

**TABLE 1**  
**FORMER HALL 28-1, 5 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(4)</sup> (mg/kg)
<b>Residential SSL <sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>
<b>Protection of Groundwater SSL <sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>
PWV01-B @ 5'	10/22/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
PWV01-N @ 2.5'	10/22/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
AST01 @ 0-6"	10/22/2021	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SEP01-FL @ 4'	10/22/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SEP01-DL @ 4'	10/22/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SEP01-B @ 5'	10/22/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50
SEP01-W @ 2.5'	10/22/2021	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

bgs = Below ground surface

**TABLE 2**  
**FORMER HALL 28-1, 5 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 @ 5'	10/22/2021	5 ft. bgs	8.09	0.502	0.534	0.146
PWV01-N @ 2.5'	10/22/2021	2.5 ft. bgs	8.03	0.805	0.579	0.115
SEP01-B @ 5'	10/22/2021	5 ft. bgs	7.81	0.694	<b>6.21</b>	0.517
SEP01-N @ 2.5'	10/22/2021	2.5 ft. bgs	NA	NA	0.209	NA
SEP01-W @ 2.5'	10/22/2021	2.5 ft. bgs	7.39	0.203	0.851	0.128
SEP01-S @ 2.5'	10/22/2021	2.5 ft. bgs	NA	NA	1.30	NA
SEP01-E @ 2.5'	10/22/2021	2.5 ft. bgs	NA	NA	0.595	NA
BKG01 @ 2.5'	10/22/2021	2.5 ft. bgs	NA	NA	1.03	NA
BKG01 @ 5'	10/22/2021	5 ft. bgs	NA	NA	<b>7.50</b>	NA

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

NA = Not analyzed

**BOLD** = Background sample analytical result in exceedance of applicable standard.

**BOLD** = Sample analytical result in exceedance of applicable standard, but below background.

**TABLE 3**  
**FORMER HALL 28-1, 5 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)
PWV01-B @ 5'	10/22/2021	5 ft. bgs	-104.54546657	40.372781	1.1	0.1
PWV01-N @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54546172	40.372795	1.0	0.6
PWV01-W @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54550484	40.372768	1.0	0.3
PWV01-S @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54546074	40.372755	1.0	0.2
PWV01-E @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54544682	40.372779	1.0	0.4
WDL01 @ 4'	10/22/2021	4 ft. bgs	-104.54545669	40.372761	1.0	0.1
AST01 @ 0-6"	10/22/2021	0-6 in. bgs	-104.54543712	40.372796	1.1	2.4
SEP01-FL @ 4'	10/22/2021	4 ft. bgs	-104.54579748	40.372771	1.0	0.2
SEP01-DL @ 4'	10/22/2021	4 ft. bgs	-104.54573440	40.372792	1.0	4.7
MH01 @ 0-6"	10/22/2021	0-6 in. bgs	-104.54565539	40.372793	1.1	0.2
ECD01 @ 0-6"	10/22/2021	0-6 in. bgs	-104.54573110	40.372837	1.1	1.0
SEP01-B @ 5'	10/22/2021	5 ft. bgs	-104.54576806	40.372792	1.3	35.7
SEP01-N @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54575068	40.372810	1.2	4.9
SEP01-W @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54577456	40.372798	1.2	9.0
SEP01-S @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54578344	40.372782	1.2	0.0
SEP01-E @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54574799	40.372785	1.2	2.0
BKG01 @ 2.5'	10/22/2021	2.5 ft. bgs	-104.54536230	40.372948	1.2	0.0
BKG01 @ 5'	10/22/2021	5 ft. bgs	-104.54536230	40.372948	1.2	0.0

**Notes:**

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

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

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

## Attachment A

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 10, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

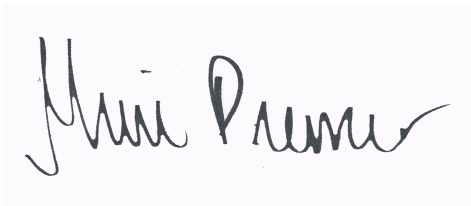
Denver, CO 80203

RE: Hall 28-1,5 Tank Battery

Work Order #2110416

Enclosed are the results of analyses for samples received by Summit Scientific on 10/22/21 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "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: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PWV01-B@5'	2110416-01	Soil	10/22/21 09:32	10/22/21 15:30
PWV01-N@2.5'	2110416-02	Soil	10/22/21 09:33	10/22/21 15:30
AST01@0-6"	2110416-06	Soil	10/22/21 10:54	10/22/21 15:30
SEP01-FL@4'	2110416-07	Soil	10/22/21 10:55	10/22/21 15:30
SEP01-DL@4'	2110416-08	Soil	10/22/21 10:56	10/22/21 15:30
BKG01@2.5'	2110416-09	Soil	10/22/21 11:00	10/22/21 15:30
BKG01@5'	2110416-10	Soil	10/22/21 11:01	10/22/21 15:30

