

TABLE 1
FORMER MCLEOD 29-41 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE
CONTAMINANTS OF CONCERN

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH ⁽⁴⁾ (mg/kg)	Fluorene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			1.2	490	5.8	58	30	27	2	500	240	18	24
Protection of Groundwater SSL ^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	0.54	0.006	0.019
PWV01-W @ 5'	3/21/2022	5 ft. bgs	0.39	<0.0050	5.7	120	45	40	0.015	3,220	0.00971	1.69	2.84
AST01 @ 0-6"	3/21/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	NA	NA	NA
SEP01-FL @ 4'	3/21/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	NA	NA	NA
SEP01-DL @ 4'	3/21/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	NA	NA	NA
SS01 @ 14'	3/24/2022	14 ft. bgs	<0.0020	<0.0050	0.64	9.8	8.1	6.2	0.13	680	<0.00500	0.260	0.495
SS02 @ 16'	3/24/2022	16 ft. bgs	<0.0020	<0.0050	0.87	13	11	8.1	0.081	1,020	NA	NA	NA
SS03 @ 21'	04/11/2022	21 ft. bgs	<0.0020	<0.0050	1.3	32	14	10	0.25	960	<0.00500	0.221	0.528
SS04 @ 25'	04/11/2022	25 ft. bgs	<0.0020	<0.0050	0.95	23	11	8.1	0.22	530	<0.00500	0.0432	0.107

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

M = Methylnaphthalene

TMB = Trimethylbenzene

Source material characterization sample

ft. = Feet

in. = Inches

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard and above 1.25x background concentration.

NA = Constituent Not Analyzed

TABLE 2
FORMER MCLEOD 29-41 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Soil Suitability for Reclamation Standard ⁽¹⁾			6-8.3	<4	<6	2
PWV01-W @ 5'	3/21/2022	5 ft. bgs	7.08	0.759	0.165	0.160
SS01 @ 14'	3/24/2022	14 ft. bgs	8.22	0.393	1.80	0.0956
SS03 @ 21'	04/11/2022	21 ft. bgs	7.95	0.784	1.61	0.0463

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

= Source material characterization sample

TABLE 3
FORMER MCLEOD 29-41 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	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
PWV01-W @ 5'	3/21/2022	5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00971	<0.00500	<0.00500	1.69	2.84
SS01 @ 14'	3/24/2022	14 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	0.260	0.495
SS03 @ 21'	04/11/2022	21 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	0.221	0.528

Notes:

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

2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.

3. SSLs are applicable if a pathway for communication with

COGCC = Colorado Oil and Gas Conservation Commission

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

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 = Methylnaphthalene

mg/kg = Milligrams per kilogram

Source material characterization sample

ft. = feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

TABLE 4
FORMER MCLEOD 29-42 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE
METALS

Sample ID	Date Sampled	Depth	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ^(1,2)			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^(1,2,3)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
PWV01-W @ 5'	3/21/2022	5 ft. bgs	1.87	76.9	<0.232	<0.30 ⁽⁴⁾	11.1	6.96	6.65	0.714	0.0475	40.0
SS01 @ 14'	03/24/2022	14 ft. bgs	0.513	38.1	<0.207	<0.30 ⁽⁴⁾	3.63	3.38	2.64	0.589	<0.0207	13.2
SS03 @ 21'	04/11/2022	21 ft. bgs	0.623	44.8	<0.206	<0.30 ⁽⁴⁾	4.72	13.8	2.60	0.602	0.0296	25.4
BKG01 @ 2.5'	3/21/2022	2.5 ft. bgs	1.60	64.2	<0.213	<0.30 ⁽⁴⁾	5.12	4.38	5.28	0.725	0.0305	22.9
BKG01 @ 5'	3/21/2022	5 ft. bgs	4.37	112	<0.231	<0.30 ⁽⁴⁾	14.7	8.49	14.2	1.26	0.0643	44.8

Notes:

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

2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.

3. SSLs are applicable if a pathway for communication with groundwater is present.

4. Compound falls within COGCC Table 915-1 Footnote 9.

COGCC = Colorado Oil and Gas Conservation Commission

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

mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

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

TABLE 5
FORMER MCLEOD 29-41 TANK BATTERY
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
PWV01-N @ 5'	3/21/2022	5 ft. bgs	40.282712	-104.795040	1.2	227
PWV01-W @ 5'	3/21/2022	5 ft. bgs	40.282691	-104.795077	1.2	267
PWV01-S @ 5'	3/21/2022	5 ft. bgs	40.282671	-104.795051	1.1	81.4
PWV01-E @ 5'	3/21/2022	5 ft. bgs	40.282672	-104.795013	1.1	229
PWV01-B @ 8'	3/21/2022	8 ft. bgs	NC	NC	NC	244
AST01 @ 0-6"	3/21/2022	0-6 in. bgs	NC	NC	NC	0.9
ECD01 @ 0-6"	3/21/2022	0-6 in. bgs	NC	NC	NC	0.0
SEP01-FL @ 4'	3/21/2022	4 ft. bgs	40.282898	-104.795088	1.0	0.0
SEP01-DL @ 4'	3/21/2022	4 ft. bgs	40.282859	-104.795058	1.0	0.0
BKG01 @ 2.5'	3/21/2022	2.5 ft. bgs	40.282803	-104.794835	1.1	0.0
BKG01 @ 5'	3/21/2022	5 ft. bgs	40.282803	-104.794835	1.1	0.0
SS01 @ 14'	3/24/2022	14 ft. bgs	NC	NC	NC	1,416
SS02 @ 16'	3/24/2022	16 ft. bgs	NC	NC	NC	351
SS03 @ 21'	04/11/2022	21 ft. bgs	NC	NC	NC	2,582
SS04 @ 25'	04/11/2022	25 ft. bgs	NC	NC	NC	1,088

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

 = Source material characterization sample

NC = Data not collected

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 04, 2022

Mark Longhurst

PDC Energy

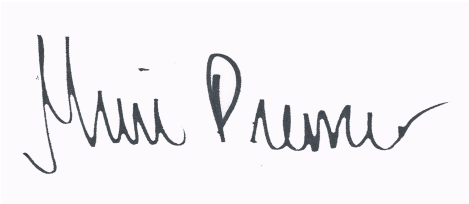
1775 Sherman St. STE. 3000

Denver, CO 80203

RE: McLeod 29-41 Tank Battery

Enclosed are the results of analyses for samples received by Summit Scientific on 03/21/22 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premier", on a light blue background.

Muri Premier For Paul Shrewsbury

President



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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PWV01-W@5'	2203342-03	Soil	03/21/22 16:12	03/21/22 17:30
BKG01@2.5'	2203342-06	Soil	03/21/22 16:28	03/21/22 17:30
BKG01@5'	2203342-07	Soil	03/21/22 16:29	03/21/22 17:30

Summit Scientific

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

Summit Scientific

S₂

2203342

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

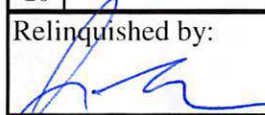
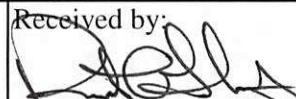
Phone: 303-487-1228

Project Name: McLeod 29-41 Tank Battery

Sampler Name: J. Marcus

Project Number: n/a

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAH-q15	Metals-q15	ON Hold	
1	PWV01-B@8'	3/21/22	1610	3			X			X										X	pH, EC, SAR by saturated paste
2	PWV01-N@5'	3/21/22	1611	3			X			X									X		
3	PWV01-W@5'	3/21/22	1612	3			X			X			X	X	X	X	X	X			
4	PWV01-S@5'	3/21/22	1613	3			X			X									X		
5	PWV01-E@5'	3/21/22	1614	3			X			X									X		
6	BK601@2.5'	3/21/22	1628	1			X			X									X		
7	BK601@5'	3/21/21	1629	1			X			X									X		
8																					
9																					
10																					

Relinquished by: 	Date/Time: 3/21/22 1730	Received by: Tasman's Lock Box	Date/Time: 3/21/22 1730	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: 6.4 Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 3/21/22 1730		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

Sample Receipt Checklist

S2 Work Order#

2203342

Client: Poc / TasmanClient Project ID: McLeod 2941 Tank BatteryShipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

Matrix (check all that apply):

☐ Air☒ Soil/Solid☐ Water☐ Other:

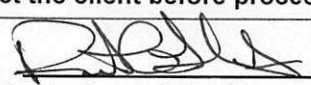
(Describe)

Temp (°C)

6.4

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Same day
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				


 Custodian Printed Name or Initials

 32122
 Date/Time



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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

PWV01-W@5'
2203342-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	0.39	0.0020	mg/kg	1	BFC0454	03/21/22	03/22/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	5.7	0.50	"	100	"	"	"	"	
Xylenes (total)	120	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	45	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	40	0.50	"	"	"	"	"	"	
Naphthalene	0.015	0.0038	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	3100	50	"	100	"	"	"	"	

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		126 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		80.6 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		172 %	50-150		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	120	50	mg/kg	1	BFC0455	03/21/22	03/22/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		98.0 %	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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

PWV01-W@5'
2203342-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFC0456	03/22/22	03/23/22	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	0.00971	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	1.69	0.0500	"	10	"	"	"	"	
2-Methylnaphthalene	2.84	0.500	"	100	"	"	"	"	

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		244 %	40-150		"	"	"	"	S-02
Surrogate: Fluoranthene-d10		72.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.160	0.0100	mg/L	1	BFC0458	03/22/22	04/01/22	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

PWV01-W@5'
2203342-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	1.87	0.232	mg/kg dry	1	BFC0488	03/22/22	03/24/22	EPA 6020B
Barium	76.9	0.465	"	"	"	"	"	"
Cadmium	ND	0.232	"	"	"	"	"	"
Copper	11.1	0.465	"	"	"	"	"	"
Lead	6.96	0.232	"	"	"	"	"	"
Nickel	6.65	0.465	"	"	"	"	"	"
Selenium	0.714	0.302	"	"	"	"	"	"
Silver	0.0475	0.0232	"	"	"	"	"	"
Zinc	40.0	0.465	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFC0669	03/29/22	03/29/22	EPA 7196A	

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

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	3.42	0.0581	mg/L dry	1	BFC0641	03/28/22	04/04/22	EPA 6020B	
Magnesium	1.78	0.0581	"	"	"	"	"	"	
Sodium	1.51	0.0581	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.165	0.00100	units	1	BFD0052	04/04/22	04/04/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

