"	5.00	101	70-130
Sodium	4.98	0.0500	"	5.00	99.6	70-130

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/18/21 12:12

**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 BEH0243 - General Preparation**

**Duplicate (BEH0243-DUP1)**

**Source: 2108009-04**

**Prepared & Analyzed: 08/16/21**

% Solids	91.7	%	92.0	0.375	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0202 - General Preparation**

**Blank (BEH0202-BLK1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0202-BS1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.4 90-110

**Duplicate (BEH0202-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 1.61 0.0100 mmhos/cm 1.62 0.433 20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

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

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

**Batch BEH0201 - General Preparation**

**LCS (BEH0201-BS1)**

Prepared & Analyzed: 08/13/21

pH	9.26	pH Units	9.21	101	95-105
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**Duplicate (BEH0201-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

pH	8.95	pH Units	8.96	0.112	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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



**TABLE 1**  
**FORMER LARSON FARMS 5-24 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 <sup>(4)</sup> (mg/kg)
<b>Residential SSL<sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL<sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
WH03 @ 7'	8/5/2021	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50
FLR03 @ 5'	8/5/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50

**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.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

**TABLE 2**  
**FORMER LARSON FARMS 5-24 WELLHEAD**  
**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>
WH03 @ 7'	8/5/2021	7 ft. bgs	<b>8.49</b>	1.59	<b>12.7</b>	0.457
FLR03 @ 5'	8/5/2021	5 ft. bgs	8.27	1.63	5.44	0.481
BKG01 @ 5'	8/6/2021	5 ft. bgs	<b>8.96</b>	1.62	5.20	NA
BKG01 @ 7'	8/6/2021	7 ft. bgs	<b>8.81</b>	NA	<b>26.2</b>	NA

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

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

**BOLD** = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

NA = Constituent not analyzed

**TABLE 3**  
**FORMER LARSON FARMS 5-24 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 <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH03 @ 7'	8/5/2021	7 ft. bgs	<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
FLR03 @ 5'	8/5/2021	5 ft. bgs	<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:**

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

**TABLE 4**  
**FORMER LARSON FARMS 5-24 WELLHEAD**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
WH03 @ 7'	8/5/2021	7 ft. bgs	40.470795	-104.499058	1.1	0.0
FLR03 @ 5'	8/5/2021	5 ft. bgs	40.470783	-104.499078	1.0	0.0
WHS03-N @ 0-6"	8/5/2021	0-6 in. bgs	40.470810	-104.499070	1.1	0.1
WHS03-W @ 0-6"	8/5/2021	0-6 in. bgs	40.470778	-104.499090	1.0	0.2
WHS03-S @ 0-6"	8/5/2021	0-6 in. bgs	40.470743	-104.499065	1.0	0.1
WHS03-E @ 0-6"	8/5/2021	0-6 in. bgs	40.470773	-104.499031	1.0	0.0
FL03-01 @ 4'	8/5/2021	4 ft. bgs	40.470975	-104.499174	1.1	0.7
BKG01 @ 5'	8/6/2021	5 ft. bgs	40.470334	-104.499261	0.9	0.0
BKG01 @ 7'	8/6/2021	7 ft. bgs	40.470334	-104.499261	0.9	0.0

**Notes:**

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

5-24 Wellhead  
Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 13, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

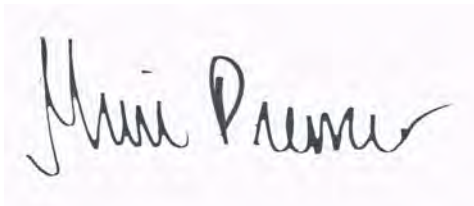
Denver, CO 80203

RE: Larson Farms 5-24 Wellhead

Work Order #2108071

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/21 15:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury  
President



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

Project: Larson Farms 5-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH03@7'	2108071-01	Soil	08/05/21 11:50	08/05/21 15:50
FLR03@5'	2108071-02	Soil	08/05/21 11:52	08/05/21 15:50

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

Page 1 of 1

**Project Number:**

**www.s2scientific.com**



# Sample Receipt Checklist

S2 Work Order

**2108071**

Client: **PDC/TASMAN**

Client Project ID: **Larson Farms 5-24 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)

**10.2**

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"/>	<i>on ice</i>
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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.

Custodian Printed Name or Initials

**NG**

Signature of Custodian

*Will Hall*

Date/Time

**8/3/21**



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

Project: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**WH03@7'**  
**2108071-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0173	08/11/21	08/12/21	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: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.2 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0174	08/11/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	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: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**WH03@7'**  
**2108071-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0097	08/06/21	08/08/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		42.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		57.5 %	40-150		"	"	"	"	

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.457</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

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: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**WH03@7'**  
**2108071-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	32.6	0.0634	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	14.9	0.0634	"	"	"	"	"	"	
Sodium	349	0.0634	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	12.7	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	78.8		%	1	BEH0093	08/06/21	08/06/21	Calculation	

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.59	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.49		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

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

Project: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**FLR03@5'**  
**2108071-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0173	08/11/21	08/12/21	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: **08/05/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0174	08/11/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/05/21 11:52**

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

**PAH by EPA Method 8270D SIM**

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

Project: Larson Farms 5-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**FLR03@5'**  
**2108071-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0097	08/06/21	08/08/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		48.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		63.1 %	40-150		"	"	"	"	

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.481</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

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

Project: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**FLR03@5'**  
**2108071-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	122	0.0677	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	31.2	0.0677	"	"	"	"	"	"	
Sodium	260	0.0677	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.44	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	73.8		%	1	BEH0093	08/06/21	08/06/21	Calculation	

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.63	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.27		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 5-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

## 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 BEH0173 - EPA 5030 Soil MS

##### Blank (BEH0173-BLK1)

Prepared: 08/11/21 Analyzed: 08/12/21

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	0.0440		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	21-167			

##### LCS (BEH0173-BS1)

Prepared: 08/11/21 Analyzed: 08/12/21

Benzene	0.169	0.0020	mg/kg	0.175		96.7	70-130			
Toluene	0.178	0.0050	"	0.175		102	70-130			
Ethylbenzene	0.203	0.0050	"	0.175		116	70-130			
m,p-Xylene	0.391	0.010	"	0.350		112	70-130			
o-Xylene	0.206	0.0050	"	0.175		118	70-130			
1,2,4-Trimethylbenzene	0.201	0.0050	"	0.175		115	70-130			
1,3,5-Trimethylbenzene	0.203	0.0050	"	0.175		116	70-130			
Naphthalene	0.189	0.0038	"	0.175		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0439		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	21-167			

##### Matrix Spike (BEH0173-MS1)

Source: 2108002-03

Prepared: 08/11/21 Analyzed: 08/12/21

Benzene	0.134	0.0020	mg/kg	0.175	ND	76.7	70-130			
Toluene	0.140	0.0050	"	0.175	ND	79.7	70-130			
Ethylbenzene	0.154	0.0050	"	0.175	ND	88.1	70-130			
m,p-Xylene	0.297	0.010	"	0.350	ND	85.0	70-130			
o-Xylene	0.156	0.0050	"	0.175	ND	88.9	70-130			
1,2,4-Trimethylbenzene	0.145	0.0050	"	0.175	ND	83.0	70-130			
1,3,5-Trimethylbenzene	0.147	0.0050	"	0.175	ND	83.8	70-130			
Naphthalene	0.185	0.0038	"	0.175	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0458		"	0.0400		114	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		97.9	21-167			

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

Project: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**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 BEH0173 - EPA 5030 Soil MS**

Matrix Spike Dup (BEH0173-MSD1)	Source: 2108002-03			Prepared: 08/11/21 Analyzed: 08/12/21						
Benzene	0.137	0.0020	mg/kg	0.175	ND	78.2	70-130	1.90	30	
Toluene	0.144	0.0050	"	0.175	ND	82.1	70-130	2.88	30	
Ethylbenzene	0.153	0.0050	"	0.175	ND	87.7	70-130	0.507	30	
m,p-Xylene	0.297	0.010	"	0.350	ND	85.0	70-130	0.0303	30	
o-Xylene	0.157	0.0050	"	0.175	ND	89.8	70-130	1.04	30	
1,2,4-Trimethylbenzene	0.149	0.0050	"	0.175	ND	85.1	70-130	2.45	30	
1,3,5-Trimethylbenzene	0.150	0.0050	"	0.175	ND	85.6	70-130	2.09	30	
Naphthalene	0.190	0.0038	"	0.175	ND	109	70-130	2.90	30	
Surrogate: 1,2-Dichloroethane-d4	0.0475		"	0.0400		119	23-173			
Surrogate: Toluene-d8	0.0426		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	21-167			

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

Project: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEH0174 - EPA 3550A**

**Blank (BEH0174-BLK1)**

Prepared & Analyzed: 08/11/21

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

**LCS (BEH0174-BS1)**

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	468	50	mg/kg	500	93.6	70-130
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**Matrix Spike (BEH0174-MS1)**

Source: 2108063-01

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	453	50	mg/kg	500	17.6	87.1	70-130
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**Matrix Spike Dup (BEH0174-MSD1)**

Source: 2108063-01

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	433	50	mg/kg	500	17.6	83.1	70-130	4.51	20
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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

## 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

#### Batch BEH0097 - EPA 5030 Soil MS

##### Blank (BEH0097-BLK1)

Prepared: 08/06/21 Analyzed: 08/07/21

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	"								
Naphthalene	ND	0.00500	"								
Pyrene	ND	0.00500	"								
1-Methylnaphthalene	ND	0.00500	"								
2-Methylnaphthalene	ND	0.00500	"								
Surrogate: 2-Methylnaphthalene-d10	0.0166		"	0.0333		49.9		40-150			
Surrogate: Fluoranthene-d10	0.0190		"	0.0333		57.1		40-150			

##### LCS (BEH0097-BS1)

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0303	0.00500	mg/kg	0.0333		91.0		31-137			
Anthracene	0.0315	0.00500	"	0.0333		94.5		30-120			
Benzo (a) anthracene	0.0269	0.00500	"	0.0333		80.7		30-120			
Benzo (a) pyrene	0.0236	0.00500	"	0.0333		70.9		30-120			
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333		69.9		30-120			
Benzo (k) fluoranthene	0.0254	0.00500	"	0.0333		76.3		30-120			
Chrysene	0.0268	0.00500	"	0.0333		80.5		30-120			
Dibenz (a,h) anthracene	0.0399	0.00500	"	0.0333		120		30-120			
Fluoranthene	0.0305	0.00500	"	0.0333		91.5		30-120			
Fluorene	0.0318	0.00500	"	0.0333		95.5		30-120			
Indeno (1,2,3-cd) pyrene	0.0385	0.00500	"	0.0333		115		30-120			
Naphthalene	0.0303	0.00500	"	0.0333		90.8		30-120			
Pyrene	0.0207	0.00500	"	0.0333		62.2		35-142			
1-Methylnaphthalene	0.0320	0.00500	"	0.0333		95.9		35-142			
2-Methylnaphthalene	0.0310	0.00500	"	0.0333		92.9		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0290		"	0.0333		87.1		40-150			
Surrogate: Fluoranthene-d10	0.0322		"	0.0333		96.5		40-150			

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

Project: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**PAH by EPA Method 8270D SIM - Quality Control**  
**Summit Scientific**

