

**TABLE 1**  
**FORMER MCWILLIAMS 15-34 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**ORGANIC COMPOUNDS**

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(4)</sup> (mg/kg)
<b>Residential SSL <sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL <sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
AST01 @ 0-6"	12/8/2021	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SEP01-FL @ 4'	12/8/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SEP01-DL @ 4'	12/8/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
PWV01-B @ 4'	12/8/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
PWV01-W @ 2.5'	12/8/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

in. = Inches

bgs = Below ground surface

**TABLE 2**  
**FORMER MCWILLIAMS 15-34 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC COMPOUNDS**

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
<b>Soil Suitability for Reclamation Standard <sup>(1)</sup></b>			<b>6-8.3</b>	<b>&lt;4</b>	<b>&lt;6</b>	<b>2</b>
PWV01-B @ 4'	12/8/2021	4 ft. bgs	7.84	0.379	1.70	0.207
PWV01-W @ 2.5'	12/8/2021	2.5 ft. bgs	7.68	0.254	1.41	0.166

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

**TABLE 3**  
**FORMER MCWILLIAMS 15-34 TANK BATTERY**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
AST01 @ 0-6"	12/8/2021	0-6 in. bgs	40.306981	-104.768563	1.1	0.0
MH01 @ 0-6"	12/8/2021	0-6 in. bgs	NC	NC	NC	0.0
SEP01-FL @ 4'	12/8/2021	4 ft. bgs	40.307037	-104.768934	1.2	0.2
SEP01-DL @ 4'	12/8/2021	4 ft. bgs	40.307056	-104.768915	1.3	0.0
WDL01 @ 4'	12/8/2021	4 ft. bgs	40.306963	-104.768638	1.4	3.8
PWV01-B @ 4'	12/8/2021	4 ft. bgs	40.306975	-104.768617	1.4	1.6
PWV01-N @ 2.5'	12/8/2021	2.5 ft. bgs	40.306985	-104.768622	1.4	0.6
PWV01-W @ 2.5'	12/8/2021	2.5 ft. bgs	40.306978	-104.768647	1.3	0.9
PWV01-S @ 2.5'	12/8/2021	2.5 ft. bgs	40.306961	-104.768628	1.3	0.7
PWV01-E @ 2.5'	12/8/2021	2.5 ft. bgs	40.306972	-104.768603	1.3	0.7
BKG01 @ 0-6"	12/8/2021	0-6 in. bgs	40.307173	-104.768758	1.2	1.5
BKG01 @ 2.5'	12/8/2021	2.5 ft. bgs	40.307173	-104.768758	1.2	1.4
BKG01 @ 4'	12/8/2021	4 ft. bgs	40.307173	-104.768758	1.2	1.2

**Notes:**

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

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

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

## Attachment A

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 21, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

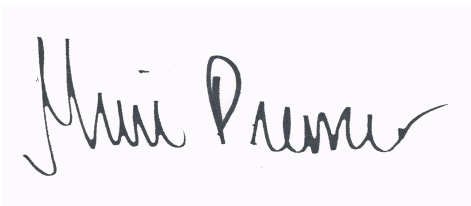
Denver, CO 80203

RE: McWilliams 15-34 Tank Battery

Work Order #2112152

Enclosed are the results of analyses for samples received by Summit Scientific on 12/08/21 13:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premer For Paul Shrewsbury  
President



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

Project: McWilliams 15-34 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@0-6"	2112152-01	Soil	12/08/21 09:00	12/08/21 13:50
SEP01-FL@4'	2112152-02	Soil	12/08/21 10:30	12/08/21 13:50
SEP01-DL@4'	2112152-03	Soil	12/08/21 10:35	12/08/21 13:50
PWV01-B@4'	2112152-04	Soil	12/08/21 10:50	12/08/21 13:50
PWV01-W@2.5'	2112152-06	Soil	12/08/21 10:54	12/08/21 13:50

Summit Scientific

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

# Summit Scientific 2112152.1

S<sub>2</sub>

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

Page 1 of 2

Client: PDC / Tasman	Project Manager: Mark Longhurst
Address: 6855 W 119th Ave	E-Mail: mark.longhurst@PDCE.com
City/State/Zip: Broomfield/ CO/ 80020	
Phone: 303-487-1228	Project Name: <u>McWilliams 15-34 Tank Battery</u>
Sampler Name: <u>David Vigil</u> Project Number:	