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

S<sub>2</sub>

2110416

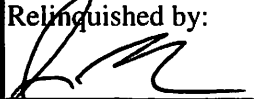
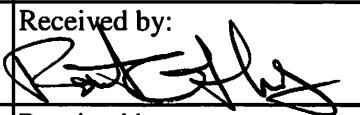
4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

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: Hall 28-1, S Tank Battery  
Sampler Name: J. Marcus Project Number: 1/1

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions			
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	Other					
1	PWV01-B@S'	10/22/21	0932	3			X			X				X	X	X	X	X					pH, EC, SAR by saturated paste
2	PWV01-N@2.5'		0933	3			X			X				X	X	X	X	X					
3	PWV01-W@2.5'		0934	3			X			X									X				
4	PWV01-S@2.5'		0935	3			X			X									X				
5	PWV01-E@2.5'		0936	3			X			X									X				
6	ASTO100-6"		1054	2			X			X				X	X	X							
7	SEP01-FL@4'		1055	2			X			X				X	X	X							
8	SEP01-DL@4'		1056	2			X			X				X	X	X							
9	BK601@2.5'		1100	1			X			X									X				
10	BK601@5'		1101	1			X			X									X				

Relinquished by: 	Date/Time: 10/22/21 1530	Received by: Tasman's Lock Box	Date/Time: 10/22/21 1530	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: 10-22-21 1530	Sample Integrity: 6.8	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: <u>6.8</u> Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

S<sub>2</sub>  
2110416

## Sample Receipt Checklist

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

Client: BCL Tasmanian Client Project ID: Hall 28-1,5 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) 6.8

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"/>	on ICE
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input 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.				

[Signature]  
Custodian Printed Name or Initials10.22.21  
Date/Time





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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**PWV01-B@5'**  
**2110416-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	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: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/28/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		119 %	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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**PWV01-B@5'**  
**2110416-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.146	0.0100	mg/L	1	BEJ0492	10/25/21	10/26/21	EPA 6020B	

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

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	48.7	0.0562	mg/L dry	1	BEJ0579	10/28/21	10/29/21	EPA 6020B	
Magnesium	17.6	0.0562	"	"	"	"	"	"	
Sodium	17.1	0.0562	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.534	0.00100	units	1	BEK0006	11/01/21	11/01/21	Calculation	

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

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.0		%	1	BEJ0498	10/25/21	10/26/21	Calculation	

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

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.502	0.0100	mmhos/cm	1	BEJ0616	10/29/21	10/29/21	EPA 120.1	

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

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**PWV01-B@5'**  
**2110416-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 09:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>8.09</b>			pH Units	1	BEJ0615	10/29/21	10/29/21	EPA 9045D	

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**PWV01-N@2.5'**  
**2110416-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	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: **10/22/21 09:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/28/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		113 %	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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**PWV01-N@2.5'**  
**2110416-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.115	0.0100	mg/L	1	BEJ0492	10/25/21	10/26/21	EPA 6020B	

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

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	99.5	0.0583	mg/L dry	1	BEJ0579	10/28/21	10/29/21	EPA 6020B	
Magnesium	25.5	0.0583	"	"	"	"	"	"	
Sodium	25.0	0.0583	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.579	0.00100	units	1	BEK0006	11/01/21	11/01/21	Calculation	

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

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.7		%	1	BEJ0498	10/25/21	10/26/21	Calculation	

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

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.805	0.0100	mmhos/cm	1	BEJ0616	10/29/21	10/29/21	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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**PWV01-N@2.5'**  
**2110416-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 09:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>8.03</b>			pH Units	1	BEJ0615	10/29/21	10/29/21	EPA 9045D	