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

**Batch BEH0097 - EPA 5030 Soil MS**

**Matrix Spike (BEH0097-MS1)**

Source: 2108049-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0272	0.00500	mg/kg	0.0333	ND	81.6	31-137		
Anthracene	0.0298	0.00500	"	0.0333	ND	89.5	30-120		
Benzo (a) anthracene	0.0263	0.00500	"	0.0333	ND	78.8	30-120		
Benzo (a) pyrene	0.0221	0.00500	"	0.0333	ND	66.3	30-120		
Benzo (b) fluoranthene	0.0237	0.00500	"	0.0333	ND	71.2	30-120		
Benzo (k) fluoranthene	0.0226	0.00500	"	0.0333	ND	67.9	30-120		
Chrysene	0.0262	0.00500	"	0.0333	ND	78.7	30-120		
Dibenz (a,h) anthracene	0.0347	0.00500	"	0.0333	ND	104	30-120		
Fluoranthene	0.0279	0.00500	"	0.0333	ND	83.6	30-120		
Fluorene	0.0292	0.00500	"	0.0333	ND	87.5	30-120		
Indeno (1,2,3-cd) pyrene	0.0333	0.00500	"	0.0333	ND	99.8	30-120		
Naphthalene	0.0267	0.00500	"	0.0333	ND	80.0	30-120		
Pyrene	0.0216	0.00500	"	0.0333	ND	64.7	35-142		
1-Methylnaphthalene	0.0277	0.00500	"	0.0333	ND	83.2	15-130		
2-Methylnaphthalene	0.0273	0.00500	"	0.0333	ND	81.9	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0252		"	0.0333		75.7	40-150		
Surrogate: Fluoranthene-d10	0.0290		"	0.0333		87.1	40-150		

**Matrix Spike Dup (BEH0097-MSD1)**

Source: 2108049-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0276	0.00500	mg/kg	0.0333	ND	82.7	31-137	1.34	30
Anthracene	0.0293	0.00500	"	0.0333	ND	87.9	30-120	1.81	30
Benzo (a) anthracene	0.0263	0.00500	"	0.0333	ND	78.8	30-120	0.00255	30
Benzo (a) pyrene	0.0214	0.00500	"	0.0333	ND	64.3	30-120	2.97	30
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333	ND	70.0	30-120	1.76	30
Benzo (k) fluoranthene	0.0218	0.00500	"	0.0333	ND	65.5	30-120	3.70	30
Chrysene	0.0262	0.00500	"	0.0333	ND	78.6	30-120	0.0534	30
Dibenz (a,h) anthracene	0.0342	0.00500	"	0.0333	ND	103	30-120	1.33	30
Fluoranthene	0.0279	0.00500	"	0.0333	ND	83.8	30-120	0.165	30
Fluorene	0.0294	0.00500	"	0.0333	ND	88.3	30-120	0.935	30
Indeno (1,2,3-cd) pyrene	0.0322	0.00500	"	0.0333	ND	96.7	30-120	3.17	30
Naphthalene	0.0262	0.00500	"	0.0333	ND	78.7	30-120	1.61	30
Pyrene	0.0211	0.00500	"	0.0333	ND	63.3	35-142	2.12	30
1-Methylnaphthalene	0.0282	0.00500	"	0.0333	ND	84.7	15-130	1.83	50
2-Methylnaphthalene	0.0288	0.00500	"	0.0333	ND	86.4	15-130	5.43	50
Surrogate: 2-Methylnaphthalene-d10	0.0261		"	0.0333		78.4	40-150		
Surrogate: Fluoranthene-d10	0.0292		"	0.0333		87.5	40-150		

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

Project: Larson Farms 5-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**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 BEH0104 - EPA 3050B**

**Blank (BEH0104-BLK1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron ND 0.0100 mg/L

**LCS (BEH0104-BS1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 4.99 0.0100 mg/L 5.00 99.8 80-120

**Duplicate (BEH0104-DUP1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 0.517 0.0100 mg/L 0.517 0.0167 20

**Matrix Spike (BEH0104-MS1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125

**Matrix Spike Dup (BEH0104-MSD1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125 0.0349 25

Summit Scientific

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

Project: Larson Farms 5-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**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 BEH0115 - General Preparation**

**Blank (BEH0115-BLK1)**

Prepared & Analyzed: 08/09/21

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

**LCS (BEH0115-BS1)**

Prepared & Analyzed: 08/09/21

Calcium	5.12	0.0500	mg/L wet	5.00	102	70-130
Magnesium	5.02	0.0500	"	5.00	100	70-130
Sodium	4.96	0.0500	"	5.00	99.1	70-130

Summit Scientific

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

Project: Larson Farms 5-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**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 BEH0093 - General Preparation**

**Duplicate (BEH0093-DUP1)**

**Source: 2108059-01**

Prepared & Analyzed: 08/06/21

% Solids	75.5	%	75.1	0.531	20
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Summit Scientific

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

Project: Larson Farms 5-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

**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 BEH0118 - General Preparation**

**Blank (BEH0118-BLK1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0118-BS1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.139 0.0100 mmhos/cm 0.150 92.5 90-110

**Duplicate (BEH0118-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.750 0.0100 mmhos/cm 0.751 0.0666 20

Summit Scientific

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

Project: Larson Farms 5-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

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

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

**Batch BEH0117 - General Preparation**

**LCS (BEH0117-BS1)**

Prepared & Analyzed: 08/09/21

pH	9.30	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEH0117-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

pH	8.27	pH Units	8.27	0.00	20
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Summit Scientific

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

Project: Larson Farms 5-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:12

### 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

August 18, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

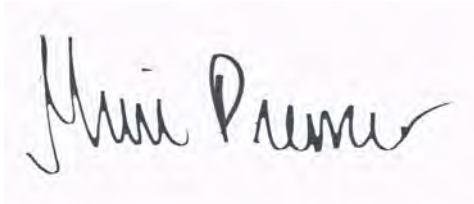
Denver, CO 80203

RE: Larson Farms 3,4,5,6,7-24 Tank Battery

Work Order #2108107

Enclosed are the results of analyses for samples received by Summit Scientific on 08/06/21 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premer". The signature is written in a cursive style with a large, stylized "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury

President



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2108107-01	Soil	08/06/21 12:25	08/06/21 18:00
AST02@0-6"	2108107-02	Soil	08/06/21 12:26	08/06/21 18:00
AST03@0-6"	2108107-03	Soil	08/06/21 12:27	08/06/21 18:00
AST04@0-6"	2108107-04	Soil	08/06/21 12:28	08/06/21 18:00
AST05@0-6"	2108107-05	Soil	08/06/21 12:29	08/06/21 18:00
AST06@0-6"	2108107-06	Soil	08/06/21 12:30	08/06/21 18:00
AST07@0-6"	2108107-07	Soil	08/06/21 12:31	08/06/21 18:00
BKG01@5'	2108107-09	Soil	08/06/21 12:10	08/06/21 18:00
BKG01@7'	2108107-10	Soil	08/06/21 12:11	08/06/21 18:00

Summit Scientific

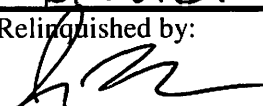
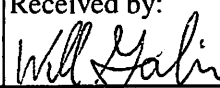
*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

2108102

303-277-9310

Page 1 of 1

Project Number: n/a

					Preservative				Matrix				Analysis Requested							Special Instructions								
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	ON HOLD										pH, EC, SAR by saturated paste
1	ASTO1@0-6"	8/6/21	1225	2			X			X			X	X	X													
2	ASTO2@0-6"		1226	2			X			X			X	X	X													
3	ASTO3@0-6"		1227	2			X			X			X	X	X													
4	ASTO4@0-6"		1228	2			X			X			X	X	X													
5	ASTO5@0-6"		1229	2			X			X			X	X	X													
6	ASTO6@0-6"		1230	2			X			X			X	X	X													
7	ASTO7@0-6"		1231	2			X			X			X	X	X													
8	BKG01@2.5'		1204	1			X			X									X									
9	BKG01@5'		1210	1			X			X									X									
10	BKG01@7'		1211	1			X			X									X									
Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time		(Check)		Notes:																
		8/6/21 1430		Tasman's Lock Box		8/6/21 1430		Same Day		72 hours																		
								24 hours		Standard		X																
Relinquished by:		Date/Time:		Received by:		Date/Time:		48 hours				Sample Integrity:																
Tasman's Lock Box		8/6/21 1800				8/6/21 1800						Temperature Upon Receipt: 6																
Relinquished by:		Date/Time:		Received by:		Date/Time:		Samples Intact:		Yes No																		

# Sample Receipt Checklist

S2 Work Order 2108107

Client: PDC/TASMAN Client Project ID: Larson Farms 3,4,5,6, 7-24 Tank Battery

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>6</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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>same day</u>
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? <b>If yes, contact client and note in narrative.</b>	<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.

WG  
Custodian Printed Name or Initials

W.H. Miller  
Signature of Custodian

8/6/20  
Date/Time



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST01@0-6"**  
**2108107-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST02@0-6"**  
**2108107-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		84.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		78.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST03@0-6"**  
**2108107-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		87.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST04@0-6"**  
**2108107-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		81.0 %	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: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST05@0-6"**  
**2108107-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST06@0-6"**  
**2108107-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		93.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:30**

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST07@0-6"**  
**2108107-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.65	0.254	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	177	0.508	"	"	"	"	"	"	
Cadmium	ND	0.254	"	"	"	"	"	"	
Copper	10.7	0.508	"	"	"	"	"	"	
Lead	9.83	0.254	"	"	"	"	"	"	
Nickel	9.58	0.508	"	"	"	"	"	"	
Selenium	1.02	0.330	"	"	"	"	"	"	
Silver	0.0528	0.0254	"	"	"	"	"	"	
Zinc	40.6	0.508	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	18.9	0.0635	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	4.96	0.0635	"	"	"	"	"	"	
Sodium	98.2	0.0635	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.20	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	78.7		%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.62	0.0100	mmhos/cm	1	BEH0202	08/13/21	08/13/21	EPA 120.1	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.96		pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.42	0.265	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	192	0.530	"	"	"	"	"	"	
Cadmium	ND	0.265	"	"	"	"	"	"	
Copper	9.52	0.530	"	"	"	"	"	"	
Lead	9.39	0.265	"	"	"	"	"	"	
Nickel	8.85	0.530	"	"	"	"	"	"	
Selenium	1.01	0.345	"	"	"	"	"	"	
Silver	0.0510	0.0265	"	"	"	"	"	"	
Zinc	39.1	0.530	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	17.3	0.0663	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	7.80	0.0663	"	"	"	"	"	"	
Sodium	523	0.0663	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	26.2	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.4		%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.81		pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

## 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 BEH0195 - EPA 5030 Soil MS

##### LCS (BEH0195-BS1)

Prepared & Analyzed: 08/12/21

Benzene	0.0911	0.0020	mg/kg	0.125		72.9	70-130			
Toluene	0.0978	0.0050	"	0.125		78.3	70-130			
Ethylbenzene	0.0996	0.0050	"	0.125		79.7	70-130			
m,p-Xylene	0.215	0.010	"	0.250		85.8	70-130			
o-Xylene	0.0955	0.0050	"	0.125		76.4	70-130			
1,2,4-Trimethylbenzene	0.118	0.0050	"	0.125		94.7	70-130			
1,3,5-Trimethylbenzene	0.0998	0.0050	"	0.125		79.8	70-130			
Naphthalene	0.0940	0.0038	"	0.125		75.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0400		89.6	23-173			
Surrogate: Toluene-d8	0.0457		"	0.0400		114	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