PWV01-W@5'
2203342-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	86.0	%	1	BFC0561	03/24/22	03/24/22	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.759	0.0100	mmhos/cm	1	BFC0646	03/28/22	03/28/22	EPA 120.1	

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

Date Sampled: **03/21/22 16:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.08		pH Units	1	BFC0645	03/28/22	03/28/22	EPA 9045D	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

BKG01@2.5'
2203342-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/21/22 16:28**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.60	0.213	mg/kg dry	1	BFC0488	03/22/22	03/24/22	EPA 6020B	
Barium	64.2	0.427	"	"	"	"	"	"	
Cadmium	ND	0.213	"	"	"	"	"	"	
Copper	5.12	0.427	"	"	"	"	"	"	
Lead	4.38	0.213	"	"	"	"	"	"	
Nickel	5.28	0.427	"	"	"	"	"	"	
Selenium	0.725	0.277	"	"	"	"	"	"	
Silver	0.0305	0.0213	"	"	"	"	"	"	
Zinc	22.9	0.427	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/21/22 16:28**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFC0669	03/29/22	03/29/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/21/22 16:28**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	93.8		%	1	BFC0561	03/24/22	03/24/22	Calculation	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

BKG01@5'
2203342-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/21/22 16:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.37	0.231	mg/kg dry	1	BFC0488	03/22/22	03/24/22	EPA 6020B	
Barium	112	0.462	"	"	"	"	"	"	
Cadmium	ND	0.231	"	"	"	"	"	"	
Copper	14.7	0.462	"	"	"	"	"	"	
Lead	8.49	0.231	"	"	"	"	"	"	
Nickel	14.2	0.462	"	"	"	"	"	"	
Selenium	1.26	0.301	"	"	"	"	"	"	
Silver	0.0643	0.0231	"	"	"	"	"	"	
Zinc	44.8	0.462	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/21/22 16:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFC0669	03/29/22	03/29/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/21/22 16:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	86.5		%	1	BFC0561	03/24/22	03/24/22	Calculation	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0454 - EPA 5030 Soil MS

Blank (BFC0454-BLK1)

Prepared: 03/21/22 Analyzed: 03/22/22

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0400		107	50-150			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.7	50-150			

LCS (BFC0454-BS1)

Prepared: 03/21/22 Analyzed: 03/22/22

Benzene	0.0626	0.0020	mg/kg	0.0750		83.4	70-130			
Toluene	0.0706	0.0050	"	0.0750		94.2	70-130			
Ethylbenzene	0.0757	0.0050	"	0.0750		101	70-130			
m,p-Xylene	0.171	0.010	"	0.150		114	70-130			
o-Xylene	0.0758	0.0050	"	0.0750		101	70-130			
1,2,4-Trimethylbenzene	0.0842	0.0050	"	0.0750		112	70-130			
1,3,5-Trimethylbenzene	0.0824	0.0050	"	0.0750		110	70-130			
Naphthalene	0.0881	0.0038	"	0.0750		117	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0386		"	0.0400		96.6	50-150			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	50-150			

Matrix Spike (BFC0454-MS1)

Source: 2203333-01

Prepared: 03/21/22 Analyzed: 03/22/22

Benzene	0.0600	0.0020	mg/kg	0.0750	ND	80.0	70-130			
Toluene	0.0663	0.0050	"	0.0750	ND	88.4	70-130			
Ethylbenzene	0.0651	0.0050	"	0.0750	ND	86.8	70-130			
m,p-Xylene	0.145	0.010	"	0.150	ND	96.3	70-130			
o-Xylene	0.0668	0.0050	"	0.0750	ND	89.0	70-130			
1,2,4-Trimethylbenzene	0.0745	0.0050	"	0.0750	ND	99.3	70-130			
1,3,5-Trimethylbenzene	0.0713	0.0050	"	0.0750	ND	95.1	70-130			
Naphthalene	0.0906	0.0038	"	0.0750	ND	121	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0400		104	50-150			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	50-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0454 - EPA 5030 Soil MS

Matrix Spike Dup (BFC0454-MSD1)	Source: 2203333-01			Prepared: 03/21/22 Analyzed: 03/22/22						
Benzene	0.0644	0.0020	mg/kg	0.0750	ND	85.9	70-130	7.19	30	
Toluene	0.0732	0.0050	"	0.0750	ND	97.6	70-130	9.85	30	
Ethylbenzene	0.0753	0.0050	"	0.0750	ND	100	70-130	14.6	30	
m,p-Xylene	0.166	0.010	"	0.150	ND	111	70-130	14.1	30	
o-Xylene	0.0767	0.0050	"	0.0750	ND	102	70-130	13.8	30	
1,2,4-Trimethylbenzene	0.0869	0.0050	"	0.0750	ND	116	70-130	15.5	30	
1,3,5-Trimethylbenzene	0.0838	0.0050	"	0.0750	ND	112	70-130	16.1	30	
Naphthalene	0.0759	0.0038	"	0.0750	ND	101	70-130	17.7	30	
Surrogate: 1,2-Dichloroethane-d4	0.0439		"	0.0400		110	50-150			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0418		"	0.0400		104	50-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BFC0455 - EPA 3550A

Blank (BFC0455-BLK1)

Prepared: 03/21/22 Analyzed: 03/22/22

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

LCS (BFC0455-BS1)

Prepared: 03/21/22 Analyzed: 03/22/22

C10-C28 (DRO)	422	50	mg/kg	500		84.5	70-130				
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Matrix Spike (BFC0455-MS1)

Source: 2203333-01

Prepared: 03/21/22 Analyzed: 03/22/22

C10-C28 (DRO)	459	50	mg/kg	500	26.4	86.6	70-130				
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Matrix Spike Dup (BFC0455-MSD1)

Source: 2203333-01

Prepared: 03/21/22 Analyzed: 03/22/22

C10-C28 (DRO)	485	50	mg/kg	500	26.4	91.7	70-130	5.42	20		
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Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0456 - EPA 5030 Soil MS

Blank (BFC0456-BLK1)

Prepared & Analyzed: 03/22/22

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0217		"	0.0333		65.0	40-150			
Surrogate: Fluoranthene-d10	0.0213		"	0.0333		64.0	40-150			

LCS (BFC0456-BS1)

Prepared & Analyzed: 03/22/22

Acenaphthene	0.0183	0.00500	mg/kg	0.0333		54.8	31-137			
Anthracene	0.0203	0.00500	"	0.0333		61.0	30-120			
Benzo (a) anthracene	0.0211	0.00500	"	0.0333		63.2	30-120			
Benzo (a) pyrene	0.0182	0.00500	"	0.0333		54.5	30-120			
Benzo (b) fluoranthene	0.0184	0.00500	"	0.0333		55.2	30-120			
Benzo (k) fluoranthene	0.0192	0.00500	"	0.0333		57.6	30-120			
Chrysene	0.0206	0.00500	"	0.0333		61.8	30-120			
Dibenz (a,h) anthracene	0.0156	0.00500	"	0.0333		46.9	30-120			
Fluoranthene	0.0211	0.00500	"	0.0333		63.4	30-120			
Fluorene	0.0193	0.00500	"	0.0333		57.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0103	0.00500	"	0.0333		31.0	30-120			
Pyrene	0.0216	0.00500	"	0.0333		64.7	35-142			
1-Methylnaphthalene	0.0185	0.00500	"	0.0333		55.6	35-142			
2-Methylnaphthalene	0.0172	0.00500	"	0.0333		51.5	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0201		"	0.0333		60.4	40-150			
Surrogate: Fluoranthene-d10	0.0215		"	0.0333		64.5	40-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0456 - EPA 5030 Soil MS

Matrix Spike (BFC0456-MS1)

Source: 2203322-02

Prepared: 03/22/22 Analyzed: 03/24/22

Acenaphthene	0.0216	0.00500	mg/kg	0.0333	ND	64.7	31-137				
Anthracene	0.0228	0.00500	"	0.0333	ND	68.5	30-120				
Benzo (a) anthracene	0.0258	0.00500	"	0.0333	ND	77.4	30-120				
Benzo (a) pyrene	0.0195	0.00500	"	0.0333	ND	58.5	30-120				
Benzo (b) fluoranthene	0.0256	0.00500	"	0.0333	ND	76.8	30-120				
Benzo (k) fluoranthene	0.0206	0.00500	"	0.0333	ND	61.7	30-120				
Chrysene	0.0175	0.00500	"	0.0333	ND	52.6	30-120				
Dibenz (a,h) anthracene	0.0220	0.00500	"	0.0333	ND	66.0	30-120				
Fluoranthene	0.0202	0.00500	"	0.0333	ND	60.7	30-120				
Fluorene	0.0189	0.00500	"	0.0333	ND	56.7	30-120				
Indeno (1,2,3-cd) pyrene	0.0197	0.00500	"	0.0333	ND	59.0	30-120				
Pyrene	0.0169	0.00500	"	0.0333	ND	50.7	35-142				
1-Methylnaphthalene	0.0110	0.00500	"	0.0333	ND	33.0	15-130				
2-Methylnaphthalene	0.0125	0.00500	"	0.0333	ND	37.6	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0226		"	0.0333		67.7	40-150				
Surrogate: Fluoranthene-d10	0.0147		"	0.0333		44.1	40-150				

Matrix Spike Dup (BFC0456-MSD1)

Source: 2203322-02

Prepared: 03/22/22 Analyzed: 03/24/22

Acenaphthene	0.0194	0.00500	mg/kg	0.0333	ND	58.1	31-137	10.7	30		
Anthracene	0.0212	0.00500	"	0.0333	ND	63.7	30-120	7.35	30		
Benzo (a) anthracene	0.0217	0.00500	"	0.0333	ND	65.0	30-120	17.4	30		
Benzo (a) pyrene	0.0212	0.00500	"	0.0333	ND	63.5	30-120	8.26	30		
Benzo (b) fluoranthene	0.0263	0.00500	"	0.0333	ND	78.9	30-120	2.67	30		
Benzo (k) fluoranthene	0.0258	0.00500	"	0.0333	ND	77.3	30-120	22.4	30		
Chrysene	0.0197	0.00500	"	0.0333	ND	59.2	30-120	11.9	30		
Dibenz (a,h) anthracene	0.0173	0.00500	"	0.0333	ND	51.8	30-120	24.1	30		
Fluoranthene	0.0230	0.00500	"	0.0333	ND	68.9	30-120	12.6	30		
Fluorene	0.0207	0.00500	"	0.0333	ND	62.2	30-120	9.27	30		
Indeno (1,2,3-cd) pyrene	0.0159	0.00500	"	0.0333	ND	47.7	30-120	21.1	30		
Pyrene	0.0197	0.00500	"	0.0333	ND	59.2	35-142	15.5	30		
1-Methylnaphthalene	0.0140	0.00500	"	0.0333	ND	42.1	15-130	24.3	50		
2-Methylnaphthalene	0.0172	0.00500	"	0.0333	ND	51.5	15-130	31.1	50		
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.1	40-150				
Surrogate: Fluoranthene-d10	0.0245		"	0.0333		73.4	40-150				