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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**AST01@0-6"**  
**2110416-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 10:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	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: **10/22/21 10:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/22/21 10:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/28/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/22/21 10:54**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		98.6 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**SEP01-FL@4'**  
**2110416-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	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: **10/22/21 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/22/21 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/28/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/22/21 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**SEP01-DL@4'**  
**2110416-08 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 10:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0562	10/27/21	10/28/21	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: **10/22/21 10:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/22/21 10:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0564	10/27/21	10/28/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/22/21 10:56**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		118 %	30-150		"	"	"	"	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**BKG01@2.5'**  
**2110416-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	128	0.0517	mg/L dry	1	BEK0141	11/05/21	11/09/21	EPA 6020B	
Magnesium	40.5	0.0517	"	"	"	"	"	"	
Sodium	52.1	0.0517	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.03	0.00100	units	1	BEK0223	11/10/21	11/10/21	Calculation	

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

Date Sampled: **10/22/21 11:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	96.7		%	1	BEK0135	11/05/21	11/05/21	Calculation	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**BKG01@5'**  
**2110416-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 11:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	18.2	0.0535		mg/L dry	1	BEK0141	11/05/21	11/09/21	EPA 6020B	
Magnesium	14.3	0.0535		"	"	"	"	"	"	
Sodium	176	0.0535		"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 11:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	7.50	0.00100		units	1	BEK0223	11/10/21	11/10/21	Calculation	

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

Date Sampled: **10/22/21 11:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	93.5			%	1	BEK0135	11/05/21	11/05/21	Calculation	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

## 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 BEJ0562 - EPA 5030 Soil MS

##### Blank (BEJ0562-BLK1)

Prepared: 10/27/21 Analyzed: 10/28/21

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	0.0419		"	0.0400		105	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.6	21-167			

##### LCS (BEJ0562-BS1)

Prepared: 10/27/21 Analyzed: 10/28/21

Benzene	0.137	0.0020	mg/kg	0.150		91.6	70-130			
Toluene	0.139	0.0050	"	0.150		92.5	70-130			
Ethylbenzene	0.137	0.0050	"	0.150		91.1	70-130			
m,p-Xylene	0.279	0.010	"	0.300		92.9	70-130			
o-Xylene	0.138	0.0050	"	0.150		92.1	70-130			
1,2,4-Trimethylbenzene	0.140	0.0050	"	0.150		93.4	70-130			
1,3,5-Trimethylbenzene	0.137	0.0050	"	0.150		91.2	70-130			
Naphthalene	0.136	0.0038	"	0.150		90.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0405		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0402		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	21-167			

##### Matrix Spike (BEJ0562-MS1)

Source: 2110363-03

Prepared: 10/27/21 Analyzed: 10/28/21

Benzene	0.140	0.0020	mg/kg	0.150	ND	93.5	70-130			
Toluene	0.140	0.0050	"	0.150	ND	93.2	70-130			
Ethylbenzene	0.137	0.0050	"	0.150	ND	91.1	70-130			
m,p-Xylene	0.277	0.010	"	0.300	ND	92.3	70-130			
o-Xylene	0.136	0.0050	"	0.150	ND	90.4	70-130			
1,2,4-Trimethylbenzene	0.138	0.0050	"	0.150	ND	92.1	70-130			
1,3,5-Trimethylbenzene	0.137	0.0050	"	0.150	ND	91.3	70-130			
Naphthalene	0.134	0.0038	"	0.150	ND	89.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**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 BEJ0562 - EPA 5030 Soil MS**

Matrix Spike Dup (BEJ0562-MSD1)		Source: 2110363-03			Prepared: 10/27/21 Analyzed: 10/28/21					
Benzene	0.141	0.0020	mg/kg	0.150	ND	93.8	70-130	0.363	30	
Toluene	0.141	0.0050	"	0.150	ND	93.9	70-130	0.706	30	
Ethylbenzene	0.139	0.0050	"	0.150	ND	92.6	70-130	1.59	30	
m,p-Xylene	0.282	0.010	"	0.300	ND	94.0	70-130	1.76	30	
o-Xylene	0.137	0.0050	"	0.150	ND	91.5	70-130	1.19	30	
1,2,4-Trimethylbenzene	0.142	0.0050	"	0.150	ND	94.4	70-130	2.47	30	
1,3,5-Trimethylbenzene	0.140	0.0050	"	0.150	ND	93.1	70-130	1.97	30	
Naphthalene	0.137	0.0038	"	0.150	ND	91.6	70-130	2.25	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	0.0411		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0401		"	0.0400		100	21-167			

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

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

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

**Batch BEJ0564 - EPA 3550A**

**Blank (BEJ0564-BLK1)**

Prepared: 10/27/21 Analyzed: 10/28/21

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

**LCS (BEJ0564-BS1)**

Prepared: 10/27/21 Analyzed: 10/28/21

C10-C28 (DRO)	451	50	mg/kg	500	90.3	70-130
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**Matrix Spike (BEJ0564-MS1)**