##### Matrix Spike (BEH0195-MS1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0910	0.0020	mg/kg	0.125	ND	72.8	70-130			
Toluene	0.104	0.0050	"	0.125	ND	83.1	70-130			
Ethylbenzene	0.0975	0.0050	"	0.125	ND	78.0	70-130			
m,p-Xylene	0.212	0.010	"	0.250	ND	84.8	70-130			
o-Xylene	0.0969	0.0050	"	0.125	ND	77.5	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.125	ND	92.2	70-130			
1,3,5-Trimethylbenzene	0.0960	0.0050	"	0.125	ND	76.8	70-130			
Naphthalene	0.102	0.0038	"	0.125	ND	81.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0362		"	0.0400		90.4	23-173			
Surrogate: Toluene-d8	0.0496		"	0.0400		124	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167			

##### Matrix Spike Dup (BEH0195-MSD1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0914	0.0020	mg/kg	0.125	ND	73.2	70-130	0.460	30	
Toluene	0.0988	0.0050	"	0.125	ND	79.0	70-130	4.97	30	
Ethylbenzene	0.0936	0.0050	"	0.125	ND	74.9	70-130	4.02	30	
m,p-Xylene	0.203	0.010	"	0.250	ND	81.2	70-130	4.34	30	
o-Xylene	0.0926	0.0050	"	0.125	ND	74.1	70-130	4.53	30	
1,2,4-Trimethylbenzene	0.116	0.0050	"	0.125	ND	92.5	70-130	0.338	30	
1,3,5-Trimethylbenzene	0.0897	0.0050	"	0.125	ND	71.7	70-130	6.85	30	
Naphthalene	0.104	0.0038	"	0.125	ND	83.2	70-130	2.19	30	
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0474		"	0.0400		118	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.5	21-167			

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEH0196 - EPA 3550A**

**LCS (BEH0196-BS1)**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	429	50	mg/kg	500	85.8	70-130
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**Matrix Spike (BEH0196-MS1)**

**Source: 2108107-01**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	502	50	mg/kg	500	16.6	97.0	70-130
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**Matrix Spike Dup (BEH0196-MSD1)**

**Source: 2108107-01**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	487	50	mg/kg	500	16.6	94.1	70-130	2.96	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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 BEH0189 - EPA 3050B

##### Blank (BEH0189-BLK1)

Prepared & Analyzed: 08/12/21

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 (BEH0189-BS1)

Prepared & Analyzed: 08/12/21

Arsenic	37.9	0.200	mg/kg wet	40.0	94.8	80-120
Barium	35.0	0.400	"	40.0	87.4	80-120
Cadmium	1.82	0.200	"	2.00	91.1	80-120
Copper	34.1	0.400	"	40.0	85.2	80-120
Lead	17.0	0.200	"	20.0	85.2	80-120
Nickel	33.6	0.400	"	40.0	83.9	80-120
Selenium	3.39	0.260	"	4.00	84.9	80-120
Silver	1.65	0.0200	"	2.00	82.6	80-120
Zinc	38.4	0.400	"	40.0	96.0	80-120

##### Duplicate (BEH0189-DUP1)

Source: 2106461-01

Prepared & Analyzed: 08/12/21

Arsenic	5.81	0.242	mg/kg dry	5.93	1.94	20
Barium	24.4	0.484	"	27.2	10.6	20
Cadmium	0.0836	0.242	"	0.0851	1.75	20
Copper	10.2	0.484	"	12.2	17.3	20
Lead	9.50	0.242	"	10.6	10.9	20
Nickel	12.6	0.484	"	12.6	0.430	20
Selenium	0.745	0.314	"	0.744	0.174	20
Silver	0.0478	0.0242	"	0.0561	15.9	20
Zinc	59.1	0.484	"	63.5	7.29	20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0189 - EPA 3050B**

**Matrix Spike (BEH0189-MS1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	52.9	0.242	mg/kg dry	48.4	5.93	97.1	75-125
Barium	71.7	0.484	"	48.4	27.2	92.1	75-125
Cadmium	2.33	0.242	"	2.42	0.0851	92.7	75-125
Copper	53.4	0.484	"	48.4	12.2	85.2	75-125
Lead	33.3	0.242	"	24.2	10.6	94.0	75-125
Nickel	56.4	0.484	"	48.4	12.6	90.5	75-125
Selenium	4.48	0.314	"	4.84	0.744	77.2	75-125
Silver	2.09	0.0242	"	2.42	0.0561	84.2	75-125
Zinc	103	0.484	"	48.4	63.5	82.2	75-125

**Matrix Spike Dup (BEH0189-MSD1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	54.9	0.242	mg/kg dry	48.4	5.93	101	75-125	3.64	25
Barium	66.6	0.484	"	48.4	27.2	81.6	75-125	7.34	25
Cadmium	2.42	0.242	"	2.42	0.0851	96.7	75-125	4.04	25
Copper	54.2	0.484	"	48.4	12.2	86.8	75-125	1.43	25
Lead	32.9	0.242	"	24.2	10.6	92.1	75-125	1.39	25
Nickel	58.5	0.484	"	48.4	12.6	94.8	75-125	3.64	25
Selenium	4.64	0.314	"	4.84	0.744	80.5	75-125	3.48	25
Silver	2.15	0.0242	"	2.42	0.0561	86.5	75-125	2.62	25
Zinc	100	0.484	"	48.4	63.5	75.8	75-125	3.00	25

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0162 - 3060A Mod**

**Blank (BEH0162-BLK1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEH0162-BS1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 24.2 0.30 mg/kg wet 25.0 97.0 80-120

**Duplicate (BEH0162-DUP1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEH0162-MS1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.0 0.30 mg/kg dry 30.6 ND 85.0 75-125

**Matrix Spike Dup (BEH0162-MSD1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.1 0.30 mg/kg dry 30.6 ND 85.4 75-125 0.469 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: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0194 - General Preparation**

**Blank (BEH0194-BLK1)**

Prepared: 08/12/21 Analyzed: 08/17/21

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

**LCS (BEH0194-BS1)**

Prepared: 08/12/21 Analyzed: 08/17/21

Calcium	5.31	0.0500	mg/L wet	5.00	106	70-130
Magnesium	5.04	0.0500	"	5.00	101	70-130
Sodium	4.98	0.0500	"	5.00	99.6	70-130

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/18/21 12:12

**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 BEH0243 - General Preparation**

**Duplicate (BEH0243-DUP1)**

**Source: 2108009-04**

**Prepared & Analyzed: 08/16/21**

% Solids	91.7	%		92.0		0.375	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0202 - General Preparation**

**Blank (BEH0202-BLK1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0202-BS1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.4 90-110

**Duplicate (BEH0202-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 1.61 0.0100 mmhos/cm 1.62 0.433 20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

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

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

**Batch BEH0201 - General Preparation**

**LCS (BEH0201-BS1)**

Prepared & Analyzed: 08/13/21

pH	9.26	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEH0201-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

pH	8.95	pH Units	8.96	0.112	20
----	------	----------	------	-------	----

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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

**TABLE 1**  
**FORMER LARSON FARMS 6-24 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 <sup>(4)</sup> (mg/kg)
<b>Residential SSL<sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL<sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
WH02 @ 7'	8/5/2021	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50
FLR02 @ 5'	8/5/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50
WH02-N @ 5'	8/5/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50

**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.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

**TABLE 2**  
**FORMER LARSON FARMS 6-24 WELLHEAD**  
**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>
WH02 @ 7'	8/5/2021	7 ft. bgs	8.27	0.751	3.97	0.517
FLR02 @ 5'	8/5/2021	5 ft. bgs	8.15	1.12	3.81	0.384
WH02-N @ 5'	8/5/2021	5 ft. bgs	8.26	2.77	<b>10.8</b>	0.593
BKG01 @ 5'	8/6/2021	5 ft. bgs	8.96	1.62	5.20	NA
BKG01 @ 7'	8/6/2021	7 ft. bgs	<b>8.81</b>	NA	<b>26.2</b>	NA

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

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

**TABLE 3**  
**FORMER LARSON FARMS 6-24 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 <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH02 @ 7'	8/5/2021	7 ft. bgs	<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
FLR02 @ 5'	8/5/2021	5 ft. bgs	<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
WH02-N @ 5'	8/5/2021	5 ft. bgs	<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:**

- 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

COGCC = Colorado Oil and Gas Conservation Commission

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

PAHs = Polycyclic aromatic hydrocarbons

Benzo(a) = Benzoanthracene

Benzo(a) = Benzopyrene

Benzo(b) = Benzo(a)fluoranthene

Benzo(k) = Benzo(a)fluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylanthracene

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

**TABLE 4**  
**FORMER LARSON FARMS 6-24 WELLHEAD**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
WH02 @ 7'	8/5/2021	7 ft. bgs	40.470760	-104.499126	1.1	0.5
FLR02 @ 5'	8/5/2021	5 ft. bgs	40.470760	-104.499141	1.0	0.5
WHS02-N @ 0-6"	8/5/2021	0-6 in. bgs	40.470805	-104.499120	1.0	0.6
WHS01-W @ 0-6"	8/5/2021	0-6 in. bgs	40.470757	-104.499157	1.0	0.3
WHS01-S @ 0-6"	8/5/2021	0-6 in. bgs	40.470741	-104.499124	1.0	0.0
WHS0-E @ 0-6"	8/5/2021	0-6 in. bgs	40.470766	-104.499096	1.0	0.0
FI02-01 @ 5'	8/5/2021	5 ft. bgs	40.470955	-104.499214	1.1	0.4
WH02-N @ 5'	8/5/2021	5 ft. bgs	40.470783	-104.499128	1.0	1.3
WH02-W @ 5'	8/5/2021	5 ft. bgs	40.470756	-104.499149	1.0	0.1
WH02-S @ 5'	8/5/2021	5 ft. bgs	40.470747	-104.499120	NC	0.3
WH02-E @ 5'	8/5/2021	5 ft. bgs	40.470769	-104.499109	1.0	1.1
BKG01 @ 5'	8/6/2021	5 ft. bgs	40.470334	-104.499261	0.9	0.0
BKG01 @ 7'	8/6/2021	7 ft. bgs	40.470334	-104.499261	0.9	0.0

**Notes:**

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

6-24 Wellhead  
Attachment A



# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 10, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

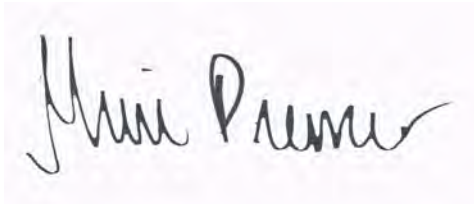
Denver, CO 80203

RE: Larson Farms 6-24 Wellhead

Work Order #2108057

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/21 15:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premier", is displayed on a light pink rectangular background.

Muri Premier For Paul Shrewsbury

President



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

Project: Larson Farms 6-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH02 @ 7'	2108057-01	Soil	08/05/21 11:50	08/05/21 15:50
FLR02 @ 5'	2108057-02	Soil	08/05/21 11:52	08/05/21 15:50
WH02 - N @5'	2108057-03	Soil	08/05/21 13:00	08/05/21 15:50

Summit Scientific

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Summit Scientific  
S<sub>2</sub>

Page 1 of 1

Project Number:

**www.s2scientific.com**

# Sample Receipt Checklist

S2 Work Order 2108057

Client: PDC/TASMAN

Client Project ID: Larson Farms 6-24-21

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

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

Temp (°C) 10.2

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 checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	same day
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.