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0458 - EPA 3050B

Blank (BFC0458-BLK1)

Prepared: 03/22/22 Analyzed: 04/01/22

Boron ND 0.0100 mg/L

LCS (BFC0458-BS1)

Prepared: 03/22/22 Analyzed: 04/01/22

Boron 5.25 0.0100 mg/L 5.00 105 80-120

Duplicate (BFC0458-DUP1)

Source: 2203307-01

Prepared: 03/22/22 Analyzed: 04/01/22

Boron 0.680 0.0100 mg/L 0.756 10.7 20

Matrix Spike (BFC0458-MS1)

Source: 2203307-01

Prepared: 03/22/22 Analyzed: 04/01/22

Boron 5.45 0.0100 mg/L 5.00 0.756 93.9 75-125

Matrix Spike Dup (BFC0458-MSD1)

Source: 2203307-01

Prepared: 03/22/22 Analyzed: 04/01/22

Boron 5.44 0.0100 mg/L 5.00 0.756 93.6 75-125 0.263 25

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0488 - EPA 3050B

Blank (BFC0488-BLK1)

Prepared: 03/22/22 Analyzed: 03/23/22

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 (BFC0488-BS1)

Prepared: 03/22/22 Analyzed: 03/23/22

Arsenic	37.9	0.200	mg/kg wet	40.0	94.8	80-120
Barium	36.4	0.400	"	40.0	91.0	80-120
Cadmium	1.88	0.200	"	2.00	93.8	80-120
Copper	37.3	0.400	"	40.0	93.2	80-120
Lead	16.8	0.200	"	20.0	84.2	80-120
Nickel	36.8	0.400	"	40.0	92.0	80-120
Selenium	3.36	0.260	"	4.00	83.9	80-120
Silver	1.76	0.0200	"	2.00	88.2	80-120
Zinc	41.5	0.400	"	40.0	104	80-120

Duplicate (BFC0488-DUP1)

Source: 2202216-01

Prepared: 03/22/22 Analyzed: 03/23/22

Arsenic	2.10	0.229	mg/kg dry	2.01	4.56	20
Barium	64.9	0.457	"	64.1	1.26	20
Cadmium	0.0769	0.229	"	0.0785	1.96	20
Copper	6.09	0.457	"	5.96	2.11	20
Lead	4.19	0.229	"	4.18	0.218	20
Nickel	7.71	0.457	"	7.46	3.30	20
Selenium	0.682	0.297	"	0.652	4.55	20
Silver	0.0227	0.0229	"	0.0215	5.02	20
Zinc	28.3	0.457	"	27.8	1.81	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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0488 - EPA 3050B

Matrix Spike (BFC0488-MS1)		Source: 2202216-01			Prepared: 03/22/22 Analyzed: 03/23/22					
Arsenic	47.8	0.229	mg/kg dry	45.7	2.01	100	75-125			
Barium	128	0.457	"	45.7	64.1	139	75-125			QR-03
Cadmium	2.28	0.229	"	2.29	0.0785	96.1	75-125			
Copper	50.2	0.457	"	45.7	5.96	96.7	75-125			
Lead	24.2	0.229	"	22.9	4.18	87.5	75-125			
Nickel	53.6	0.457	"	45.7	7.46	101	75-125			
Selenium	4.52	0.297	"	4.57	0.652	84.7	75-125			
Silver	2.00	0.0229	"	2.29	0.0215	86.3	75-125			
Zinc	89.7	0.457	"	45.7	27.8	135	75-125			QR-03

Matrix Spike Dup (BFC0488-MSD1)		Source: 2202216-01			Prepared: 03/22/22 Analyzed: 03/23/22					
Arsenic	47.8	0.229	mg/kg dry	45.7	2.01	100	75-125	0.0814	25	
Barium	126	0.457	"	45.7	64.1	136	75-125	1.17	25	QR-03
Cadmium	2.24	0.229	"	2.29	0.0785	94.4	75-125	1.74	25	
Copper	49.8	0.457	"	45.7	5.96	95.9	75-125	0.761	25	
Lead	23.6	0.229	"	22.9	4.18	85.1	75-125	2.32	25	
Nickel	53.5	0.457	"	45.7	7.46	101	75-125	0.147	25	
Selenium	4.53	0.297	"	4.57	0.652	84.9	75-125	0.220	25	
Silver	1.96	0.0229	"	2.29	0.0215	84.6	75-125	1.93	25	
Zinc	89.4	0.457	"	45.7	27.8	135	75-125	0.332	25	QR-03

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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0669 - 3060A Mod

Blank (BFC0669-BLK1)

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BFC0669-BS1)

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent 24.0 0.30 mg/kg wet 25.0 96.0 80-120

Duplicate (BFC0669-DUP1)

Source: 2203307-01

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BFC0669-MS1)

Source: 2203307-01

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent 32.0 0.30 mg/kg dry 30.8 ND 104 75-125

Matrix Spike Dup (BFC0669-MSD1)

Source: 2203307-01

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent 31.4 0.30 mg/kg dry 30.8 ND 102 75-125 1.94 20

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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

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

Batch BFC0641 - General Preparation

Blank (BFC0641-BLK1)

Prepared: 03/28/22 Analyzed: 04/04/22

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

LCS (BFC0641-BS1)

Prepared: 03/28/22 Analyzed: 04/04/22

Calcium	5.36	0.0500	mg/L wet	5.00	107	70-130
Magnesium	4.87	0.0500	"	5.00	97.4	70-130
Sodium	4.73	0.0500	"	5.00	94.6	70-130

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0561 - General Preparation

Duplicate (BFC0561-DUP1)		Source: 2203025-02			Prepared & Analyzed: 03/24/22					
% Solids	85.5		%		85.3		0.206		20	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0646 - General Preparation

Blank (BFC0646-BLK1)

Prepared & Analyzed: 03/28/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BFC0646-BS1)

Prepared & Analyzed: 03/28/22

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BFC0646-DUP1)

Source: 2201354-02

Prepared & Analyzed: 03/28/22

Specific Conductance (EC) 0.486 0.0100 mmhos/cm 0.486 0.00 20

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

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 BFC0645 - General Preparation

LCS (BFC0645-BS1)

Prepared & Analyzed: 03/28/22

pH	9.19	pH Units	9.18	100	95-105
----	------	----------	------	-----	--------

Duplicate (BFC0645-DUP1)

Source: 2203331-01

Prepared & Analyzed: 03/28/22

pH	8.19	pH Units	8.18	0.122	20
----	------	----------	------	-------	----

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/04/22 16:09

Notes and Definitions

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

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 25, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: McLeod 29-41 Tank Battery

Work Order #2203347

Enclosed are the results of analyses for samples received by Summit Scientific on 03/21/22 17:30. 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 For Muri Premer
Project Manager



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

Project: McLeod 29-41 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
03/25/22 11:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2203347-01	Soil	03/21/22 11:54	03/21/22 17:30
SEP01-FL@4'	2203347-02	Soil	03/21/22 13:35	03/21/22 17:30
SEP01-DL@4'	2203347-03	Soil	03/21/22 13:36	03/21/22 17:30

Summit Scientific

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

Summit Scientific

2203347

S₂

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

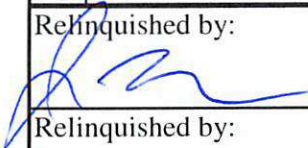

Page 1 of 1

Client: PDC / Tasman
Address: 6855 W 119th Ave
City/State/Zip: Broomfield/ CO/ 80020
Phone: 303-487-1228
Sampler Name: J. Marcus

Project Manager: Mark Longhurst
E-Mail: mark.longhurst@PDCE.com

Project Name: McLeod 29-41 Tank Battery
Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR			
1	ASTOI@0-6"	3/21/22	1154	3			X			X				X	X	X				pH, EC, SAR by saturated paste
2	SEP01-FL@4'	↓	1335	3			X			X				X	X	X				
3	SEP01-DL@4'	↓	1336	3			X			X				X	X	X				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by: 	Date/Time: 3/21/22 1730	Received by: Tasman's Lock Box	Date/Time: 3/21/22 1730	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/>	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 3/21/22 1730	Sample Integrity: Temperature Upon Receipt: 60.4 Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

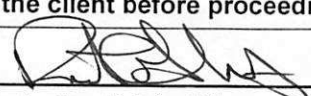
Sample Receipt Checklist

S2 Work Order# 2203347Client: Poc HasmanClient Project ID: McLeod 2941 Tank BatteryShipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)Temp (°C) 6.4

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ON ICE
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

 Custodian Printed Name or Initials

321.22
 Date/Time



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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/22 11:05

AST01@0-6"
2203347-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/21/22 11:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFC0489	03/22/22	03/23/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/21/22 11:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		97.3 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/21/22 11:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFC0490	03/22/22	03/24/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/21/22 11:54**

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

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/22 11:05

SEP01-FL@4'
2203347-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/21/22 13:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFC0489	03/22/22	03/23/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/21/22 13:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		107 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/21/22 13:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFC0490	03/22/22	03/24/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/21/22 13:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		88.1 %	30-150		"	"	"	"	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/22 11:05

SEP01-DL@4'
2203347-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/21/22 13:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BFC0489	03/22/22	03/23/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/21/22 13:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/21/22 13:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BFC0490	03/22/22	03/24/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/21/22 13:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		89.4 %	30-150		"	"	"	"	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/22 11:05

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 BFC0489 - EPA 5030 Soil MS

Blank (BFC0489-BLK1)

Prepared: 03/22/22 Analyzed: 03/23/22

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	0.0458		"	0.0400		115	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	50-150			

LCS (BFC0489-BS1)