**Source: 2110363-03**

Prepared: 10/27/21 Analyzed: 10/28/21

C10-C28 (DRO)	493	50	mg/kg	500	26.8	93.3	70-130
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**Matrix Spike Dup (BEJ0564-MSD1)**

**Source: 2110363-03**

Prepared: 10/27/21 Analyzed: 10/28/21

C10-C28 (DRO)	531	50	mg/kg	500	26.8	101	70-130	7.36	20
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Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**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 BEJ0492 - EPA 3050B**

**Blank (BEJ0492-BLK1)**

Prepared: 10/25/21 Analyzed: 10/26/21

Boron ND 0.0100 mg/L

**LCS (BEJ0492-BS1)**

Prepared: 10/25/21 Analyzed: 10/26/21

Boron 5.43 0.0100 mg/L 5.00 109 80-120

**Duplicate (BEJ0492-DUP1)**

**Source: 2110400-02**

Prepared: 10/25/21 Analyzed: 10/26/21

Boron 0.155 0.0100 mg/L 0.166 7.00 20

**Matrix Spike (BEJ0492-MS1)**

**Source: 2110400-02**

Prepared: 10/25/21 Analyzed: 10/26/21

Boron 5.37 0.0100 mg/L 5.00 0.166 104 75-125

**Matrix Spike Dup (BEJ0492-MSD1)**

**Source: 2110400-02**

Prepared: 10/25/21 Analyzed: 10/26/21

Boron 5.66 0.0100 mg/L 5.00 0.166 110 75-125 5.17 25

Summit Scientific

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



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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**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 BEJ0579 - General Preparation**

**Blank (BEJ0579-BLK1)**

Prepared: 10/28/21 Analyzed: 10/29/21

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

**LCS (BEJ0579-BS1)**

Prepared: 10/28/21 Analyzed: 10/29/21

Calcium	5.33	0.0500	mg/L wet	5.00	107	70-130
Magnesium	4.91	0.0500	"	5.00	98.2	70-130
Sodium	4.75	0.0500	"	5.00	95.1	70-130

**Batch BEK0141 - General Preparation**

**Blank (BEK0141-BLK1)**

Prepared: 11/05/21 Analyzed: 11/09/21

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

**LCS (BEK0141-BS1)**

Prepared: 11/05/21 Analyzed: 11/09/21

Calcium	5.79	0.0500	mg/L wet	5.00	116	70-130
Magnesium	5.37	0.0500	"	5.00	107	70-130
Sodium	5.34	0.0500	"	5.00	107	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: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

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

#### Summit Scientific

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

#### Batch BEJ0498 - General Preparation

<b>Duplicate (BEJ0498-DUP1)</b>		<b>Source: 2110386-01</b>			Prepared: 10/25/21 Analyzed: 10/26/21						
% Solids	93.0		%		92.9			0.0527		20	

#### Batch BEK0135 - General Preparation

<b>Duplicate (BEK0135-DUP1)</b>		<b>Source: 2110398-02</b>			Prepared & Analyzed: 11/05/21						
% Solids	93.6		%		94.4			0.857		20	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**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 BEJ0616 - General Preparation**

**Blank (BEJ0616-BLK1)**

Prepared & Analyzed: 10/29/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEJ0616-BS1)**

Prepared & Analyzed: 10/29/21

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 99.7 95-105

**Duplicate (BEJ0616-DUP1)**

**Source: 2110378-01**

Prepared & Analyzed: 10/29/21

Specific Conductance (EC) 0.185 0.0100 mmhos/cm 0.187 1.08 20

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

**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 BEJ0615 - General Preparation**

**LCS (BEJ0615-BS1)**

Prepared & Analyzed: 10/29/21

pH	9.16	pH Units	9.18	99.8	95-105
----	------	----------	------	------	--------

**Duplicate (BEJ0615-DUP1)**

**Source: 2110378-01**

Prepared & Analyzed: 10/29/21

pH	7.73	pH Units	7.77	0.516	20
----	------	----------	------	-------	----

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
11/10/21 11:10

### 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

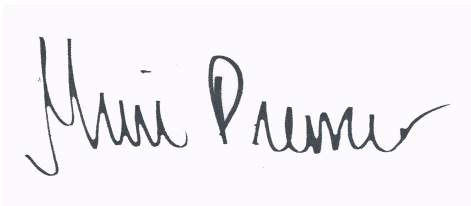
303.277.9310

November 10, 2021

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Hall 28-1,5 Tank Battery  
Work Order #2110398