WG  
Custodian Printed Name or Initials

Will Hall  
Signature of Custodian

8/5/21  
Date/Time



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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**WH02 @ 7'**  
**2108057-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0091	08/05/21	08/05/21	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: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		67.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		121 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0090	08/05/21	08/05/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		80.3 %	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: Larson Farms 6-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**WH02 @ 7'**  
**2108057-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0096	08/06/21	08/07/21	EPA 8270D SIM	
Acenaphthylene	ND	0.00500	"	"	"	"	"	"	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		51.5 %	30-150		"	"	"	"	
Surrogate: Fluoranthene-d10		65.4 %	30-150		"	"	"	"	

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.517</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**WH02 @ 7'**  
**2108057-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	35.6	0.0597	mg/L dry	1	BEH0115	08/09/21	08/09/21	EPA 6020B	
Magnesium	10.5	0.0597	"	"	"	"	"	"	
Sodium	105	0.0597	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.97	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.8		%	1	BEH0123	08/09/21	08/09/21	Calculation	

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.751	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 11:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.27		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**FLR02 @ 5'**  
**2108057-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0091	08/05/21	08/05/21	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: **08/05/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		62.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0090	08/05/21	08/05/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		81.5 %	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: Larson Farms 6-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**FLR02 @ 5'**  
**2108057-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0096	08/06/21	08/07/21	EPA 8270D SIM	
Acenaphthylene	ND	0.00500	"	"	"	"	"	"	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		49.5 %	30-150		"	"	"	"	
Surrogate: Fluoranthene-d10		66.0 %	30-150		"	"	"	"	

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.384</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**FLR02 @ 5'**  
**2108057-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	81.7	0.0667	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	33.5	0.0667	"	"	"	"	"	"	
Sodium	162	0.0667	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.81	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	75.0		%	1	BEH0123	08/09/21	08/09/21	Calculation	

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.12	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 11:52**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.15		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**WH02 - N @5'**  
**2108057-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0091	08/05/21	08/05/21	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: **08/05/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		65.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		126 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0090	08/05/21	08/05/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		80.2 %	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: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**WH02 - N @5'**  
**2108057-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0096	08/06/21	08/07/21	EPA 8270D SIM	
Acenaphthylene	ND	0.00500	"	"	"	"	"	"	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		46.7 %	30-150		"	"	"	"	
Surrogate: Fluoranthene-d10		65.1 %	30-150		"	"	"	"	

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

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.593</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**WH02 - N @5'**  
**2108057-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	116	0.0595	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	40.3	0.0595	"	"	"	"	"	"	
Sodium	530	0.0595	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	10.8	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.0		%	1	BEH0123	08/09/21	08/09/21	Calculation	

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

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.77	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/05/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.26		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

## 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 BEH0091 - EPA 5030 Soil MS

##### Blank (BEH0091-BLK1)

Prepared & Analyzed: 08/05/21

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	0.0187		"	0.0400	46.8	23-173				
Surrogate: Toluene-d8	0.0542		"	0.0400	136	20-170				
Surrogate: 4-Bromofluorobenzene	0.0403		"	0.0400	101	21-167				

##### LCS (BEH0091-BS1)

Prepared & Analyzed: 08/05/21

Benzene	0.0955	0.0020	mg/kg	0.100	95.5	70-130				
Toluene	0.110	0.0050	"	0.100	110	70-130				
Ethylbenzene	0.116	0.0050	"	0.100	116	70-130				
m,p-Xylene	0.226	0.010	"	0.200	113	70-130				
o-Xylene	0.102	0.0050	"	0.100	102	70-130				
1,2,4-Trimethylbenzene	0.117	0.0050	"	0.100	117	70-130				
1,3,5-Trimethylbenzene	0.0879	0.0050	"	0.100	87.9	70-130				
Naphthalene	0.0782	0.0038	"	0.100	78.2	70-130				
Surrogate: 1,2-Dichloroethane-d4	0.0152		"	0.0400	37.9	23-173				
Surrogate: Toluene-d8	0.0470		"	0.0400	117	20-170				
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400	99.9	21-167				

##### Matrix Spike (BEH0091-MS1)

Source: 2108056-01

Prepared & Analyzed: 08/05/21

Benzene	0.0999	0.0020	mg/kg	0.100	ND	99.9	70-130			
Toluene	0.0988	0.0050	"	0.100	ND	98.8	70-130			
Ethylbenzene	0.112	0.0050	"	0.100	ND	112	70-130			
m,p-Xylene	0.215	0.010	"	0.200	ND	108	70-130			
o-Xylene	0.100	0.0050	"	0.100	ND	100	70-130			
1,2,4-Trimethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130			
1,3,5-Trimethylbenzene	0.0900	0.0050	"	0.100	ND	90.0	70-130			
Naphthalene	0.0916	0.0038	"	0.100	ND	91.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0177		"	0.0400	44.2	23-173				
Surrogate: Toluene-d8	0.0423		"	0.0400	106	20-170				
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400	97.6	21-167				

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**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 BEH0091 - EPA 5030 Soil MS**

Matrix Spike Dup (BEH0091-MSD1)	Source: 2108056-01			Prepared: 08/05/21 Analyzed: 08/06/21						
Benzene	0.0916	0.0020	mg/kg	0.100	ND	91.6	70-130	8.74	30	
Toluene	0.0849	0.0050	"	0.100	ND	84.9	70-130	15.1	30	
Ethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130	10.7	30	
m,p-Xylene	0.195	0.010	"	0.200	ND	97.6	70-130	9.71	30	
o-Xylene	0.0922	0.0050	"	0.100	ND	92.2	70-130	8.44	30	
1,2,4-Trimethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130	11.2	30	
1,3,5-Trimethylbenzene	0.0955	0.0050	"	0.100	ND	95.5	70-130	5.85	30	
Naphthalene	0.0883	0.0038	"	0.100	ND	88.3	70-130	3.60	30	
Surrogate: 1,2-Dichloroethane-d4	0.0192		"	0.0400		48.0	23-173			
Surrogate: Toluene-d8	0.0412		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400		94.9	21-167			

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEH0090 - EPA 3550A**

**Blank (BEH0090-BLK1)**

Prepared: 08/05/21 Analyzed: 08/06/21

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

**LCS (BEH0090-BS1)**

Prepared: 08/05/21 Analyzed: 08/06/21

C10-C28 (DRO)	494	50	mg/kg	500	98.8	70-130
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**Matrix Spike (BEH0090-MS1)**

**Source: 2108056-01**

Prepared: 08/05/21 Analyzed: 08/06/21

C10-C28 (DRO)	494	50	mg/kg	500	13.9	96.0	70-130
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**Matrix Spike Dup (BEH0090-MSD1)**

**Source: 2108056-01**

Prepared: 08/05/21 Analyzed: 08/06/21

C10-C28 (DRO)	502	50	mg/kg	500	13.9	97.6	70-130	1.60	20
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Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

## 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 BEH0096 - EPA 5030 Soil MS

##### Blank (BEH0096-BLK1)

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	ND	0.00500	mg/kg							
Acenaphthylene	ND	0.00500	"							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (g,h,i) perylene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.0100	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.0100	"							
Phenanthrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0203		"	0.0333		60.8	30-150			
Surrogate: Fluoranthene-d10	0.0262		"	0.0333		78.5	30-150			

##### LCS (BEH0096-BS1)

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0263	0.00500	mg/kg	0.0333		79.0	31-137			
Acenaphthylene	0.0242	0.00500	"	0.0333		72.7	30-120			
Anthracene	0.0271	0.00500	"	0.0333		81.3	30-120			
Benzo (a) anthracene	0.0227	0.00500	"	0.0333		68.2	30-120			
Benzo (a) pyrene	0.0196	0.00500	"	0.0333		58.7	30-120			
Benzo (b) fluoranthene	0.0249	0.00500	"	0.0333		74.8	30-120			
Benzo (g,h,i) perylene	0.0139	0.00500	"	0.0333		41.7	30-120			
Benzo (k) fluoranthene	0.0276	0.00500	"	0.0333		82.7	30-120			
Chrysene	0.0227	0.00500	"	0.0333		68.1	30-120			
Dibenz (a,h) anthracene	0.0177	0.0100	"	0.0333		53.2	30-120			
Fluoranthene	0.0271	0.00500	"	0.0333		81.3	30-120			
Fluorene	0.0280	0.00500	"	0.0333		83.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0165	0.0100	"	0.0333		49.6	30-120			
Phenanthrene	0.0183	0.00500	"	0.0333		54.8	30-120			
Pyrene	0.0200	0.00500	"	0.0333		60.0	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0239		"	0.0333		71.8	40-150			
Surrogate: Fluoranthene-d10	0.0279		"	0.0333		83.7	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: Larson Farms 6-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BEH0096 - EPA 5030 Soil MS

##### Matrix Spike (BEH0096-MS1)

Source: 2106486-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0282	0.00500	mg/kg	0.0333	ND	84.5	31-137		
Acenaphthylene	0.0261	0.00500	"	0.0333	ND	78.4	30-120		
Anthracene	0.0307	0.00500	"	0.0333	ND	92.1	30-120		
Benzo (a) anthracene	0.0259	0.00500	"	0.0333	ND	77.7	30-120		
Benzo (a) pyrene	0.0217	0.00500	"	0.0333	ND	65.1	30-120		
Benzo (b) fluoranthene	0.0276	0.00500	"	0.0333	ND	82.7	30-120		
Benzo (g,h,i) perylene	0.0143	0.00500	"	0.0333	ND	42.9	30-120		
Benzo (k) fluoranthene	0.0301	0.00500	"	0.0333	ND	90.2	30-120		
Chrysene	0.0259	0.00500	"	0.0333	ND	77.7	30-120		
Dibenz (a,h) anthracene	0.0183	0.0100	"	0.0333	ND	54.9	30-120		
Fluoranthene	0.0303	0.00500	"	0.0333	ND	90.8	30-120		
Fluorene	0.0298	0.00500	"	0.0333	ND	89.5	30-120		
Indeno (1,2,3-cd) pyrene	0.0171	0.0100	"	0.0333	ND	51.4	30-120		
Phenanthrene	0.0295	0.00500	"	0.0333	ND	88.4	30-120		
Pyrene	0.0236	0.00500	"	0.0333	ND	70.7	35-142		
Surrogate: 2-Methylnaphthalene-d10	0.0237		"	0.0333		71.2	40-150		
Surrogate: Fluoranthene-d10	0.0311		"	0.0333		93.3	40-150		