Prepared: 03/22/22 Analyzed: 03/23/22

Benzene	0.0647	0.0020	mg/kg	0.0750		86.2	70-130			
Toluene	0.0726	0.0050	"	0.0750		96.8	70-130			
Ethylbenzene	0.0755	0.0050	"	0.0750		101	70-130			
m,p-Xylene	0.160	0.010	"	0.150		107	70-130			
o-Xylene	0.0767	0.0050	"	0.0750		102	70-130			
1,2,4-Trimethylbenzene	0.0837	0.0050	"	0.0750		112	70-130			
1,3,5-Trimethylbenzene	0.0810	0.0050	"	0.0750		108	70-130			
Naphthalene	0.0898	0.0038	"	0.0750		120	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0437		"	0.0400		109	50-150			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.7	50-150			
Surrogate: 4-Bromofluorobenzene	0.0414		"	0.0400		104	50-150			

Matrix Spike (BFC0489-MS1)

Source: 2203314-01

Prepared: 03/22/22 Analyzed: 03/23/22

Benzene	0.0652	0.0020	mg/kg	0.0750	ND	87.0	70-130			
Toluene	0.0722	0.0050	"	0.0750	ND	96.3	70-130			
Ethylbenzene	0.0737	0.0050	"	0.0750	ND	98.3	70-130			
m,p-Xylene	0.156	0.010	"	0.150	ND	104	70-130			
o-Xylene	0.0752	0.0050	"	0.0750	ND	100	70-130			
1,2,4-Trimethylbenzene	0.0822	0.0050	"	0.0750	ND	110	70-130			
1,3,5-Trimethylbenzene	0.0794	0.0050	"	0.0750	ND	106	70-130			
Naphthalene	0.0898	0.0038	"	0.0750	ND	120	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0452		"	0.0400		113	50-150			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	50-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/22 11:05

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 BFC0489 - EPA 5030 Soil MS

Matrix Spike Dup (BFC0489-MSD1)	Source: 2203314-01			Prepared: 03/22/22 Analyzed: 03/23/22						
Benzene	0.0650	0.0020	mg/kg	0.0750	ND	86.7	70-130	0.323	30	
Toluene	0.0694	0.0050	"	0.0750	ND	92.6	70-130	3.94	30	
Ethylbenzene	0.0682	0.0050	"	0.0750	ND	91.0	70-130	7.73	30	
m,p-Xylene	0.145	0.010	"	0.150	ND	96.9	70-130	7.17	30	
o-Xylene	0.0693	0.0050	"	0.0750	ND	92.4	70-130	8.06	30	
1,2,4-Trimethylbenzene	0.0732	0.0050	"	0.0750	ND	97.6	70-130	11.6	30	
1,3,5-Trimethylbenzene	0.0710	0.0050	"	0.0750	ND	94.7	70-130	11.1	30	
Naphthalene	0.0857	0.0038	"	0.0750	ND	114	70-130	4.68	30	
Surrogate: 1,2-Dichloroethane-d4	0.0451		"	0.0400		113	50-150			
Surrogate: Toluene-d8	0.0402		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	50-150			

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: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/22 11:05

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 BFC0490 - EPA 3550A

Blank (BFC0490-BLK1)

Prepared: 03/22/22 Analyzed: 03/23/22

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

LCS (BFC0490-BS1)

Prepared: 03/22/22 Analyzed: 03/23/22

C10-C28 (DRO)	459	50	mg/kg	500	91.8	70-130
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Matrix Spike (BFC0490-MS1)

Source: 2203314-01

Prepared: 03/22/22 Analyzed: 03/23/22

C10-C28 (DRO)	445	50	mg/kg	500	12.5	86.5	70-130
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Matrix Spike Dup (BFC0490-MSD1)

Source: 2203314-01

Prepared: 03/22/22 Analyzed: 03/23/22

C10-C28 (DRO)	463	50	mg/kg	500	12.5	90.1	70-130	4.06	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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
03/25/22 11:05

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

April 08, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

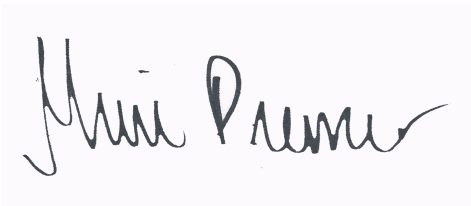
Denver, CO 80203

RE: McLeod 29-41 Tank Battery

Work Order #2203404

Enclosed are the results of analyses for samples received by Summit Scientific on 03/24/22 15:00. 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 Premier", is displayed on a light purple rectangular background.

Muri Premier For Paul Shrewsbury
President



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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@14'	2203404-01	Soil	03/24/22 09:30	03/24/22 15:00
SS02@16'	2203404-02	Soil	03/24/22 11:00	03/24/22 15:00

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.

2203404

Summit Scientific


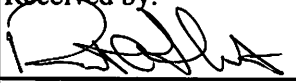
S₂

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

Page | of |

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: McLeod 29-41 Tank Battery
Sampler Name: Mike Connolly Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAHs-915	Metals-915		
1	SSOI @ 14'	3/24/22	930	3			X			X				X	X	X	X	X	X	X	pH, EC, SAR by saturated paste
2	SSOI @ 16'	4	1100	3			X			X				X	X	X					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 3/24/22 1500	Received by: Tasman's Lock Box	Date/Time:	Turn Around Time (Check)	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 3/24/22 1500	Same Day <input checked="" type="checkbox"/> 72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours <input type="checkbox"/> Standard	
Relinquished by:	Date/Time:	Received by:	Date/Time:	48 hours <input type="checkbox"/>	
				Sample Integrity:	
				Temperature Upon Receipt: 4.9	
				Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	



2203404

Sample Receipt Checklist

S2 Work Order#

Client: Poc / TrsmanClient Project ID: McLeod 29-41 Tank BatteryShipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: _____☐ ☒ ☐ ☐ ☐Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Temp (°C)

49

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			on ICE
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples with holding times due within 48 hours sample due within 48 hours present?	-			Same day
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			-	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.
Custodian Printed Name or Initials324.22
Date/Time



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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

SS01@14'
2203404-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFC0587	03/24/22	03/24/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.64	0.0050	"	"	"	"	"	"	
Xylenes (total)	9.8	0.10	"	10	"	"	"	"	
1,2,4-Trimethylbenzene	8.1	0.050	"	"	"	"	"	"	E
1,3,5-Trimethylbenzene	6.2	0.050	"	"	"	"	"	"	E
Naphthalene	0.13	0.0038	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	270	5.0	"	10	"	"	"	"	

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		111 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		171 %	50-150		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	410	50	mg/kg	1	BFC0588	"	03/24/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		86.2 %	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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

SS01@14'
2203404-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFC0591	03/25/22	03/26/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.260	0.0500	"	10	"	"	"	"	
2-Methylnaphthalene	0.495	0.0500	"	"	"	"	"	"	

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		62.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		58.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0956	0.0100	mg/L	1	BFC0621	03/28/22	04/07/22	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

SS01@14'
2203404-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.513	0.207	mg/kg dry	1	BFC0593	03/25/22	03/26/22	EPA 6020B
Barium	38.1	0.415	"	"	"	"	"	"
Cadmium	ND	0.207	"	"	"	"	"	"
Copper	3.63	0.415	"	"	"	"	"	"
Lead	3.38	0.207	"	"	"	"	"	"
Nickel	2.64	0.415	"	"	"	"	"	"
Selenium	0.589	0.270	"	"	"	"	"	"
Silver	ND	0.0207	"	"	"	"	"	"
Zinc	13.2	0.415	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFC0669	03/29/22	03/29/22	EPA 7196A	

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

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	41.3	0.0518	mg/L dry	1	BFC0714	03/30/22	04/01/22	EPA 6020B	
Magnesium	6.41	0.0518	"	"	"	"	"	"	
Sodium	47.2	0.0518	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.80	0.00100	units	1	BFD0017	04/01/22	04/01/22	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: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

SS01@14'
2203404-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.5		%	1	BFC0600	03/25/22	03/25/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.393	0.0100	mmhos/cm	1	BFC0754	03/31/22	03/31/22	EPA 120.1	

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

Date Sampled: **03/24/22 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.22		pH Units	1	BFC0753	03/31/22	03/31/22	EPA 9045D	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

SS02@16'
2203404-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/24/22 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFC0587	03/24/22	03/24/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.87	0.050	"	10	"	"	"	"	
Xylenes (total)	13	0.10	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	11	0.050	"	"	"	"	"	"	E
1,3,5-Trimethylbenzene	8.1	0.050	"	"	"	"	"	"	E
Naphthalene	0.081	0.0038	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	410	5.0	"	10	"	"	"	"	

Date Sampled: **03/24/22 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		127 %	50-150		"	"	"	"	
Surrogate: Toluene-d8		108 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		193 %	50-150		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/24/22 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	610	50	mg/kg	1	BFC0588	"	03/24/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **03/24/22 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		84.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0587 - EPA 5030 Soil MS

Blank (BFC0587-BLK1)

Prepared: 03/24/22 Analyzed: 03/25/22

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	0.0398		"	0.0400		99.4	50-150			
Surrogate: Toluene-d8	0.0449		"	0.0400		112	50-150			
Surrogate: 4-Bromofluorobenzene	0.0452		"	0.0400		113	50-150			

LCS (BFC0587-BS1)

Prepared: 03/24/22 Analyzed: 03/25/22

Benzene	0.157	0.0020	mg/kg	0.150		105	70-130			
Toluene	0.156	0.0050	"	0.150		104	70-130			
Ethylbenzene	0.151	0.0050	"	0.150		101	70-130			
m,p-Xylene	0.287	0.010	"	0.300		95.7	70-130			
o-Xylene	0.144	0.0050	"	0.150		96.1	70-130			
1,2,4-Trimethylbenzene	0.144	0.0050	"	0.150		96.3	70-130			
1,3,5-Trimethylbenzene	0.144	0.0050	"	0.150		96.0	70-130			
Naphthalene	0.125	0.0038	"	0.150		83.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0367		"	0.0400		91.7	50-150			
Surrogate: Toluene-d8	0.0444		"	0.0400		111	50-150			
Surrogate: 4-Bromofluorobenzene	0.0446		"	0.0400		111	50-150			

Matrix Spike (BFC0587-MS1)