					Preservative				Matrix				Analysis Requested								Special Instructions	
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	TMBs (1,2,4)&(1,3,5)	PAH - 915	Metals - 915		pH, EC, SAR by saturated paste	
1	ASTOI @ 0-6"	12/8/21	0900	3			X			X			X	X			X					Prior No
2	SEPOI-FL @ 4'		1030	3			X			X			X	X			X					
3	SEPOI-DL @ 4'		1035	3			X			X			X	X			X					
4	PWV01-13 @ 4'		1050	3			X			X			X	X	X	X	X					
5	PWV01-N @ 2.5'		1052	3			X			X											X	
6	PWV01-W @ 2.5'		1054	3			X			X			X	X	X	X	X					
7	PWV01-S @ 2.5'		1056	3			X			X											X	
8	PWV01-E @ 2.5'	↓	1058	3			X			X											X	
9																						
10																						

Relinquished by: 	Date/Time: 12/8/21 1350	Received by: Tasman's Lock Box	Date/Time:	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 12/8/21 1350	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: <u>11.1</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

# Summit Scientific

2112152.2

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 2 of 2

Client: PDC / Tasman

Project Manager: Mark Longhurst

Address: 6855 W 119th Ave

E-Mail: mark.longhurst@PDCE.com

City/State/Zip: Broomfield/ CO/ 80020


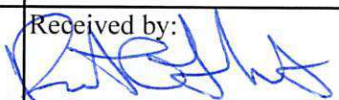
Phone: 303-487-1228

Project Name: McWilliams 15-34 Tank Battery

Sampler Name: David Vigliani

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	TMBs (1,2,4)&(1,3,5)	PAH - 915	Metals - 915		
1	BKG01 00-6"	12/8/21	1115	1			X			X										pH, EC, SAR by saturated paste	
2	BKG01 0 2.5'		1120	1			X			X										ON Hold	
3	BKG01 0 4'		1125	1			X			X											
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 12/8/21 1350	Received by: Tasman's Lock Box	Date/Time:	Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 12-8-21 1350	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 11.1 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	



S<sub>2</sub>

2/2

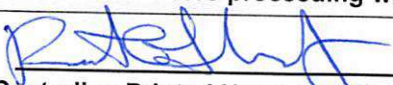
## Sample Receipt Checklist

S2 Work Order# 2112152

Client: Roe/TasmanClient Project ID: MCWilliams 1534 Tank BottomShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: \_\_\_\_\_Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_ (Describe)Temp (°C) 11.1

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>on ice</u>
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

  
 Custodian Printed Name or Initials

12821  
 Date/Time



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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**AST01@0-6"**  
**2112152-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEL0299	12/14/21	12/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		63.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		86.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/08/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0300	12/14/21	12/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/08/21 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.2 %	30-150		"	"	"	"	

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**SEP01-FL@4'**  
**2112152-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0299	12/14/21	12/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/21 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		78.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		119 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/08/21 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0300	12/14/21	12/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/08/21 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		101 %	30-150		"	"	"	"	

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1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**SEP01-DL@4'**  
**2112152-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 10:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0299	12/14/21	12/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/21 10:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		88.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		78.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.5 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/08/21 10:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0300	12/14/21	12/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/08/21 10:35**

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

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1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**PWV01-B@4'**  
**2112152-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0299	12/14/21	12/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		70.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		116 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		124 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0300	12/14/21	12/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		70.5 %	30-150		"	"	"	"	

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

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**PWV01-B@4'**  
**2112152-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.207	0.0100	mg/L	1	BEL0319	12/15/21	12/20/21	EPA 6020B	

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

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	13.9	0.0527	mg/L dry	1	BEL0302	12/14/21	12/19/21	EPA 6020B	
Magnesium	4.49	0.0527	"	"	"	"	"	"	
Sodium	28.5	0.0527	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.70	0.00100	units	1	BEL0441	12/20/21	12/20/21	Calculation	

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

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.9		%	1	BEL0416	12/20/21	12/20/21	Calculation	

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

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.379	0.0100	mmhos/cm	1	BEL0346	12/15/21	12/15/21	EPA 120.1	

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

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**PWV01-B@4'**  
**2112152-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 10:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.84</b>			pH Units	1	BEL0347	12/15/21	12/15/21	EPA 9045D	

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**PWV01-W@2.5'**  
**2112152-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEL0299	12/14/21	12/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		95.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		83.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		120 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEL0300	12/14/21	12/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		77.9 %	30-150		"	"	"	"	