##### Matrix Spike Dup (BEH0096-MSD1)

Source: 2106486-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0294	0.00500	mg/kg	0.0333	ND	88.2	31-137	4.31	30
Acenaphthylene	0.0272	0.00500	"	0.0333	ND	81.7	30-120	4.11	30
Anthracene	0.0291	0.00500	"	0.0333	ND	87.2	30-120	5.48	30
Benzo (a) anthracene	0.0246	0.00500	"	0.0333	ND	73.7	30-120	5.33	30
Benzo (a) pyrene	0.0212	0.00500	"	0.0333	ND	63.5	30-120	2.46	30
Benzo (b) fluoranthene	0.0265	0.00500	"	0.0333	ND	79.5	30-120	3.97	30
Benzo (g,h,i) perylene	0.0153	0.00500	"	0.0333	ND	45.9	30-120	6.81	30
Benzo (k) fluoranthene	0.0285	0.00500	"	0.0333	ND	85.6	30-120	5.29	30
Chrysene	0.0245	0.00500	"	0.0333	ND	73.6	30-120	5.40	30
Dibenz (a,h) anthracene	0.0194	0.0100	"	0.0333	ND	58.3	30-120	6.00	30
Fluoranthene	0.0293	0.00500	"	0.0333	ND	87.9	30-120	3.23	30
Fluorene	0.0307	0.00500	"	0.0333	ND	92.2	30-120	2.96	30
Indeno (1,2,3-cd) pyrene	0.0187	0.0100	"	0.0333	ND	56.0	30-120	8.51	30
Phenanthrene	0.0274	0.00500	"	0.0333	ND	82.3	30-120	7.20	30
Pyrene	0.0216	0.00500	"	0.0333	ND	64.9	35-142	8.61	30
Surrogate: 2-Methylnaphthalene-d10	0.0258		"	0.0333		77.5	40-150		
Surrogate: Fluoranthene-d10	0.0301		"	0.0333		90.2	40-150		

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**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 BEH0104 - EPA 3050B**

**Blank (BEH0104-BLK1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron ND 0.0100 mg/L

**LCS (BEH0104-BS1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 4.99 0.0100 mg/L 5.00 99.8 80-120

**Duplicate (BEH0104-DUP1)**

Source: 2108057-01

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 0.517 0.0100 mg/L 0.517 0.0167 20

**Matrix Spike (BEH0104-MS1)**

Source: 2108057-01

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125

**Matrix Spike Dup (BEH0104-MSD1)**

Source: 2108057-01

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125 0.0349 25

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**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 BEH0115 - General Preparation**

**Blank (BEH0115-BLK1)**

Prepared & Analyzed: 08/09/21

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

**LCS (BEH0115-BS1)**

Prepared & Analyzed: 08/09/21

Calcium	5.12	0.0500	mg/L wet	5.00	102	70-130
Magnesium	5.02	0.0500	"	5.00	100	70-130
Sodium	4.96	0.0500	"	5.00	99.1	70-130

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**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 BEH0123 - General Preparation**

Duplicate (BEH0123-DUP1)			Source: 2106181-16			Prepared & Analyzed: 08/09/21				
% Solids	85.5		%			85.7		0.216	20	

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

**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 BEH0118 - General Preparation**

**Blank (BEH0118-BLK1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0118-BS1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.139 0.0100 mmhos/cm 0.150 92.5 90-110

**Duplicate (BEH0118-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.750 0.0100 mmhos/cm 0.751 0.0666 20

Summit Scientific

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

Project: Larson Farms 6-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/10/21 16:56

**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 BEH0117 - General Preparation**

**LCS (BEH0117-BS1)**

Prepared & Analyzed: 08/09/21

pH	9.30	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEH0117-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

pH	8.27	pH Units	8.27	0.00	20
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Summit Scientific

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

Project: Larson Farms 6-24 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/10/21 16:56

### 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

August 18, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

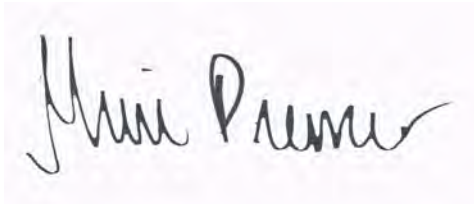
Denver, CO 80203

RE: Larson Farms 3,4,5,6,7-24 Tank Battery

Work Order #2108107

Enclosed are the results of analyses for samples received by Summit Scientific on 08/06/21 18:00. 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 shown on a light pink background.

Muri Premer For Paul Shrewsbury

President



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2108107-01	Soil	08/06/21 12:25	08/06/21 18:00
AST02@0-6"	2108107-02	Soil	08/06/21 12:26	08/06/21 18:00
AST03@0-6"	2108107-03	Soil	08/06/21 12:27	08/06/21 18:00
AST04@0-6"	2108107-04	Soil	08/06/21 12:28	08/06/21 18:00
AST05@0-6"	2108107-05	Soil	08/06/21 12:29	08/06/21 18:00
AST06@0-6"	2108107-06	Soil	08/06/21 12:30	08/06/21 18:00
AST07@0-6"	2108107-07	Soil	08/06/21 12:31	08/06/21 18:00
BKG01@5'	2108107-09	Soil	08/06/21 12:10	08/06/21 18:00
BKG01@7'	2108107-10	Soil	08/06/21 12:11	08/06/21 18:00

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.*

2108102

303-277-9310

Page 1 of 1

Project Number: n/a

i

# Sample Receipt Checklist

S2 Work Order 2108107

Client: PDC/TASMAN Client Project ID: Larson Farms 3,4,5,6, 7-24 Tank Battery

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>6</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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>same day</u>
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? <b>If yes, contact client and note in narrative.</b>	<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.

WG  
Custodian Printed Name or Initials

W.H. Miller  
Signature of Custodian

8/6/20  
Date/Time



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST01@0-6"**  
**2108107-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST02@0-6"**  
**2108107-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		84.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		78.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST03@0-6"**  
**2108107-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		87.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST04@0-6"**  
**2108107-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		81.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST05@0-6"**  
**2108107-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST06@0-6"**  
**2108107-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		93.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:30**

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST07@0-6"**  
**2108107-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.65	0.254	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	177	0.508	"	"	"	"	"	"	
Cadmium	ND	0.254	"	"	"	"	"	"	
Copper	10.7	0.508	"	"	"	"	"	"	
Lead	9.83	0.254	"	"	"	"	"	"	
Nickel	9.58	0.508	"	"	"	"	"	"	
Selenium	1.02	0.330	"	"	"	"	"	"	
Silver	0.0528	0.0254	"	"	"	"	"	"	
Zinc	40.6	0.508	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	18.9	0.0635	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	4.96	0.0635	"	"	"	"	"	"	
Sodium	98.2	0.0635	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.20	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	78.7			%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	1.62	0.0100		mmhos/cm	1	BEH0202	08/13/21	08/13/21	EPA 120.1	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.96			pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.42	0.265	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	192	0.530	"	"	"	"	"	"	
Cadmium	ND	0.265	"	"	"	"	"	"	
Copper	9.52	0.530	"	"	"	"	"	"	
Lead	9.39	0.265	"	"	"	"	"	"	
Nickel	8.85	0.530	"	"	"	"	"	"	
Selenium	1.01	0.345	"	"	"	"	"	"	
Silver	0.0510	0.0265	"	"	"	"	"	"	
Zinc	39.1	0.530	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	17.3	0.0663	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	7.80	0.0663	"	"	"	"	"	"	
Sodium	523	0.0663	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	26.2	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.4		%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.81		pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

## 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 BEH0195 - EPA 5030 Soil MS

##### LCS (BEH0195-BS1)

Prepared & Analyzed: 08/12/21

Benzene	0.0911	0.0020	mg/kg	0.125		72.9	70-130			
Toluene	0.0978	0.0050	"	0.125		78.3	70-130			
Ethylbenzene	0.0996	0.0050	"	0.125		79.7	70-130			
m,p-Xylene	0.215	0.010	"	0.250		85.8	70-130			
o-Xylene	0.0955	0.0050	"	0.125		76.4	70-130			
1,2,4-Trimethylbenzene	0.118	0.0050	"	0.125		94.7	70-130			
1,3,5-Trimethylbenzene	0.0998	0.0050	"	0.125		79.8	70-130			
Naphthalene	0.0940	0.0038	"	0.125		75.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0400		89.6	23-173			
Surrogate: Toluene-d8	0.0457		"	0.0400		114	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

##### Matrix Spike (BEH0195-MS1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0910	0.0020	mg/kg	0.125	ND	72.8	70-130			
Toluene	0.104	0.0050	"	0.125	ND	83.1	70-130			
Ethylbenzene	0.0975	0.0050	"	0.125	ND	78.0	70-130			
m,p-Xylene	0.212	0.010	"	0.250	ND	84.8	70-130			
o-Xylene	0.0969	0.0050	"	0.125	ND	77.5	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.125	ND	92.2	70-130			
1,3,5-Trimethylbenzene	0.0960	0.0050	"	0.125	ND	76.8	70-130			
Naphthalene	0.102	0.0038	"	0.125	ND	81.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0362		"	0.0400		90.4	23-173			
Surrogate: Toluene-d8	0.0496		"	0.0400		124	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167			

##### Matrix Spike Dup (BEH0195-MSD1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0914	0.0020	mg/kg	0.125	ND	73.2	70-130	0.460	30	
Toluene	0.0988	0.0050	"	0.125	ND	79.0	70-130	4.97	30	
Ethylbenzene	0.0936	0.0050	"	0.125	ND	74.9	70-130	4.02	30	
m,p-Xylene	0.203	0.010	"	0.250	ND	81.2	70-130	4.34	30	
o-Xylene	0.0926	0.0050	"	0.125	ND	74.1	70-130	4.53	30	
1,2,4-Trimethylbenzene	0.116	0.0050	"	0.125	ND	92.5	70-130	0.338	30	
1,3,5-Trimethylbenzene	0.0897	0.0050	"	0.125	ND	71.7	70-130	6.85	30	
Naphthalene	0.104	0.0038	"	0.125	ND	83.2	70-130	2.19	30	
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0474		"	0.0400		118	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.5	21-167			

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEH0196 - EPA 3550A**

**LCS (BEH0196-BS1)**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	429	50	mg/kg	500	85.8	70-130
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**Matrix Spike (BEH0196-MS1)**

**Source: 2108107-01**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	502	50	mg/kg	500	16.6	97.0	70-130
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**Matrix Spike Dup (BEH0196-MSD1)**

**Source: 2108107-01**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	487	50	mg/kg	500	16.6	94.1	70-130	2.96	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: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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 BEH0189 - EPA 3050B

##### Blank (BEH0189-BLK1)

Prepared & Analyzed: 08/12/21

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 (BEH0189-BS1)

Prepared & Analyzed: 08/12/21

Arsenic	37.9	0.200	mg/kg wet	40.0	94.8	80-120
Barium	35.0	0.400	"	40.0	87.4	80-120
Cadmium	1.82	0.200	"	2.00	91.1	80-120
Copper	34.1	0.400	"	40.0	85.2	80-120
Lead	17.0	0.200	"	20.0	85.2	80-120
Nickel	33.6	0.400	"	40.0	83.9	80-120
Selenium	3.39	0.260	"	4.00	84.9	80-120
Silver	1.65	0.0200	"	2.00	82.6	80-120
Zinc	38.4	0.400	"	40.0	96.0	80-120

##### Duplicate (BEH0189-DUP1)

Source: 2106461-01

Prepared & Analyzed: 08/12/21

Arsenic	5.81	0.242	mg/kg dry	5.93	1.94	20
Barium	24.4	0.484	"	27.2	10.6	20
Cadmium	0.0836	0.242	"	0.0851	1.75	20
Copper	10.2	0.484	"	12.2	17.3	20
Lead	9.50	0.242	"	10.6	10.9	20
Nickel	12.6	0.484	"	12.6	0.430	20
Selenium	0.745	0.314	"	0.744	0.174	20
Silver	0.0478	0.0242	"	0.0561	15.9	20
Zinc	59.1	0.484	"	63.5	7.29	20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0189 - EPA 3050B**