Source: 2203408-02

Prepared: 03/24/22 Analyzed: 03/25/22

Benzene	0.172	0.0020	mg/kg	0.150	ND	115	70-130			
Toluene	0.171	0.0050	"	0.150	ND	114	70-130			
Ethylbenzene	0.135	0.0050	"	0.150	ND	90.3	70-130			
m,p-Xylene	0.261	0.010	"	0.300	ND	87.0	70-130			
o-Xylene	0.131	0.0050	"	0.150	ND	87.5	70-130			
1,2,4-Trimethylbenzene	0.123	0.0050	"	0.150	ND	82.1	70-130			
1,3,5-Trimethylbenzene	0.123	0.0050	"	0.150	ND	82.0	70-130			
Naphthalene	0.134	0.0038	"	0.150	ND	89.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0385		"	0.0400		96.2	50-150			
Surrogate: Toluene-d8	0.0446		"	0.0400		112	50-150			
Surrogate: 4-Bromofluorobenzene	0.0449		"	0.0400		112	50-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0587 - EPA 5030 Soil MS

Matrix Spike Dup (BFC0587-MSD1)	Source: 2203408-02			Prepared: 03/24/22 Analyzed: 03/25/22						
Benzene	0.171	0.0020	mg/kg	0.150	ND	114	70-130	0.559	30	
Toluene	0.169	0.0050	"	0.150	ND	113	70-130	1.29	30	
Ethylbenzene	0.133	0.0050	"	0.150	ND	88.9	70-130	1.54	30	
m,p-Xylene	0.259	0.010	"	0.300	ND	86.2	70-130	0.993	30	
o-Xylene	0.130	0.0050	"	0.150	ND	86.5	70-130	1.13	30	
1,2,4-Trimethylbenzene	0.119	0.0050	"	0.150	ND	79.2	70-130	3.57	30	
1,3,5-Trimethylbenzene	0.119	0.0050	"	0.150	ND	79.5	70-130	3.10	30	
Naphthalene	0.127	0.0038	"	0.150	ND	84.4	70-130	6.05	30	
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0400		92.4	50-150			
Surrogate: Toluene-d8	0.0446		"	0.0400		112	50-150			
Surrogate: 4-Bromofluorobenzene	0.0442		"	0.0400		110	50-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BFC0588 - EPA 3550A

Blank (BFC0588-BLK1)

Prepared & Analyzed: 03/24/22

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

LCS (BFC0588-BS1)

Prepared & Analyzed: 03/24/22

C10-C28 (DRO)	497	50	mg/kg	500	99.4	70-130					
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Matrix Spike (BFC0588-MS1)

Source: 2203401-01

Prepared & Analyzed: 03/24/22

C10-C28 (DRO)	500	50	mg/kg	500	28.7	94.3	70-130				
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Matrix Spike Dup (BFC0588-MSD1)

Source: 2203401-01

Prepared & Analyzed: 03/24/22

C10-C28 (DRO)	491	50	mg/kg	500	28.7	92.5	70-130	1.82	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: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0591 - EPA 5030 Soil MS

Blank (BFC0591-BLK1)

Prepared: 03/25/22 Analyzed: 03/26/22

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0202		"	0.0333		60.6	40-150			
Surrogate: Fluoranthene-d10	0.0181		"	0.0333		54.3	40-150			

LCS (BFC0591-BS1)

Prepared: 03/25/22 Analyzed: 03/26/22

Acenaphthene	0.0272	0.00500	mg/kg	0.0333		81.7	31-137			
Anthracene	0.0280	0.00500	"	0.0333		83.9	30-120			
Benzo (a) anthracene	0.0285	0.00500	"	0.0333		85.6	30-120			
Benzo (a) pyrene	0.0274	0.00500	"	0.0333		82.2	30-120			
Benzo (b) fluoranthene	0.0285	0.00500	"	0.0333		85.4	30-120			
Benzo (k) fluoranthene	0.0303	0.00500	"	0.0333		91.0	30-120			
Chrysene	0.0306	0.00500	"	0.0333		91.7	30-120			
Dibenz (a,h) anthracene	0.0242	0.00500	"	0.0333		72.5	30-120			
Fluoranthene	0.0250	0.00500	"	0.0333		75.0	30-120			
Fluorene	0.0280	0.00500	"	0.0333		84.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0227	0.00500	"	0.0333		68.2	30-120			
Pyrene	0.0309	0.00500	"	0.0333		92.6	35-142			
1-Methylnaphthalene	0.0268	0.00500	"	0.0333		80.5	35-142			
2-Methylnaphthalene	0.0250	0.00500	"	0.0333		75.1	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0259		"	0.0333		77.8	40-150			
Surrogate: Fluoranthene-d10	0.0257		"	0.0333		77.0	40-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0591 - EPA 5030 Soil MS

Matrix Spike (BFC0591-MS1)

Source: 2203403-01

Prepared: 03/25/22 Analyzed: 03/26/22

Acenaphthene	0.0249	0.00500	mg/kg	0.0333	ND	74.7	31-137		
Anthracene	0.0254	0.00500	"	0.0333	0.00305	67.1	30-120		
Benzo (a) anthracene	0.0309	0.00500	"	0.0333	0.00421	80.0	30-120		
Benzo (a) pyrene	0.0310	0.00500	"	0.0333	ND	93.0	30-120		
Benzo (b) fluoranthene	0.0234	0.00500	"	0.0333	ND	70.2	30-120		
Benzo (k) fluoranthene	0.0206	0.00500	"	0.0333	ND	61.8	30-120		
Chrysene	0.0331	0.00500	"	0.0333	0.00615	80.9	30-120		
Dibenz (a,h) anthracene	0.0191	0.00500	"	0.0333	ND	57.2	30-120		
Fluoranthene	0.0275	0.00500	"	0.0333	0.00556	65.8	30-120		
Fluorene	0.0253	0.00500	"	0.0333	ND	75.8	30-120		
Indeno (1,2,3-cd) pyrene	0.0201	0.00500	"	0.0333	ND	60.4	30-120		
Pyrene	0.0496	0.00500	"	0.0333	0.0143	106	35-142		
1-Methylnaphthalene	0.0223	0.00500	"	0.0333	ND	66.9	15-130		
2-Methylnaphthalene	0.0194	0.00500	"	0.0333	ND	58.4	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0197		"	0.0333		59.1	40-150		
Surrogate: Fluoranthene-d10	0.0208		"	0.0333		62.3	40-150		

Matrix Spike Dup (BFC0591-MSD1)

Source: 2203403-01

Prepared: 03/25/22 Analyzed: 03/26/22

Acenaphthene	0.0277	0.00500	mg/kg	0.0333	ND	83.1	31-137	10.6	30
Anthracene	0.0253	0.00500	"	0.0333	0.00305	66.7	30-120	0.501	30
Benzo (a) anthracene	0.0251	0.00500	"	0.0333	0.00421	62.7	30-120	20.5	30
Benzo (a) pyrene	0.0233	0.00500	"	0.0333	ND	69.9	30-120	28.4	30
Benzo (b) fluoranthene	0.0266	0.00500	"	0.0333	ND	79.7	30-120	12.6	30
Benzo (k) fluoranthene	0.0229	0.00500	"	0.0333	ND	68.7	30-120	10.5	30
Chrysene	0.0267	0.00500	"	0.0333	0.00615	61.6	30-120	21.5	30
Dibenz (a,h) anthracene	0.0197	0.00500	"	0.0333	ND	59.2	30-120	3.45	30
Fluoranthene	0.0279	0.00500	"	0.0333	0.00556	66.9	30-120	1.40	30
Fluorene	0.0213	0.00500	"	0.0333	ND	64.0	30-120	16.9	30
Indeno (1,2,3-cd) pyrene	0.0229	0.00500	"	0.0333	ND	68.7	30-120	12.9	30
Pyrene	0.0463	0.00500	"	0.0333	0.0143	95.9	35-142	7.04	30
1-Methylnaphthalene	0.0214	0.00500	"	0.0333	ND	64.2	15-130	4.17	50
2-Methylnaphthalene	0.0119	0.00500	"	0.0333	ND	35.6	15-130	48.4	50
Surrogate: 2-Methylnaphthalene-d10	0.0244		"	0.0333		73.2	40-150		
Surrogate: Fluoranthene-d10	0.0190		"	0.0333		56.9	40-150		

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0621 - EPA 3050B

Blank (BFC0621-BLK1)

Prepared: 03/28/22 Analyzed: 04/07/22

Boron ND 0.0100 mg/L

LCS (BFC0621-BS1)

Prepared: 03/28/22 Analyzed: 04/07/22

Boron 5.41 0.0100 mg/L 5.00 108 80-120

Duplicate (BFC0621-DUP1)

Source: 2203375-04

Prepared: 03/28/22 Analyzed: 04/07/22

Boron 0.0750 0.0100 mg/L 0.0789 5.14 20

Matrix Spike (BFC0621-MS1)

Source: 2203375-04

Prepared: 03/28/22 Analyzed: 04/07/22

Boron 5.36 0.0100 mg/L 5.00 0.0789 106 75-125

Matrix Spike Dup (BFC0621-MSD1)

Source: 2203375-04

Prepared: 03/28/22 Analyzed: 04/07/22

Boron 5.32 0.0100 mg/L 5.00 0.0789 105 75-125 0.834 25

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0593 - EPA 3050B

Blank (BFC0593-BLK1)

Prepared: 03/25/22 Analyzed: 03/26/22

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 (BFC0593-BS1)

Prepared: 03/25/22 Analyzed: 03/26/22

Arsenic	36.5	0.200	mg/kg wet	40.0	91.2	80-120
Barium	33.1	0.400	"	40.0	82.7	80-120
Cadmium	1.78	0.200	"	2.00	89.2	80-120
Copper	35.0	0.400	"	40.0	87.4	80-120
Lead	17.1	0.200	"	20.0	85.4	80-120
Nickel	34.2	0.400	"	40.0	85.4	80-120
Selenium	3.41	0.260	"	4.00	85.3	80-120
Silver	1.77	0.0200	"	2.00	88.3	80-120
Zinc	36.8	0.400	"	40.0	91.9	80-120

Duplicate (BFC0593-DUP1)