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

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**PWV01-W@2.5'**  
**2112152-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.166</b>	0.0100	mg/L	1	BEL0319	12/15/21	12/20/21	EPA 6020B	

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

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Calcium</b>	<b>7.29</b>	0.0517	mg/L dry	1	BEL0302	12/14/21	12/19/21	EPA 6020B	
<b>Magnesium</b>	<b>2.43</b>	0.0517	"	"	"	"	"	"	
<b>Sodium</b>	<b>17.2</b>	0.0517	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Sodium Adsorption Ratio</b>	<b>1.41</b>	0.00100	units	1	BEL0441	12/20/21	12/20/21	Calculation	

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

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>% Solids</b>	<b>96.7</b>		%	1	BEL0416	12/20/21	12/20/21	Calculation	

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

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>0.254</b>	0.0100	mmhos/cm	1	BEL0346	12/15/21	12/15/21	EPA 120.1	

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

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**PWV01-W@2.5'**  
**2112152-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **12/08/21 10:54**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.68</b>			pH Units	1	BEL0347	12/15/21	12/15/21	EPA 9045D	

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

## 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 BEL0299 - EPA 5030 Soil MS

##### Blank (BEL0299-BLK1)

Prepared & Analyzed: 12/14/21

Benzene	ND	0.0020	mg/kg
Toluene	ND	0.0050	"
Ethylbenzene	ND	0.0050	"
Xylenes (total)	ND	0.010	"
1,2,4-Trimethylbenzene	ND	0.0050	"
1,3,5-Trimethylbenzene	ND	0.0050	"
Naphthalene	ND	0.0038	"
Gasoline Range Hydrocarbons	ND	0.50	"

Surrogate: 1,2-Dichloroethane-d4	0.0330	"	0.0400	82.4	23-173
Surrogate: Toluene-d8	0.0401	"	0.0400	100	20-170
Surrogate: 4-Bromofluorobenzene	0.0408	"	0.0400	102	21-167

##### LCS (BEL0299-BS1)

Prepared & Analyzed: 12/14/21

Benzene	0.0898	0.0020	mg/kg	0.100	89.8	70-130
Toluene	0.0725	0.0050	"	0.100	72.5	70-130
Ethylbenzene	0.0923	0.0050	"	0.100	92.3	70-130
m,p-Xylene	0.173	0.010	"	0.200	86.3	70-130
o-Xylene	0.0849	0.0050	"	0.100	84.9	70-130
1,2,4-Trimethylbenzene	0.107	0.0050	"	0.100	107	70-130
1,3,5-Trimethylbenzene	0.112	0.0050	"	0.100	112	70-130
Naphthalene	0.0968	0.0038	"	0.100	96.8	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0399	"	0.0400	99.8	23-173
Surrogate: Toluene-d8	0.0485	"	0.0400	121	20-170
Surrogate: 4-Bromofluorobenzene	0.0389	"	0.0400	97.3	21-167

##### Matrix Spike (BEL0299-MS1)

Source: 2112149-01

Prepared & Analyzed: 12/14/21

Benzene	0.128	0.0020	mg/kg	0.100	ND	128	70-130
Toluene	0.103	0.0050	"	0.100	ND	103	70-130
Ethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130
m,p-Xylene	0.191	0.010	"	0.200	ND	95.6	70-130
o-Xylene	0.0887	0.0050	"	0.100	ND	88.7	70-130
1,2,4-Trimethylbenzene	0.0884	0.0050	"	0.100	ND	88.4	70-130
1,3,5-Trimethylbenzene	0.0991	0.0050	"	0.100	ND	99.1	70-130
Naphthalene	0.0893	0.0038	"	0.100	0.00483	84.4	70-130

Surrogate: 1,2-Dichloroethane-d4	0.0346	"	0.0400	86.5	23-173
Surrogate: Toluene-d8	0.0504	"	0.0400	126	20-170
Surrogate: 4-Bromofluorobenzene	0.0392	"	0.0400	98.1	21-167

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**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 BEL0299 - EPA 5030 Soil MS**