**Matrix Spike (BEH0189-MS1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	52.9	0.242	mg/kg dry	48.4	5.93	97.1	75-125
Barium	71.7	0.484	"	48.4	27.2	92.1	75-125
Cadmium	2.33	0.242	"	2.42	0.0851	92.7	75-125
Copper	53.4	0.484	"	48.4	12.2	85.2	75-125
Lead	33.3	0.242	"	24.2	10.6	94.0	75-125
Nickel	56.4	0.484	"	48.4	12.6	90.5	75-125
Selenium	4.48	0.314	"	4.84	0.744	77.2	75-125
Silver	2.09	0.0242	"	2.42	0.0561	84.2	75-125
Zinc	103	0.484	"	48.4	63.5	82.2	75-125

**Matrix Spike Dup (BEH0189-MSD1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	54.9	0.242	mg/kg dry	48.4	5.93	101	75-125	3.64	25
Barium	66.6	0.484	"	48.4	27.2	81.6	75-125	7.34	25
Cadmium	2.42	0.242	"	2.42	0.0851	96.7	75-125	4.04	25
Copper	54.2	0.484	"	48.4	12.2	86.8	75-125	1.43	25
Lead	32.9	0.242	"	24.2	10.6	92.1	75-125	1.39	25
Nickel	58.5	0.484	"	48.4	12.6	94.8	75-125	3.64	25
Selenium	4.64	0.314	"	4.84	0.744	80.5	75-125	3.48	25
Silver	2.15	0.0242	"	2.42	0.0561	86.5	75-125	2.62	25
Zinc	100	0.484	"	48.4	63.5	75.8	75-125	3.00	25

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0162 - 3060A Mod**

**Blank (BEH0162-BLK1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEH0162-BS1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 24.2 0.30 mg/kg wet 25.0 97.0 80-120

**Duplicate (BEH0162-DUP1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEH0162-MS1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.0 0.30 mg/kg dry 30.6 ND 85.0 75-125

**Matrix Spike Dup (BEH0162-MSD1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.1 0.30 mg/kg dry 30.6 ND 85.4 75-125 0.469 20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0194 - General Preparation**

**Blank (BEH0194-BLK1)**

Prepared: 08/12/21 Analyzed: 08/17/21

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

**LCS (BEH0194-BS1)**

Prepared: 08/12/21 Analyzed: 08/17/21

Calcium	5.31	0.0500	mg/L wet	5.00	106	70-130
Magnesium	5.04	0.0500	"	5.00	101	70-130
Sodium	4.98	0.0500	"	5.00	99.6	70-130

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/18/21 12:12

**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 BEH0243 - General Preparation**

**Duplicate (BEH0243-DUP1)**

**Source: 2108009-04**

**Prepared & Analyzed: 08/16/21**

% Solids	91.7	%		92.0		0.375	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: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0202 - General Preparation**

**Blank (BEH0202-BLK1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0202-BS1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.4 90-110

**Duplicate (BEH0202-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 1.61 0.0100 mmhos/cm 1.62 0.433 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: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

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

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

**Batch BEH0201 - General Preparation**

**LCS (BEH0201-BS1)**

Prepared & Analyzed: 08/13/21

pH	9.26	pH Units	9.21	101	95-105
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**Duplicate (BEH0201-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

pH	8.95	pH Units	8.96	0.112	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: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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

**TABLE 1**  
**FORMER LARSON FARMS 7-24 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 <sup>(4)</sup> (mg/kg)
<b>Residential SSL<sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL<sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
WH01 @ 7'	8/5/2021	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50
FLR01 @ 5'	8/5/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.00050	<0.0038	<50

**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.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

bgs = Below ground surface

**TABLE 2**  
**FORMER LARSON FARMS 7-24 WELLHEAD**  
**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>
WH01 @ 7'	8/5/2021	7 ft. bgs	<b>8.31</b>	3.19	<b>13.3</b>	0.249
FLR01 @ 5'	8/5/2021	5 ft. bgs	<b>8.33</b>	0.693	2.45	0.441
BKG01 @ 5'	8/6/2021	5 ft. bgs	<b>8.96</b>	1.62	5.20	NA
BKG01 @ 7'	8/6/2021	7 ft. bgs	<b>8.81</b>	NA	<b>26.2</b>	NA

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

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

**BOLD** = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

NA = Constituent not analyzed

**TABLE 3**  
**FORMER LARSON FARMS 7-24 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 <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH01 @ 7'	8/5/2021	7 ft. bgs	<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
FLR01 @ 5'	8/5/2021	5 ft. bgs	<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:**

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

**TABLE 4**  
**FORMER LARSON FARMS 7-24 WELLHEAD**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
WH01 @ 7'	8/5/2021	7 ft. bgs	40.470741	-104.499186	1.2	0.5
FLR01 @ 5'	8/5/2021	5 ft. bgs	40.470737	-104.499205	1.2	0.0
WHS01-N @ 0-6"	8/5/2021	0-6 in. bgs	40.470786	-104.499179	1.1	0.0
WHS01-W @ 0-6"	8/5/2021	0-6 in. bgs	40.470760	-104.499212	1.0	0.0
WHS01-S @ 0-6"	8/5/2021	0-6 in. bgs	40.470710	-104.499189	1.2	0.0
WHS01-E @ 0-6"	8/5/2021	0-6 in. bgs	40.470745	-104.499155	1.2	0.0
FL01-01 @ 4'	8/5/2021	4 ft. bgs	40.470946	-104.499264	1.2	1.0
BKG01 @ 5'	8/6/2021	5 ft. bgs	40.470334	-104.499261	0.9	0.0
BKG01 @ 7'	8/6/2021	7 ft. bgs	40.470334	-104.499261	0.9	0.0

**Notes:**

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

7-24 Wellhead  
Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 13, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

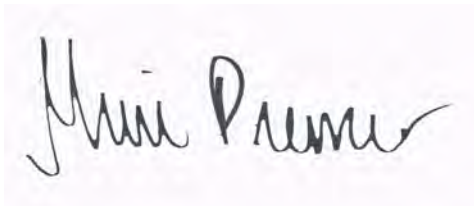
Denver, CO 80203

RE: Larson Farms 7-24 Wellhead

Work Order #2108070

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/21 15:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premer". The signature is written in a cursive style with a large, stylized "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury  
President



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

Project: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@7'	2108070-01	Soil	08/04/21 10:00	08/05/21 15:50
FLR01@5'	2108070-02	Soil	08/04/21 10:02	08/05/21 15:50

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  
S<sub>2</sub>

Page 1 of 1

Project Number:

**www.s2scientific.com**

# Sample Receipt Checklist

S2 Work Order 2108070

Client: PDC/TASMAN Client Project ID: Larson Farms 7-24 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>10.2</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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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.

NG  
Custodian Printed Name or Initials

Will Salin  
Signature of Custodian

8/5/21  
Date/Time



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

Project: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**WH01@7'**  
**2108070-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0173	08/11/21	08/12/21	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: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.2 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0174	08/11/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	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: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**WH01@7'**  
**2108070-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0096	08/06/21	08/07/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		55.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		66.2 %	40-150		"	"	"	"	

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

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.249</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**WH01@7'**  
**2108070-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	133	0.0677	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	48.6	0.0677	"	"	"	"	"	"	
Sodium	706	0.0677	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	13.3	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	73.8		%	1	BEH0093	08/06/21	08/06/21	Calculation	

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

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.19	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/04/21 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.31		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**FLR01@5'**  
**2108070-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0173	08/11/21	08/12/21	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: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.2 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0174	08/11/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	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: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**FLR01@5'**  
**2108070-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEH0096	08/06/21	08/07/21	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	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		44.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		55.9 %	40-150		"	"	"	"	

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

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.441</b>	0.0100	mg/L	1	BEH0104	08/06/21	08/07/21	EPA 6020B	

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

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**FLR01@5'**  
**2108070-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	53.0	0.0646	mg/L dry	1	BEH0115	08/09/21	08/10/21	EPA 6020B	
Magnesium	15.5	0.0646	"	"	"	"	"	"	
Sodium	79.0	0.0646	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.45	0.00100	units	1	BEH0144	08/10/21	08/10/21	Calculation	

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

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	77.4		%	1	BEH0093	08/06/21	08/06/21	Calculation	

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

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.693	0.0100	mmhos/cm	1	BEH0118	08/09/21	08/09/21	EPA 120.1	

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

Date Sampled: **08/04/21 10:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.33		pH Units	1	BEH0117	08/09/21	08/09/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

## 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 BEH0173 - EPA 5030 Soil MS

##### Blank (BEH0173-BLK1)

Prepared: 08/11/21 Analyzed: 08/12/21

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	0.0440		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0409		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	21-167			

##### LCS (BEH0173-BS1)

Prepared: 08/11/21 Analyzed: 08/12/21

Benzene	0.169	0.0020	mg/kg	0.175		96.7	70-130			
Toluene	0.178	0.0050	"	0.175		102	70-130			
Ethylbenzene	0.203	0.0050	"	0.175		116	70-130			
m,p-Xylene	0.391	0.010	"	0.350		112	70-130			
o-Xylene	0.206	0.0050	"	0.175		118	70-130			
1,2,4-Trimethylbenzene	0.201	0.0050	"	0.175		115	70-130			
1,3,5-Trimethylbenzene	0.203	0.0050	"	0.175		116	70-130			
Naphthalene	0.189	0.0038	"	0.175		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0439		"	0.0400		110	23-173			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	21-167			

##### Matrix Spike (BEH0173-MS1)

Source: 2108002-03

Prepared: 08/11/21 Analyzed: 08/12/21

Benzene	0.134	0.0020	mg/kg	0.175	ND	76.7	70-130			
Toluene	0.140	0.0050	"	0.175	ND	79.7	70-130			
Ethylbenzene	0.154	0.0050	"	0.175	ND	88.1	70-130			
m,p-Xylene	0.297	0.010	"	0.350	ND	85.0	70-130			
o-Xylene	0.156	0.0050	"	0.175	ND	88.9	70-130			
1,2,4-Trimethylbenzene	0.145	0.0050	"	0.175	ND	83.0	70-130			
1,3,5-Trimethylbenzene	0.147	0.0050	"	0.175	ND	83.8	70-130			
Naphthalene	0.185	0.0038	"	0.175	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0458		"	0.0400		114	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		97.9	21-167			

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**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 BEH0173 - EPA 5030 Soil MS**

Matrix Spike Dup (BEH0173-MSD1)	Source: 2108002-03			Prepared: 08/11/21 Analyzed: 08/12/21						
Benzene	0.137	0.0020	mg/kg	0.175	ND	78.2	70-130	1.90	30	
Toluene	0.144	0.0050	"	0.175	ND	82.1	70-130	2.88	30	
Ethylbenzene	0.153	0.0050	"	0.175	ND	87.7	70-130	0.507	30	
m,p-Xylene	0.297	0.010	"	0.350	ND	85.0	70-130	0.0303	30	
o-Xylene	0.157	0.0050	"	0.175	ND	89.8	70-130	1.04	30	
1,2,4-Trimethylbenzene	0.149	0.0050	"	0.175	ND	85.1	70-130	2.45	30	
1,3,5-Trimethylbenzene	0.150	0.0050	"	0.175	ND	85.6	70-130	2.09	30	
Naphthalene	0.190	0.0038	"	0.175	ND	109	70-130	2.90	30	
Surrogate: 1,2-Dichloroethane-d4	0.0475		"	0.0400		119	23-173			
Surrogate: Toluene-d8	0.0426		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	21-167			

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**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 BEH0174 - EPA 3550A**