Source: 2203025-02

Prepared: 03/25/22 Analyzed: 03/26/22

Arsenic	4.33	0.234	mg/kg dry	3.46	22.4	20	QR-03
Barium	63.0	0.469	"	58.3	7.64	20	
Cadmium	0.251	0.234	"	0.287	13.4	20	
Copper	15.0	0.469	"	15.3	1.96	20	
Lead	44.6	0.234	"	50.4	12.0	20	
Nickel	7.97	0.469	"	7.79	2.32	20	
Selenium	0.777	0.305	"	0.818	5.14	20	
Silver	0.0375	0.0234	"	0.0402	6.99	20	
Zinc	66.1	0.469	"	67.2	1.60	20	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0593 - EPA 3050B

Matrix Spike (BFC0593-MS1)

Source: 2203025-02

Prepared: 03/25/22 Analyzed: 03/26/22

Arsenic	42.2	0.234	mg/kg dry	46.9	3.46	82.6	75-125
Barium	105	0.469	"	46.9	58.3	98.9	75-125
Cadmium	2.18	0.234	"	2.34	0.287	80.8	75-125
Copper	55.0	0.469	"	46.9	15.3	84.7	75-125
Lead	69.8	0.234	"	23.4	50.4	82.9	75-125
Nickel	45.2	0.469	"	46.9	7.79	79.7	75-125
Selenium	5.02	0.305	"	4.69	0.818	89.8	75-125
Silver	1.96	0.0234	"	2.34	0.0402	81.7	75-125
Zinc	110	0.469	"	46.9	67.2	91.5	75-125

Matrix Spike Dup (BFC0593-MSD1)

Source: 2203025-02

Prepared: 03/25/22 Analyzed: 03/26/22

Arsenic	40.8	0.234	mg/kg dry	46.9	3.46	79.6	75-125	3.31	25
Barium	101	0.469	"	46.9	58.3	91.3	75-125	3.45	25
Cadmium	2.20	0.234	"	2.34	0.287	81.6	75-125	0.829	25
Copper	54.3	0.469	"	46.9	15.3	83.2	75-125	1.24	25
Lead	76.9	0.234	"	23.4	50.4	113	75-125	9.75	25
Nickel	45.1	0.469	"	46.9	7.79	79.7	75-125	0.0414	25
Selenium	4.73	0.305	"	4.69	0.818	83.4	75-125	6.14	25
Silver	1.92	0.0234	"	2.34	0.0402	80.2	75-125	1.84	25
Zinc	106	0.469	"	46.9	67.2	83.5	75-125	3.48	25

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0669 - 3060A Mod

Blank (BFC0669-BLK1)

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BFC0669-BS1)

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent 24.0 0.30 mg/kg wet 25.0 96.0 80-120

Duplicate (BFC0669-DUP1)

Source: 2203307-01

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BFC0669-MS1)

Source: 2203307-01

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent 32.0 0.30 mg/kg dry 30.8 ND 104 75-125

Matrix Spike Dup (BFC0669-MSD1)

Source: 2203307-01

Prepared & Analyzed: 03/29/22

Chromium, Hexavalent 31.4 0.30 mg/kg dry 30.8 ND 102 75-125 1.94 20

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:

04/08/22 14:11

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 BFC0714 - General Preparation

Blank (BFC0714-BLK1)

Prepared: 03/30/22 Analyzed: 04/01/22

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

LCS (BFC0714-BS1)

Prepared: 03/30/22 Analyzed: 04/01/22

Calcium	5.16	0.0500	mg/L wet	5.00	103	70-130
Magnesium	5.03	0.0500	"	5.00	101	70-130
Sodium	4.56	0.0500	"	5.00	91.3	70-130

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0600 - General Preparation

Duplicate (BFC0600-DUP1)			Source: 2203375-04			Prepared & Analyzed: 03/25/22				
% Solids	91.3		%		91.4		0.119		20	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0754 - General Preparation

Blank (BFC0754-BLK1)

Prepared & Analyzed: 03/31/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BFC0754-BS1)

Prepared & Analyzed: 03/31/22

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BFC0754-DUP1)

Source: 2203401-01

Prepared & Analyzed: 03/31/22

Specific Conductance (EC) 0.268 0.0100 mmhos/cm 0.270 0.781 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: McLeod 29-41 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

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 BFC0753 - General Preparation

LCS (BFC0753-BS1)

Prepared & Analyzed: 03/31/22

pH	9.02	pH Units	9.18	98.3	95-105
----	------	----------	------	------	--------

Duplicate (BFC0753-DUP1)

Source: 2203401-01

Prepared & Analyzed: 03/31/22

pH	7.76	pH Units	7.57	2.48	20
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Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/08/22 14:11

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
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

May 13, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: McLeod 29-41 Tank Battery

Work Order #2204150

Enclosed are the results of analyses for samples received by Summit Scientific on 04/11/22 17:13. 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 For Muri Premer
Project Manager



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

Project: McLeod 29-41 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS03@21'	2204150-01	Soil	04/11/22 13:40	04/11/22 17:13
SS04@25'	2204150-02	Soil	04/11/22 14:15	04/11/22 17:13

Summit Scientific

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

Summit Scientific

S₂

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

2204150

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

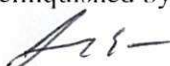
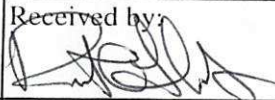
Phone: 303-487-1228

Project Name: McLeod 29-41 Tank Battery

Sampler Name: Sam Anderson

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR			
1	SS03 e 21'	4/11/22	1340	3			X			X				X	X	X				pH, EC, SAR by saturated paste
2	SS04 e 25'	↓	1415	3			↓			↓				X	X	X				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished by: 	Date/Time: 1608 4/11/22	Received by: Tasman's Lock Box	Date/Time: 1608 4/11/22	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: 6.1 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 41122 1713	Received by: 	Date/Time: 41122 1713		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

2204150

Sample Receipt Checklist

S2 Work Order# _____

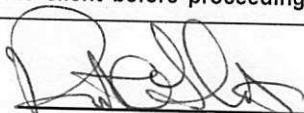
Client: Boctasman Client Project ID: McLeod 29-41 Tank Battery

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

	-			
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Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 6.1 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			on ICE
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples due within 48 hours present?	-			Sameday
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			-	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any):				

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


Custodian Printed Name

4.11.22

Date/Time



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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

SS03@21'
2204150-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFD0214	04/11/22	04/12/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	1.3	0.050	"	10	"	"	"	"	
Xylenes (total)	32	0.10	"	"	"	"	"	"	E
1,2,4-Trimethylbenzene	14	0.050	"	"	"	"	"	"	E
1,3,5-Trimethylbenzene	10	0.050	"	"	"	"	"	"	E
Naphthalene	0.25	0.0038	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	530	5.0	"	10	"	"	"	"	

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0620	155 %	50-150		"	"	"	"	S-02
Surrogate: Toluene-d8	0.0277	69.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0869	217 %	50-150		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	430	50	mg/kg	1	BFD0215	04/11/22	04/11/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.7	93.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

SS03@21'
2204150-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFD0235	04/13/22	04/15/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.221	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.528	0.00500	"	"	"	"	"	"	

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0324	97.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0213	63.9 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0463	0.0100	mg/L	1	BFD0247	04/13/22	04/16/22	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

SS03@21'
2204150-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	0.623	0.206	mg/kg dry	1	BFD0238	04/12/22	04/15/22	EPA 6020B
Barium	44.8	0.411	"	"	"	"	"	"
Cadmium	ND	0.206	"	"	"	"	"	"
Copper	4.72	0.411	"	"	"	"	"	"
Lead	13.8	0.206	"	"	"	"	"	"
Nickel	2.60	0.411	"	"	"	"	"	"
Selenium	0.602	0.267	"	"	"	"	"	"
Silver	0.0296	0.0206	"	"	"	"	"	"
Zinc	25.4	0.411	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFD0249	04/13/22	04/13/22	EPA 7196A	

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

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	37.8	0.0514	mg/L dry	1	BFD0294	04/14/22	04/17/22	EPA 6020B	
Magnesium	10.6	0.0514	"	"	"	"	"	"	
Sodium	43.6	0.0514	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.61	0.00100	units	1	BFD0339	04/18/22	04/18/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

SS03@21'
2204150-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	97.2	%	1	BFD0239	04/12/22	04/12/22	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.784	0.0100	mmhos/cm	1	BFD0315	04/15/22	04/15/22	EPA 120.1	

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

Date Sampled: **04/11/22 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.95		pH Units	1	BFD0313	04/15/22	04/15/22	EPA 9045D	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

SS04@25'
2204150-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/11/22 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFD0214	04/11/22	04/12/22	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.95	0.050	"	10	"	"	"	"	
Xylenes (total)	23	0.10	"	"	"	"	"	"	E
1,2,4-Trimethylbenzene	11	0.050	"	"	"	"	"	"	E
1,3,5-Trimethylbenzene	8.1	0.050	"	"	"	"	"	"	E
Naphthalene	0.22	0.0038	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	320	5.0	"	10	"	"	"	"	

Date Sampled: **04/11/22 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0601	150 %	50-150		"	"	"	"	S-02
Surrogate: Toluene-d8	0.0478	120 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0653	163 %	50-150		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/11/22 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	210	50	mg/kg	1	BFD0215	04/11/22	04/11/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/11/22 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	11.7	93.6 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

SS04@25'
2204150-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **04/11/22 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Fluorene	ND	0.00500	mg/kg	1	BFE0037	05/03/22	05/04/22	EPA 8270D SIM	I-02
1-Methylnaphthalene	0.0432	0.00500	"	"	"	"	"	"	I-02
2-Methylnaphthalene	0.107	0.00500	"	"	"	"	"	"	I-02

Date Sampled: **04/11/22 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0211	63.3 %	40-150		"	"	"	"	I-02
Surrogate: Fluoranthene-d10	0.0218	65.3 %	40-150		"	"	"	"	I-02

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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0214 - EPA 5030 Soil MS

Blank (BFD0214-BLK1)

Prepared: 04/11/22 Analyzed: 04/12/22

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	0.0387		"	0.0400		96.8	50-150			
Surrogate: Toluene-d8	0.0432		"	0.0400		108	50-150			
Surrogate: 4-Bromofluorobenzene	0.0448		"	0.0400		112	50-150			

Matrix Spike (BFD0214-MS1)