Matrix Spike Dup (BEL0299-MSD1)	Source: 2112149-01			Prepared & Analyzed: 12/14/21						
Benzene	0.127	0.0020	mg/kg	0.100	ND	127	70-130	0.847	30	
Toluene	0.114	0.0050	"	0.100	ND	114	70-130	9.57	30	
Ethylbenzene	0.0922	0.0050	"	0.100	ND	92.2	70-130	12.2	30	
m,p-Xylene	0.186	0.010	"	0.200	ND	92.8	70-130	3.01	30	
o-Xylene	0.0880	0.0050	"	0.100	ND	88.0	70-130	0.849	30	
1,2,4-Trimethylbenzene	0.0890	0.0050	"	0.100	ND	89.0	70-130	0.710	30	
1,3,5-Trimethylbenzene	0.0952	0.0050	"	0.100	ND	95.2	70-130	4.01	30	
Naphthalene	0.101	0.0038	"	0.100	0.00483	96.4	70-130	12.5	30	
Surrogate: 1,2-Dichloroethane-d4	0.0347		"	0.0400		86.7	23-173			
Surrogate: Toluene-d8	0.0434		"	0.0400		109	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.4	21-167			

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**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 BEL0300 - EPA 3550A**

**Blank (BEL0300-BLK1)**

Prepared & Analyzed: 12/14/21

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

**LCS (BEL0300-BS1)**

Prepared & Analyzed: 12/14/21

C10-C28 (DRO)	439	50	mg/kg	500	87.7	70-130
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**Matrix Spike (BEL0300-MS1)**

Source: 2112149-01

Prepared: 12/14/21 Analyzed: 12/15/21

C10-C28 (DRO)	455	50	mg/kg	500	30.8	84.8	70-130
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**Matrix Spike Dup (BEL0300-MSD1)**

Source: 2112149-01

Prepared: 12/14/21 Analyzed: 12/15/21

C10-C28 (DRO)	442	50	mg/kg	500	30.8	82.3	70-130	2.74	20
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Summit Scientific

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

Project: McWilliams 15-34 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**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 BEL0319 - EPA 3050B**

**Blank (BEL0319-BLK1)**

Prepared: 12/15/21 Analyzed: 12/20/21

Boron ND 0.0100 mg/L

**LCS (BEL0319-BS1)**

Prepared: 12/15/21 Analyzed: 12/20/21

Boron 4.45 0.0100 mg/L 5.00 89.1 80-120

**Duplicate (BEL0319-DUP1)**

**Source: 2112152-04**

Prepared: 12/15/21 Analyzed: 12/20/21

Boron 0.196 0.0100 mg/L 0.207 5.14 20

**Matrix Spike (BEL0319-MS1)**

**Source: 2112152-04**

Prepared: 12/15/21 Analyzed: 12/20/21

Boron 4.79 0.0100 mg/L 5.00 0.207 91.7 75-125

**Matrix Spike Dup (BEL0319-MSD1)**

**Source: 2112152-04**

Prepared: 12/15/21 Analyzed: 12/20/21

Boron 4.90 0.0100 mg/L 5.00 0.207 93.8 75-125 2.15 25

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**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 BEL0302 - General Preparation**

**Blank (BEL0302-BLK1)**

Prepared: 12/14/21 Analyzed: 12/19/21

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

**LCS (BEL0302-BS1)**

Prepared: 12/14/21 Analyzed: 12/19/21

Calcium	5.06	0.0500	mg/L wet	5.00	101	70-130
Magnesium	3.95	0.0500	"	5.00	79.0	70-130
Sodium	3.86	0.0500	"	5.00	77.2	70-130

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

**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 BEL0416 - General Preparation**

Duplicate (BEL0416-DUP1)		Source: 2112139-01		Prepared & Analyzed: 12/20/21						
% Solids	94.3		%		94.8			0.578	20	

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

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

**Summit Scientific**

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

**Batch BEL0346 - General Preparation**

**Blank (BEL0346-BLK1)**

Prepared & Analyzed: 12/15/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEL0346-BS1)**

Prepared & Analyzed: 12/15/21

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 104 95-105

**Duplicate (BEL0346-DUP1)**

**Source: 2112124-01**

Prepared & Analyzed: 12/15/21

Specific Conductance (EC) 1.73 0.0100 mmhos/cm 1.76 1.89 20

Summit Scientific

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

Project: McWilliams 15-34 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

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

**Summit Scientific**

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

**Batch BEL0347 - General Preparation**

**LCS (BEL0347-BS1)**

Prepared & Analyzed: 12/15/21

pH	9.00	pH Units	9.18	98.0	95-105
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**Duplicate (BEL0347-DUP1)**

Source: 2112124-01

Prepared & Analyzed: 12/15/21

pH	8.14	pH Units	8.10	0.493	20
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Summit Scientific

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

Project: McWilliams 15-34 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
12/21/21 13:11

### 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