**Blank (BEH0174-BLK1)**

Prepared & Analyzed: 08/11/21

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

**LCS (BEH0174-BS1)**

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	468	50	mg/kg	500	93.6	70-130
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**Matrix Spike (BEH0174-MS1)**

Source: 2108063-01

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	453	50	mg/kg	500	17.6	87.1	70-130
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**Matrix Spike Dup (BEH0174-MSD1)**

Source: 2108063-01

Prepared & Analyzed: 08/11/21

C10-C28 (DRO)	433	50	mg/kg	500	17.6	83.1	70-130	4.51	20
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Summit Scientific

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

Project: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

## 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

#### Batch BEH0096 - EPA 5030 Soil MS

##### Blank (BEH0096-BLK1)

Prepared: 08/06/21 Analyzed: 08/07/21

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	"								
Naphthalene	ND	0.00500	"								
Pyrene	ND	0.00500	"								
1-Methylnaphthalene	ND	0.00500	"								
2-Methylnaphthalene	ND	0.00500	"								
Surrogate: 2-Methylnaphthalene-d10	0.0203		"	0.0333		60.8		40-150			
Surrogate: Fluoranthene-d10	0.0262		"	0.0333		78.5		40-150			

##### LCS (BEH0096-BS1)

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0263	0.00500	mg/kg	0.0333		79.0		31-137			
Anthracene	0.0271	0.00500	"	0.0333		81.3		30-120			
Benzo (a) anthracene	0.0227	0.00500	"	0.0333		68.2		30-120			
Benzo (a) pyrene	0.0196	0.00500	"	0.0333		58.7		30-120			
Benzo (b) fluoranthene	0.0210	0.00500	"	0.0333		62.9		30-120			
Benzo (k) fluoranthene	0.0276	0.00500	"	0.0333		82.7		30-120			
Chrysene	0.0227	0.00500	"	0.0333		68.1		30-120			
Dibenz (a,h) anthracene	0.0177	0.00500	"	0.0333		53.2		30-120			
Fluoranthene	0.0271	0.00500	"	0.0333		81.3		30-120			
Fluorene	0.0280	0.00500	"	0.0333		83.9		30-120			
Indeno (1,2,3-cd) pyrene	0.0165	0.00500	"	0.0333		49.6		30-120			
Naphthalene	0.0275	0.00500	"	0.0333		82.5		30-120			
Pyrene	0.0200	0.00500	"	0.0333		60.0		35-142			
1-Methylnaphthalene	0.0267	0.00500	"	0.0333		80.0		35-142			
2-Methylnaphthalene	0.0273	0.00500	"	0.0333		81.8		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0239		"	0.0333		71.8		40-150			
Surrogate: Fluoranthene-d10	0.0279		"	0.0333		83.7		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: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

## 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 BEH0096 - EPA 5030 Soil MS

##### Matrix Spike (BEH0096-MS1)

Source: 2106486-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0282	0.00500	mg/kg	0.0333	ND	84.5	31-137		
Anthracene	0.0307	0.00500	"	0.0333	ND	92.1	30-120		
Benzo (a) anthracene	0.0259	0.00500	"	0.0333	ND	77.7	30-120		
Benzo (a) pyrene	0.0217	0.00500	"	0.0333	ND	65.1	30-120		
Benzo (b) fluoranthene	0.0227	0.00500	"	0.0333	ND	68.1	30-120		
Benzo (k) fluoranthene	0.0301	0.00500	"	0.0333	ND	90.2	30-120		
Chrysene	0.0259	0.00500	"	0.0333	ND	77.7	30-120		
Dibenz (a,h) anthracene	0.0183	0.00500	"	0.0333	ND	54.9	30-120		
Fluoranthene	0.0303	0.00500	"	0.0333	ND	90.8	30-120		
Fluorene	0.0298	0.00500	"	0.0333	ND	89.5	30-120		
Indeno (1,2,3-cd) pyrene	0.0171	0.00500	"	0.0333	ND	51.4	30-120		
Naphthalene	0.0266	0.00500	"	0.0333	ND	79.9	30-120		
Pyrene	0.0236	0.00500	"	0.0333	ND	70.7	35-142		
1-Methylnaphthalene	0.0259	0.00500	"	0.0333	ND	77.8	15-130		
2-Methylnaphthalene	0.0277	0.00500	"	0.0333	ND	83.1	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0237		"	0.0333		71.2	40-150		
Surrogate: Fluoranthene-d10	0.0311		"	0.0333		93.3	40-150		

##### Matrix Spike Dup (BEH0096-MSD1)

Source: 2106486-02

Prepared: 08/06/21 Analyzed: 08/07/21

Acenaphthene	0.0294	0.00500	mg/kg	0.0333	ND	88.2	31-137	4.31	30
Anthracene	0.0291	0.00500	"	0.0333	ND	87.2	30-120	5.48	30
Benzo (a) anthracene	0.0246	0.00500	"	0.0333	ND	73.7	30-120	5.33	30
Benzo (a) pyrene	0.0212	0.00500	"	0.0333	ND	63.5	30-120	2.46	30
Benzo (b) fluoranthene	0.0213	0.00500	"	0.0333	ND	63.9	30-120	6.47	30
Benzo (k) fluoranthene	0.0285	0.00500	"	0.0333	ND	85.6	30-120	5.29	30
Chrysene	0.0245	0.00500	"	0.0333	ND	73.6	30-120	5.40	30
Dibenz (a,h) anthracene	0.0194	0.00500	"	0.0333	ND	58.3	30-120	6.00	30
Fluoranthene	0.0293	0.00500	"	0.0333	ND	87.9	30-120	3.23	30
Fluorene	0.0307	0.00500	"	0.0333	ND	92.2	30-120	2.96	30
Indeno (1,2,3-cd) pyrene	0.0187	0.00500	"	0.0333	ND	56.0	30-120	8.51	30
Naphthalene	0.0292	0.00500	"	0.0333	ND	87.7	30-120	9.33	30
Pyrene	0.0216	0.00500	"	0.0333	ND	64.9	35-142	8.61	30
1-Methylnaphthalene	0.0290	0.00500	"	0.0333	ND	87.1	15-130	11.2	50
2-Methylnaphthalene	0.0311	0.00500	"	0.0333	ND	93.2	15-130	11.4	50
Surrogate: 2-Methylnaphthalene-d10	0.0258		"	0.0333		77.5	40-150		
Surrogate: Fluoranthene-d10	0.0301		"	0.0333		90.2	40-150		

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**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 BEH0104 - EPA 3050B**

**Blank (BEH0104-BLK1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron ND 0.0100 mg/L

**LCS (BEH0104-BS1)**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 4.99 0.0100 mg/L 5.00 99.8 80-120

**Duplicate (BEH0104-DUP1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 0.517 0.0100 mg/L 0.517 0.0167 20

**Matrix Spike (BEH0104-MS1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125

**Matrix Spike Dup (BEH0104-MSD1)**

**Source: 2108057-01**

Prepared: 08/06/21 Analyzed: 08/07/21

Boron 5.39 0.0100 mg/L 5.00 0.517 97.5 75-125 0.0349 25

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**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 BEH0115 - General Preparation**

**Blank (BEH0115-BLK1)**

Prepared & Analyzed: 08/09/21

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

**LCS (BEH0115-BS1)**

Prepared & Analyzed: 08/09/21

Calcium	5.12	0.0500	mg/L wet	5.00	102	70-130
Magnesium	5.02	0.0500	"	5.00	100	70-130
Sodium	4.96	0.0500	"	5.00	99.1	70-130

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**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 BEH0093 - General Preparation**

Duplicate (BEH0093-DUP1)			Source: 2108059-01		Prepared & Analyzed: 08/06/21					
% Solids	75.5		%		75.1			0.531	20	

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**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 BEH0118 - General Preparation**

**Blank (BEH0118-BLK1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0118-BS1)**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.139 0.0100 mmhos/cm 0.150 92.5 90-110

**Duplicate (BEH0118-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

Specific Conductance (EC) 0.750 0.0100 mmhos/cm 0.751 0.0666 20

Summit Scientific

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

Project: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

**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 BEH0117 - General Preparation**

**LCS (BEH0117-BS1)**

Prepared & Analyzed: 08/09/21

pH	9.30	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEH0117-DUP1)**

**Source: 2108057-01**

Prepared & Analyzed: 08/09/21

pH	8.27	pH Units	8.27	0.00	20
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Summit Scientific

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

Project: Larson Farms 7-24 Wellhead

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/13/21 13:08

### 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

August 18, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

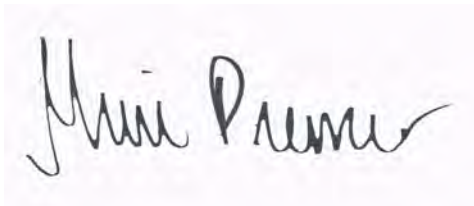
Denver, CO 80203

RE: Larson Farms 3,4,5,6,7-24 Tank Battery

Work Order #2108107

Enclosed are the results of analyses for samples received by Summit Scientific on 08/06/21 18:00. 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 shown on a light-colored background.

Muri Premer For Paul Shrewsbury

President



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2108107-01	Soil	08/06/21 12:25	08/06/21 18:00
AST02@0-6"	2108107-02	Soil	08/06/21 12:26	08/06/21 18:00
AST03@0-6"	2108107-03	Soil	08/06/21 12:27	08/06/21 18:00
AST04@0-6"	2108107-04	Soil	08/06/21 12:28	08/06/21 18:00
AST05@0-6"	2108107-05	Soil	08/06/21 12:29	08/06/21 18:00
AST06@0-6"	2108107-06	Soil	08/06/21 12:30	08/06/21 18:00
AST07@0-6"	2108107-07	Soil	08/06/21 12:31	08/06/21 18:00
BKG01@5'	2108107-09	Soil	08/06/21 12:10	08/06/21 18:00
BKG01@7'	2108107-10	Soil	08/06/21 12:11	08/06/21 18:00

Summit Scientific

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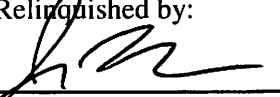
2108107

303-277-9310

Page 1 of 1

Project Number: n/a

					Preservative				Matrix				Analysis Requested								Special Instructions				
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	ON HOLD						pH, EC, SAR by saturated paste	
1	ASTO1@0-6"	8/6/21	1225	2			X			X			X	X	X										
2	ASTO2@0-6"		1226	2			X			X			X	X	X										
3	ASTO3@0-6"		1227	2			X			X			X	X	X										
4	ASTO4@0-6"		1228	2			X			X			X	X	X										
5	ASTO5@0-6"		1229	2			X			X			X	X	X										
6	ASTO6@0-6"		1230	2			X			X			X	X	X										
7	ASTO7@0-6"		1231	2			X			X			X	X	X										
8	BKG01@2.5'		1204	1			X			X									X						
9	BKG01@5'		1210	1			X			X									X						
10	BKG01@7'		1211	1			X			X									X						

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
	8/6/21 1430	Tasman's Lock Box	8/6/21 1430	Same Day	72 hours	
				24 hours	Standard	
Relinquished by:	Date/Time:	Received by:	Date/Time:	48 hours		
Tasman's Lock Box	8/6/21 1800	Will Galin	8/6/21 1800	Sample Integrity:		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt:	6	
				Samples Intact:	Yes No	

# Sample Receipt Checklist

S2 Work Order 2108107

Client: PDC/TASMAN Client Project ID: Larson Farms 3,4,5,6, 7-24 Tank Battery

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>6</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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>same day</u>
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? <b>If yes, contact client and note in narrative.</b>	<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.