Source: 2204147-01

Prepared: 04/11/22 Analyzed: 04/12/22

Benzene	0.101	0.0020	mg/kg	0.100	ND	101	70-130			
Toluene	0.101	0.0050	"	0.100	ND	101	70-130			
Ethylbenzene	0.0885	0.0050	"	0.100	ND	88.5	70-130			
m,p-Xylene	0.187	0.010	"	0.200	ND	93.6	70-130			
o-Xylene	0.0993	0.0050	"	0.100	ND	99.3	70-130			
1,2,4-Trimethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130			
1,3,5-Trimethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
Naphthalene	0.124	0.0038	"	0.100	ND	124	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0340		"	0.0400		85.0	50-150			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0458		"	0.0400		115	50-150			

Matrix Spike Dup (BFD0214-MSD1)

Source: 2204147-01

Prepared: 04/11/22 Analyzed: 04/12/22

Benzene	0.110	0.0020	mg/kg	0.100	ND	110	70-130	7.96	30	
Toluene	0.114	0.0050	"	0.100	ND	114	70-130	12.2	30	
Ethylbenzene	0.0991	0.0050	"	0.100	ND	99.1	70-130	11.3	30	
m,p-Xylene	0.208	0.010	"	0.200	ND	104	70-130	10.5	30	
o-Xylene	0.104	0.0050	"	0.100	ND	104	70-130	4.55	30	
1,2,4-Trimethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130	3.40	30	
1,3,5-Trimethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130	3.66	30	
Naphthalene	0.111	0.0038	"	0.100	ND	111	70-130	11.0	30	
Surrogate: 1,2-Dichloroethane-d4	0.0353		"	0.0400		88.2	50-150			
Surrogate: Toluene-d8	0.0433		"	0.0400		108	50-150			
Surrogate: 4-Bromofluorobenzene	0.0452		"	0.0400		113	50-150			

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: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0215 - EPA 3550A

Blank (BFD0215-BLK1)

Prepared: 04/11/22 Analyzed: 04/12/22

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

LCS (BFD0215-BS1)

Prepared: 04/11/22 Analyzed: 04/12/22

C10-C28 (DRO)	479	50	mg/kg	500	95.9	70-130
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Matrix Spike (BFD0215-MS1)

Source: 2204147-01

Prepared: 04/11/22 Analyzed: 04/12/22

C10-C28 (DRO)	463	50	mg/kg	500	29.3	86.8	70-130
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Matrix Spike Dup (BFD0215-MSD1)

Source: 2204147-01

Prepared: 04/11/22 Analyzed: 04/12/22

C10-C28 (DRO)	434	50	mg/kg	500	29.3	81.0	70-130	6.43	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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0235 - EPA 5030 Soil MS

Blank (BFD0235-BLK1)

Prepared: 04/13/22 Analyzed: 04/14/22

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0212		"	0.0333		63.5	40-150			
Surrogate: Fluoranthene-d10	0.0327		"	0.0333		98.2	40-150			

LCS (BFD0235-BS1)

Prepared: 04/13/22 Analyzed: 04/14/22

Acenaphthene	0.0288	0.00500	mg/kg	0.0333		86.3	31-137			
Anthracene	0.0259	0.00500	"	0.0333		77.7	30-120			
Benzo (a) anthracene	0.0349	0.00500	"	0.0333		105	30-120			
Benzo (a) pyrene	0.0297	0.00500	"	0.0333		89.1	30-120			
Benzo (b) fluoranthene	0.0237	0.00500	"	0.0333		71.1	30-120			
Benzo (k) fluoranthene	0.0271	0.00500	"	0.0333		81.4	30-120			
Chrysene	0.0206	0.00500	"	0.0333		61.8	30-120			
Dibenz (a,h) anthracene	0.0303	0.00500	"	0.0333		90.8	30-120			
Fluoranthene	0.0217	0.00500	"	0.0333		65.1	30-120			
Fluorene	0.0225	0.00500	"	0.0333		67.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0369	0.00500	"	0.0333		111	30-120			
Pyrene	0.0271	0.00500	"	0.0333		81.4	35-142			
1-Methylnaphthalene	0.0206	0.00500	"	0.0333		61.7	35-142			
2-Methylnaphthalene	0.0262	0.00500	"	0.0333		78.6	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0457		"	0.0333		137	40-150			
Surrogate: Fluoranthene-d10	0.0396		"	0.0333		119	40-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0235 - EPA 5030 Soil MS

Matrix Spike (BFD0235-MS1)

Source: 2203517-01

Prepared: 04/13/22 Analyzed: 04/14/22

Acenaphthene	0.0256	0.00500	mg/kg	0.0333	ND	76.7	31-137		
Anthracene	0.0353	0.00500	"	0.0333	ND	106	30-120		
Benzo (a) anthracene	0.0305	0.00500	"	0.0333	ND	91.5	30-120		
Benzo (a) pyrene	0.0327	0.00500	"	0.0333	ND	98.2	30-120		
Benzo (b) fluoranthene	0.0328	0.00500	"	0.0333	ND	98.5	30-120		
Benzo (k) fluoranthene	0.0253	0.00500	"	0.0333	ND	75.8	30-120		
Chrysene	0.0356	0.00500	"	0.0333	ND	107	30-120		
Dibenz (a,h) anthracene	0.0263	0.00500	"	0.0333	ND	78.9	30-120		
Fluoranthene	0.0387	0.00500	"	0.0333	0.00391	104	30-120		
Fluorene	0.0256	0.00500	"	0.0333	ND	76.8	30-120		
Indeno (1,2,3-cd) pyrene	0.0315	0.00500	"	0.0333	0.00582	77.2	30-120		
Pyrene	0.0343	0.00500	"	0.0333	0.00630	84.0	35-142		
1-Methylnaphthalene	0.0357	0.00500	"	0.0333	ND	107	15-130		
2-Methylnaphthalene	0.0370	0.00500	"	0.0333	ND	111	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0343		"	0.0333		103	40-150		
Surrogate: Fluoranthene-d10	0.0371		"	0.0333		111	40-150		

Matrix Spike Dup (BFD0235-MSD1)

Source: 2203517-01

Prepared: 04/13/22 Analyzed: 04/14/22

Acenaphthene	0.0296	0.00500	mg/kg	0.0333	ND	88.8	31-137	14.6	30
Anthracene	0.0382	0.00500	"	0.0333	ND	115	30-120	8.00	30
Benzo (a) anthracene	0.0332	0.00500	"	0.0333	ND	99.7	30-120	8.57	30
Benzo (a) pyrene	0.0387	0.00500	"	0.0333	ND	116	30-120	16.9	30
Benzo (b) fluoranthene	0.0365	0.00500	"	0.0333	ND	110	30-120	10.6	30
Benzo (k) fluoranthene	0.0257	0.00500	"	0.0333	ND	77.0	30-120	1.61	30
Chrysene	0.0380	0.00500	"	0.0333	ND	114	30-120	6.51	30
Dibenz (a,h) anthracene	0.0322	0.00500	"	0.0333	ND	96.5	30-120	20.1	30
Fluoranthene	0.0406	0.00500	"	0.0333	0.00391	110	30-120	4.81	30
Fluorene	0.0317	0.00500	"	0.0333	ND	95.2	30-120	21.4	30
Indeno (1,2,3-cd) pyrene	0.0356	0.00500	"	0.0333	0.00582	89.5	30-120	12.2	30
Pyrene	0.0409	0.00500	"	0.0333	0.00630	104	35-142	17.4	30
1-Methylnaphthalene	0.0378	0.00500	"	0.0333	ND	114	15-130	5.75	50
2-Methylnaphthalene	0.0413	0.00500	"	0.0333	ND	124	15-130	11.0	50
Surrogate: 2-Methylnaphthalene-d10	0.0359		"	0.0333		108	40-150		
Surrogate: Fluoranthene-d10	0.0381		"	0.0333		114	40-150		

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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	Notes

Batch BFE0037 - EPA 5030 Soil MS

Blank (BFE0037-BLK1)

Prepared: 05/03/22 Analyzed: 05/04/22

Acenaphthene	ND	0.00500	mg/kg								
Anthracene	ND	0.00500	"								
Benzo (a) anthracene	ND	0.00500	"								
Benzo (a) pyrene	ND	0.00500	"								
Benzo (b) fluoranthene	ND	0.00500	"								
Benzo (k) fluoranthene	ND	0.00500	"								
Chrysene	ND	0.00500	"								
Dibenz (a,h) anthracene	ND	0.00500	"								
Fluoranthene	ND	0.00500	"								
Fluorene	ND	0.00500	"								
Indeno (1,2,3-cd) pyrene	ND	0.00500	"								
Pyrene	ND	0.00500	"								
1-Methylnaphthalene	ND	0.00500	"								
2-Methylnaphthalene	ND	0.00500	"								
Surrogate: 2-Methylnaphthalene-d10	0.0288		"	0.0333		86.5		40-150			
Surrogate: Fluoranthene-d10	0.0226		"	0.0333		67.9		40-150			

LCS (BFE0037-BS1)

Prepared: 05/03/22 Analyzed: 05/04/22

Acenaphthene	0.0200	0.00500	mg/kg	0.0333		60.1		31-137			
Anthracene	0.0198	0.00500	"	0.0333		59.4		30-120			
Benzo (a) anthracene	0.0228	0.00500	"	0.0333		68.5		30-120			
Benzo (a) pyrene	0.0214	0.00500	"	0.0333		64.2		30-120			
Benzo (b) fluoranthene	0.0234	0.00500	"	0.0333		70.1		30-120			
Benzo (k) fluoranthene	0.0239	0.00500	"	0.0333		71.8		30-120			
Chrysene	0.0230	0.00500	"	0.0333		69.1		30-120			
Dibenz (a,h) anthracene	0.0166	0.00500	"	0.0333		49.9		30-120			
Fluoranthene	0.0214	0.00500	"	0.0333		64.2		30-120			
Fluorene	0.0211	0.00500	"	0.0333		63.3		30-120			
Indeno (1,2,3-cd) pyrene	0.0103	0.00500	"	0.0333		30.8		30-120			
Pyrene	0.0249	0.00500	"	0.0333		74.7		35-142			
1-Methylnaphthalene	0.0291	0.00500	"	0.0333		87.4		35-142			
2-Methylnaphthalene	0.0287	0.00500	"	0.0333		86.0		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0271		"	0.0333		81.3		40-150			
Surrogate: Fluoranthene-d10	0.0214		"	0.0333		64.3		40-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFE0037 - EPA 5030 Soil MS

Matrix Spike (BFE0037-MS1)