Enclosed are the results of analyses for samples received by Summit Scientific on 10/22/21 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premer For Paul Shrewsbury  
President



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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SEP01-B@5'	2110398-01	Soil	10/22/21 12:58	10/22/21 15:30
SEP01-N@2.5'	2110398-02	Soil	10/22/21 13:08	10/22/21 15:30
SEP01-W@2.5'	2110398-03	Soil	10/22/21 13:10	10/22/21 15:30
SEP01-S@2.5'	2110398-04	Soil	10/22/21 13:30	10/22/21 15:30
SEP01-E@2.5'	2110398-05	Soil	10/22/21 13:22	10/22/21 15:30

Summit Scientific

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# Summit Scientific

S<sub>2</sub>


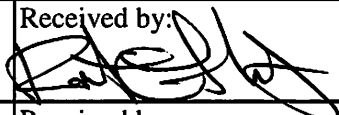
2110398

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: Hall 28-1, 3 Tank Battery  
Sampler Name: J. Marcus Project Number: 1/a

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions		
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	ON HOLD				
1	SEP01-B @ 5'	10/22/21	1258	3			X			X				X	X	X	X	X				pH, EC, SAR by saturated paste
2	SEP01-M @ 2.5'		1308	3			X			X								X				
3	SEP01-W @ 2.5'		1310	3			X			X				X	X	X	X	X				
4	SEP01-S @ 2.5'		1330	3			X			X								X				
5	SEP01-E @ 2.5'		1332	3			X			X								X				
6																						
7																						
8																						
9																						
10																						

Relinquished by: 	Date/Time: 10/22/21 1530	Received by: Tasman's Lock Box	Date/Time: 10/22/21 1530	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours 24 hours 48 hours	Notes:
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 	Date/Time: 10/22/21 1530	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 3.1 Samples Intact: <input checked="" type="checkbox"/> Yes No	

S<sub>2</sub>

2110398

## Sample Receipt Checklist

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

Client: Roc Tasma Client Project ID: Hall 28-1, 3 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) 3.1

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"/>	on ICE
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input 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"/>	Sameday
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

10.22.21  
 Date/Time





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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-B@5'**  
**2110398-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEJ0468	10/22/21	10/24/21	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: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		127 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0467	10/22/21	10/23/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		105 %	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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-B@5'**  
**2110398-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.517	0.0100	mg/L	1	BEJ0477	10/25/21	10/25/21	EPA 6020B	

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

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	19.7	0.0632	mg/L dry	1	BEJ0469	10/22/21	10/27/21	EPA 6020B	
Magnesium	13.1	0.0632	"	"	"	"	"	"	
Sodium	145	0.0632	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	6.21	0.00100	units	1	BEJ0597	10/28/21	10/28/21	Calculation	

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

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	79.1		%	1	BEJ0498	10/25/21	10/26/21	Calculation	

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

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.694	0.0100	mmhos/cm	1	BEJ0514	10/26/21	10/26/21	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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-B@5'**  
**2110398-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 12:58**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.81</b>			pH Units	1	BEJ0513	10/26/21	10/26/21	EPA 9045D	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-N@2.5'**  
**2110398-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 13:08**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	22.2	0.0530	mg/L dry	1	BEK0141	11/05/21	11/09/21	EPA 6020B	
Magnesium	7.60	0.0530	"	"	"	"	"	"	
Sodium	4.47	0.0530	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 13:08**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.209	0.00100	units	1	BEK0223	11/10/21	11/10/21	Calculation	

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

Date Sampled: **10/22/21 13:08**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	94.4		%	1	BEK0135	11/05/21	11/05/21	Calculation	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-W@2.5'**  
**2110398-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0468	10/22/21	10/24/21	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: **10/22/21 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		121 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.3 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0467	10/22/21	10/23/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		107 %	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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-W@2.5'**  
**2110398-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.128	0.0100	mg/L	1	BEJ0477	10/25/21	10/25/21	EPA 6020B	

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

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	11.0	0.0545	mg/L dry	1	BEJ0469	10/22/21	10/27/21	EPA 6020B	
Magnesium	6.33	0.0545	"	"	"	"	"	"	
Sodium	14.3	0.0545	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.851	0.00100	units	1	BEJ0597	10/28/21	10/28/21	Calculation	

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

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.8		%	1	BEJ0498	10/25/21	10/26/21	Calculation	