WG  
Custodian Printed Name or Initials

W.H. Miller  
Signature of Custodian

8/6/20  
Date/Time



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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST01@0-6"**  
**2108107-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		125 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.9 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST02@0-6"**  
**2108107-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		84.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		78.4 %	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: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST03@0-6"**  
**2108107-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		82.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		117 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:27**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		87.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST04@0-6"**  
**2108107-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		81.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		81.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST05@0-6"**  
**2108107-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		114 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:29**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.5 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST06@0-6"**  
**2108107-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		93.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		115 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:30**

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**AST07@0-6"**  
**2108107-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEH0195	08/12/21	08/12/21	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: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		86.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEH0196	08/12/21	08/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/06/21 12:31**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.8 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.65	0.254	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	177	0.508	"	"	"	"	"	"	
Cadmium	ND	0.254	"	"	"	"	"	"	
Copper	10.7	0.508	"	"	"	"	"	"	
Lead	9.83	0.254	"	"	"	"	"	"	
Nickel	9.58	0.508	"	"	"	"	"	"	
Selenium	1.02	0.330	"	"	"	"	"	"	
Silver	0.0528	0.0254	"	"	"	"	"	"	
Zinc	40.6	0.508	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	18.9	0.0635	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	4.96	0.0635	"	"	"	"	"	"	
Sodium	98.2	0.0635	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.20	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@5'**  
**2108107-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	78.7			%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	1.62	0.0100		mmhos/cm	1	BEH0202	08/13/21	08/13/21	EPA 120.1	

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

Date Sampled: **08/06/21 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.96			pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.42	0.265	mg/kg dry	1	BEH0189	08/12/21	08/13/21	EPA 6020B	
Barium	192	0.530	"	"	"	"	"	"	
Cadmium	ND	0.265	"	"	"	"	"	"	
Copper	9.52	0.530	"	"	"	"	"	"	
Lead	9.39	0.265	"	"	"	"	"	"	
Nickel	8.85	0.530	"	"	"	"	"	"	
Selenium	1.01	0.345	"	"	"	"	"	"	
Silver	0.0510	0.0265	"	"	"	"	"	"	
Zinc	39.1	0.530	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEH0162	08/11/21	08/12/21	EPA 7196A	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	17.3	0.0663	mg/L dry	1	BEH0194	08/12/21	08/17/21	EPA 6020B	
Magnesium	7.80	0.0663	"	"	"	"	"	"	
Sodium	523	0.0663	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	26.2	0.00100	units	1	BEH0293	08/18/21	08/18/21	Calculation	

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

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**BKG01@7'**  
**2108107-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	75.4		%	1	BEH0243	08/16/21	08/16/21	Calculation	

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

Date Sampled: **08/06/21 12:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.81		pH Units	1	BEH0201	08/13/21	08/13/21	EPA 9045D	

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

## 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 BEH0195 - EPA 5030 Soil MS

##### LCS (BEH0195-BS1)

Prepared & Analyzed: 08/12/21

Benzene	0.0911	0.0020	mg/kg	0.125		72.9	70-130			
Toluene	0.0978	0.0050	"	0.125		78.3	70-130			
Ethylbenzene	0.0996	0.0050	"	0.125		79.7	70-130			
m,p-Xylene	0.215	0.010	"	0.250		85.8	70-130			
o-Xylene	0.0955	0.0050	"	0.125		76.4	70-130			
1,2,4-Trimethylbenzene	0.118	0.0050	"	0.125		94.7	70-130			
1,3,5-Trimethylbenzene	0.0998	0.0050	"	0.125		79.8	70-130			
Naphthalene	0.0940	0.0038	"	0.125		75.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0400		89.6	23-173			
Surrogate: Toluene-d8	0.0457		"	0.0400		114	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

##### Matrix Spike (BEH0195-MS1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0910	0.0020	mg/kg	0.125	ND	72.8	70-130			
Toluene	0.104	0.0050	"	0.125	ND	83.1	70-130			
Ethylbenzene	0.0975	0.0050	"	0.125	ND	78.0	70-130			
m,p-Xylene	0.212	0.010	"	0.250	ND	84.8	70-130			
o-Xylene	0.0969	0.0050	"	0.125	ND	77.5	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.125	ND	92.2	70-130			
1,3,5-Trimethylbenzene	0.0960	0.0050	"	0.125	ND	76.8	70-130			
Naphthalene	0.102	0.0038	"	0.125	ND	81.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0362		"	0.0400		90.4	23-173			
Surrogate: Toluene-d8	0.0496		"	0.0400		124	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167			

##### Matrix Spike Dup (BEH0195-MSD1)

Source: 2108107-01

Prepared & Analyzed: 08/12/21

Benzene	0.0914	0.0020	mg/kg	0.125	ND	73.2	70-130	0.460	30	
Toluene	0.0988	0.0050	"	0.125	ND	79.0	70-130	4.97	30	
Ethylbenzene	0.0936	0.0050	"	0.125	ND	74.9	70-130	4.02	30	
m,p-Xylene	0.203	0.010	"	0.250	ND	81.2	70-130	4.34	30	
o-Xylene	0.0926	0.0050	"	0.125	ND	74.1	70-130	4.53	30	
1,2,4-Trimethylbenzene	0.116	0.0050	"	0.125	ND	92.5	70-130	0.338	30	
1,3,5-Trimethylbenzene	0.0897	0.0050	"	0.125	ND	71.7	70-130	6.85	30	
Naphthalene	0.104	0.0038	"	0.125	ND	83.2	70-130	2.19	30	
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0474		"	0.0400		118	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.5	21-167			

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch BEH0196 - EPA 3550A**

**LCS (BEH0196-BS1)**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	429	50	mg/kg	500	85.8	70-130
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**Matrix Spike (BEH0196-MS1)**

**Source: 2108107-01**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	502	50	mg/kg	500	16.6	97.0	70-130
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**Matrix Spike Dup (BEH0196-MSD1)**

**Source: 2108107-01**

Prepared & Analyzed: 08/12/21

C10-C28 (DRO)	487	50	mg/kg	500	16.6	94.1	70-130	2.96	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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 BEH0189 - EPA 3050B

##### Blank (BEH0189-BLK1)

Prepared & Analyzed: 08/12/21

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 (BEH0189-BS1)

Prepared & Analyzed: 08/12/21

Arsenic	37.9	0.200	mg/kg wet	40.0	94.8	80-120
Barium	35.0	0.400	"	40.0	87.4	80-120
Cadmium	1.82	0.200	"	2.00	91.1	80-120
Copper	34.1	0.400	"	40.0	85.2	80-120
Lead	17.0	0.200	"	20.0	85.2	80-120
Nickel	33.6	0.400	"	40.0	83.9	80-120
Selenium	3.39	0.260	"	4.00	84.9	80-120
Silver	1.65	0.0200	"	2.00	82.6	80-120
Zinc	38.4	0.400	"	40.0	96.0	80-120

##### Duplicate (BEH0189-DUP1)

Source: 2106461-01

Prepared & Analyzed: 08/12/21

Arsenic	5.81	0.242	mg/kg dry	5.93	1.94	20
Barium	24.4	0.484	"	27.2	10.6	20
Cadmium	0.0836	0.242	"	0.0851	1.75	20
Copper	10.2	0.484	"	12.2	17.3	20
Lead	9.50	0.242	"	10.6	10.9	20
Nickel	12.6	0.484	"	12.6	0.430	20
Selenium	0.745	0.314	"	0.744	0.174	20
Silver	0.0478	0.0242	"	0.0561	15.9	20
Zinc	59.1	0.484	"	63.5	7.29	20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0189 - EPA 3050B**

**Matrix Spike (BEH0189-MS1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	52.9	0.242	mg/kg dry	48.4	5.93	97.1	75-125
Barium	71.7	0.484	"	48.4	27.2	92.1	75-125
Cadmium	2.33	0.242	"	2.42	0.0851	92.7	75-125
Copper	53.4	0.484	"	48.4	12.2	85.2	75-125
Lead	33.3	0.242	"	24.2	10.6	94.0	75-125
Nickel	56.4	0.484	"	48.4	12.6	90.5	75-125
Selenium	4.48	0.314	"	4.84	0.744	77.2	75-125
Silver	2.09	0.0242	"	2.42	0.0561	84.2	75-125
Zinc	103	0.484	"	48.4	63.5	82.2	75-125

**Matrix Spike Dup (BEH0189-MSD1)**

**Source: 2106461-01**

**Prepared & Analyzed: 08/12/21**

Arsenic	54.9	0.242	mg/kg dry	48.4	5.93	101	75-125	3.64	25
Barium	66.6	0.484	"	48.4	27.2	81.6	75-125	7.34	25
Cadmium	2.42	0.242	"	2.42	0.0851	96.7	75-125	4.04	25
Copper	54.2	0.484	"	48.4	12.2	86.8	75-125	1.43	25
Lead	32.9	0.242	"	24.2	10.6	92.1	75-125	1.39	25
Nickel	58.5	0.484	"	48.4	12.6	94.8	75-125	3.64	25
Selenium	4.64	0.314	"	4.84	0.744	80.5	75-125	3.48	25
Silver	2.15	0.0242	"	2.42	0.0561	86.5	75-125	2.62	25
Zinc	100	0.484	"	48.4	63.5	75.8	75-125	3.00	25

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0162 - 3060A Mod**

**Blank (BEH0162-BLK1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEH0162-BS1)**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 24.2 0.30 mg/kg wet 25.0 97.0 80-120

**Duplicate (BEH0162-DUP1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEH0162-MS1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.0 0.30 mg/kg dry 30.6 ND 85.0 75-125

**Matrix Spike Dup (BEH0162-MSD1)**

**Source: 2108093-01**

Prepared: 08/11/21 Analyzed: 08/12/21

Chromium, Hexavalent 26.1 0.30 mg/kg dry 30.6 ND 85.4 75-125 0.469 20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0194 - General Preparation**

**Blank (BEH0194-BLK1)**

Prepared: 08/12/21 Analyzed: 08/17/21

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

**LCS (BEH0194-BS1)**

Prepared: 08/12/21 Analyzed: 08/17/21

Calcium	5.31	0.0500	mg/L wet	5.00	106	70-130
Magnesium	5.04	0.0500	"	5.00	101	70-130
Sodium	4.98	0.0500	"	5.00	99.6	70-130

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/18/21 12:12

**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 BEH0243 - General Preparation**

**Duplicate (BEH0243-DUP1)**

**Source: 2108009-04**

Prepared & Analyzed: 08/16/21

% Solids	91.7	%		92.0		0.375	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0202 - General Preparation**

**Blank (BEH0202-BLK1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEH0202-BS1)**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 0.148 0.0100 mmhos/cm 0.150 98.4 90-110

**Duplicate (BEH0202-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

Specific Conductance (EC) 1.61 0.0100 mmhos/cm 1.62 0.433 20

Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

**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 BEH0201 - General Preparation**

**LCS (BEH0201-BS1)**

Prepared & Analyzed: 08/13/21

pH	9.26	pH Units	9.21	101	95-105
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**Duplicate (BEH0201-DUP1)**

**Source: 2108107-09**

Prepared & Analyzed: 08/13/21

pH	8.95	pH Units	8.96	0.112	20
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Summit Scientific

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

Project: Larson Farms 3,4,5,6,7-24 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/18/21 12:12

### 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