Source: 2204150-02

Prepared: 05/03/22 Analyzed: 05/04/22

Acenaphthene	0.0364	0.00500	mg/kg	0.0333	ND	109	31-137			
Anthracene	0.0200	0.00500	"	0.0333	ND	60.0	30-120			
Benzo (a) anthracene	0.0232	0.00500	"	0.0333	ND	69.5	30-120			
Benzo (a) pyrene	0.0215	0.00500	"	0.0333	ND	64.6	30-120			
Benzo (b) fluoranthene	0.0239	0.00500	"	0.0333	ND	71.8	30-120			
Benzo (k) fluoranthene	0.0237	0.00500	"	0.0333	ND	71.1	30-120			
Chrysene	0.0231	0.00500	"	0.0333	ND	69.3	30-120			
Dibenz (a,h) anthracene	0.0154	0.00500	"	0.0333	ND	46.1	30-120			
Fluoranthene	0.0211	0.00500	"	0.0333	ND	63.3	30-120			
Fluorene	0.0428	0.00500	"	0.0333	ND	128	30-120			QM-07
Indeno (1,2,3-cd) pyrene	0.0156	0.00500	"	0.0333	ND	46.8	30-120			
Pyrene	0.0307	0.00500	"	0.0333	ND	92.2	35-142			
1-Methylnaphthalene	0.318	0.00500	"	0.0333	0.0432	824	15-130			QM-07
2-Methylnaphthalene	0.401	0.00500	"	0.0333	0.107	882	15-130			QM-07
Surrogate: 2-Methylnaphthalene-d10	0.0358		"	0.0333		107	40-150			
Surrogate: Fluoranthene-d10	0.0220		"	0.0333		65.9	40-150			

Matrix Spike Dup (BFE0037-MSD1)

Source: 2204150-02

Prepared: 05/03/22 Analyzed: 05/04/22

Acenaphthene	0.0305	0.00500	mg/kg	0.0333	ND	91.4	31-137	17.8	30	
Anthracene	0.0235	0.00500	"	0.0333	ND	70.4	30-120	16.0	30	
Benzo (a) anthracene	0.0260	0.00500	"	0.0333	ND	77.9	30-120	11.5	30	
Benzo (a) pyrene	0.0241	0.00500	"	0.0333	ND	72.3	30-120	11.2	30	
Benzo (b) fluoranthene	0.0263	0.00500	"	0.0333	ND	78.9	30-120	9.37	30	
Benzo (k) fluoranthene	0.0262	0.00500	"	0.0333	ND	78.5	30-120	9.87	30	
Chrysene	0.0253	0.00500	"	0.0333	ND	75.9	30-120	9.08	30	
Dibenz (a,h) anthracene	0.0173	0.00500	"	0.0333	ND	51.8	30-120	11.8	30	
Fluoranthene	0.0240	0.00500	"	0.0333	ND	71.9	30-120	12.7	30	
Fluorene	0.0257	0.00500	"	0.0333	ND	77.2	30-120	49.9	30	QM-07
Indeno (1,2,3-cd) pyrene	0.0165	0.00500	"	0.0333	ND	49.5	30-120	5.57	30	
Pyrene	0.0314	0.00500	"	0.0333	ND	94.1	35-142	2.05	30	
1-Methylnaphthalene	0.108	0.00500	"	0.0333	0.0432	194	15-130	98.6	50	QM-07
2-Methylnaphthalene	0.218	0.00500	"	0.0333	0.107	334	15-130	59.0	50	QM-07
Surrogate: 2-Methylnaphthalene-d10	0.0194		"	0.0333		58.2	40-150			
Surrogate: Fluoranthene-d10	0.0251		"	0.0333		75.3	40-150			

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0247 - EPA 3050B

Blank (BFD0247-BLK1)

Prepared: 04/13/22 Analyzed: 04/15/22

Boron ND 0.0100 mg/L

LCS (BFD0247-BS1)

Prepared: 04/13/22 Analyzed: 04/15/22

Boron 4.84 0.0100 mg/L 5.00 96.7 80-120

Duplicate (BFD0247-DUP1)

Source: 2204099-01

Prepared: 04/13/22 Analyzed: 04/15/22

Boron 0.148 0.0100 mg/L 0.166 11.8 20

Matrix Spike (BFD0247-MS1)

Source: 2204099-01

Prepared: 04/13/22 Analyzed: 04/15/22

Boron 5.02 0.0100 mg/L 5.00 0.166 97.0 75-125

Matrix Spike Dup (BFD0247-MSD1)

Source: 2204099-01

Prepared: 04/13/22 Analyzed: 04/15/22

Boron 5.18 0.0100 mg/L 5.00 0.166 100 75-125 3.28 25

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0238 - EPA 3050B

Blank (BFD0238-BLK1)

Prepared: 04/12/22 Analyzed: 04/15/22

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 (BFD0238-BS1)

Prepared: 04/12/22 Analyzed: 04/15/22

Arsenic	35.8	0.200	mg/kg wet	40.0	89.5	80-120
Barium	34.2	0.400	"	40.0	85.5	80-120
Cadmium	1.69	0.200	"	2.00	84.4	80-120
Copper	32.2	0.400	"	40.0	80.6	80-120
Lead	17.3	0.200	"	20.0	86.4	80-120
Nickel	35.7	0.400	"	40.0	89.3	80-120
Selenium	3.27	0.260	"	4.00	81.9	80-120
Silver	1.70	0.0200	"	2.00	85.1	80-120
Zinc	36.6	0.400	"	40.0	91.6	80-120

Duplicate (BFD0238-DUP1)

Source: 2204143-01

Prepared: 04/12/22 Analyzed: 04/15/22

Arsenic	0.917	0.239	mg/kg dry	0.987	7.36	20
Barium	56.6	0.478	"	56.6	0.0166	20
Cadmium	0.0801	0.239	"	0.0815	1.82	20
Copper	2.35	0.478	"	2.31	1.90	20
Lead	8.33	0.239	"	8.32	0.222	20
Nickel	2.15	0.478	"	2.15	0.128	20
Selenium	0.460	0.311	"	0.491	6.64	20
Silver	0.0196	0.0239	"	0.0187	4.63	20
Zinc	22.6	0.478	"	22.4	0.484	20

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0238 - EPA 3050B

Matrix Spike (BFD0238-MS1)		Source: 2204143-01			Prepared: 04/12/22 Analyzed: 04/15/22					
Arsenic	44.5	0.239	mg/kg dry	47.8	0.987	90.9	75-125			
Barium	105	0.478	"	47.8	56.6	102	75-125			
Cadmium	2.22	0.239	"	2.39	0.0815	89.4	75-125			
Copper	46.8	0.478	"	47.8	2.31	93.0	75-125			
Lead	29.5	0.239	"	23.9	8.32	88.4	75-125			
Nickel	42.3	0.478	"	47.8	2.15	84.0	75-125			
Selenium	4.21	0.311	"	4.78	0.491	77.8	75-125			
Silver	2.01	0.0239	"	2.39	0.0187	83.3	75-125			
Zinc	74.1	0.478	"	47.8	22.4	108	75-125			

Matrix Spike Dup (BFD0238-MSD1)		Source: 2204143-01			Prepared: 04/12/22 Analyzed: 04/15/22					
Arsenic	46.6	0.239	mg/kg dry	47.8	0.987	95.3	75-125	4.66	25	
Barium	108	0.478	"	47.8	56.6	108	75-125	3.01	25	
Cadmium	2.32	0.239	"	2.39	0.0815	93.6	75-125	4.42	25	
Copper	49.3	0.478	"	47.8	2.31	98.3	75-125	5.26	25	
Lead	30.7	0.239	"	23.9	8.32	93.5	75-125	4.05	25	
Nickel	44.8	0.478	"	47.8	2.15	89.2	75-125	5.67	25	
Selenium	4.38	0.311	"	4.78	0.491	81.3	75-125	3.94	25	
Silver	2.11	0.0239	"	2.39	0.0187	87.5	75-125	4.87	25	
Zinc	77.4	0.478	"	47.8	22.4	115	75-125	4.33	25	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0249 - 3060A Mod

Blank (BFD0249-BLK1)

Prepared & Analyzed: 04/13/22

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BFD0249-BS1)

Prepared & Analyzed: 04/13/22

Chromium, Hexavalent 26.0 0.30 mg/kg wet 25.0 104 80-120

Duplicate (BFD0249-DUP1)

Source: 2204095-09

Prepared & Analyzed: 04/13/22

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BFD0249-MS1)

Source: 2204095-09

Prepared & Analyzed: 04/13/22

Chromium, Hexavalent 35.6 0.30 mg/kg dry 29.8 ND 120 75-125

Matrix Spike Dup (BFD0249-MSD1)

Source: 2204095-09

Prepared & Analyzed: 04/13/22

Chromium, Hexavalent 33.7 0.30 mg/kg dry 29.8 ND 113 75-125 5.50 20

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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

Summit Scientific

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

Batch BFD0294 - General Preparation

Blank (BFD0294-BLK1)

Prepared: 04/14/22 Analyzed: 04/17/22

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

LCS (BFD0294-BS1)

Prepared: 04/14/22 Analyzed: 04/17/22

Calcium	5.37	0.0500	mg/L wet	5.00	107	70-130
Magnesium	5.70	0.0500	"	5.00	114	70-130
Sodium	5.19	0.0500	"	5.00	104	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: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0239 - General Preparation

Duplicate (BFD0239-DUP1)		Source: 2204053-01			Prepared & Analyzed: 04/12/22					
% Solids	95.9		%		94.7		1.27		20	

Summit Scientific

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

Project: McLeod 29-41 Tank Battery
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0315 - General Preparation

Blank (BFD0315-BLK1)

Prepared & Analyzed: 04/15/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BFD0315-BS1)

Prepared & Analyzed: 04/15/22

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 103 95-105

Duplicate (BFD0315-DUP1)

Source: 2204061-01

Prepared & Analyzed: 04/15/22

Specific Conductance (EC) 4.11 0.0100 mmhos/cm 4.17 1.35 20

Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

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 BFD0313 - General Preparation

LCS (BFD0313-BS1)

Prepared & Analyzed: 04/15/22

pH	9.03	pH Units	9.18	98.4	95-105
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Duplicate (BFD0313-DUP1)

Source: 2204061-01

Prepared & Analyzed: 04/15/22

pH	8.04	pH Units	7.99	0.624	20
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Summit Scientific

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

Project: McLeod 29-41 Tank Battery

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
05/13/22 09:12

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
I-02	This sample was analyzed outside of the recommended holding time.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
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