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

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.203	0.0100	mmhos/cm	1	BEJ0514	10/26/21	10/26/21	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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-W@2.5'**  
**2110398-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 13:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.39</b>			pH Units	1	BEJ0513	10/26/21	10/26/21	EPA 9045D	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-S@2.5'**  
**2110398-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	27.3	0.0545	mg/L dry	1	BEK0141	11/05/21	11/09/21	EPA 6020B	
Magnesium	12.9	0.0545	"	"	"	"	"	"	
Sodium	33.0	0.0545	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.30	0.00100	units	1	BEK0223	11/10/21	11/10/21	Calculation	

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

Date Sampled: **10/22/21 13:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	91.8		%	1	BEK0135	11/05/21	11/05/21	Calculation	

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: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**SEP01-E@2.5'**  
**2110398-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/22/21 13:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	132	0.0557	mg/L dry	1	BEK0141	11/05/21	11/09/21	EPA 6020B	
Magnesium	56.4	0.0557	"	"	"	"	"	"	
Sodium	32.4	0.0557	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/22/21 13:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.595	0.00100	units	1	BEK0223	11/10/21	11/10/21	Calculation	

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

Date Sampled: **10/22/21 13:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	89.7		%	1	BEK0135	11/05/21	11/05/21	Calculation	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch BEJ0468 - EPA 5030 Soil MS

##### Blank (BEJ0468-BLK1)

Prepared: 10/22/21 Analyzed: 10/24/21

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	0.0407		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0470		"	0.0400		118	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.7	21-167			

##### LCS (BEJ0468-BS1)

Prepared: 10/22/21 Analyzed: 10/24/21

Benzene	0.0669	0.0020	mg/kg	0.0750		89.2	70-130			
Toluene	0.0765	0.0050	"	0.0750		102	70-130			
Ethylbenzene	0.0759	0.0050	"	0.0750		101	70-130			
m,p-Xylene	0.145	0.010	"	0.150		96.9	70-130			
o-Xylene	0.0634	0.0050	"	0.0750		84.6	70-130			
1,2,4-Trimethylbenzene	0.0641	0.0050	"	0.0750		85.4	70-130			
1,3,5-Trimethylbenzene	0.0684	0.0050	"	0.0750		91.2	70-130			
Naphthalene	0.0781	0.0038	"	0.0750		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0400		105	23-173			
Surrogate: Toluene-d8	0.0465		"	0.0400		116	20-170			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.7	21-167			

##### Matrix Spike (BEJ0468-MS1)

Source: 2110396-01

Prepared: 10/22/21 Analyzed: 10/24/21

Benzene	0.0688	0.0020	mg/kg	0.0750	ND	91.8	70-130			
Toluene	0.0792	0.0050	"	0.0750	ND	106	70-130			
Ethylbenzene	0.0802	0.0050	"	0.0750	ND	107	70-130			
m,p-Xylene	0.153	0.010	"	0.150	ND	102	70-130			
o-Xylene	0.0686	0.0050	"	0.0750	ND	91.4	70-130			
1,2,4-Trimethylbenzene	0.0714	0.0050	"	0.0750	ND	95.2	70-130			
1,3,5-Trimethylbenzene	0.0759	0.0050	"	0.0750	ND	101	70-130			
Naphthalene	0.0910	0.0038	"	0.0750	ND	121	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0478		"	0.0400		120	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.5	21-167			

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

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

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

**Batch BEJ0468 - EPA 5030 Soil MS**

Matrix Spike Dup (BEJ0468-MSD1)	Source: 2110396-01			Prepared: 10/22/21 Analyzed: 10/24/21						
Benzene	0.0680	0.0020	mg/kg	0.0750	ND	90.7	70-130	1.14	30	
Toluene	0.0704	0.0050	"	0.0750	ND	93.8	70-130	11.8	30	
Ethylbenzene	0.0691	0.0050	"	0.0750	ND	92.1	70-130	14.9	30	
m,p-Xylene	0.132	0.010	"	0.150	ND	87.8	70-130	15.1	30	
o-Xylene	0.0595	0.0050	"	0.0750	ND	79.3	70-130	14.2	30	
1,2,4-Trimethylbenzene	0.0609	0.0050	"	0.0750	ND	81.2	70-130	16.0	30	
1,3,5-Trimethylbenzene	0.0642	0.0050	"	0.0750	ND	85.6	70-130	16.6	30	
Naphthalene	0.0968	0.0038	"	0.0750	ND	129	70-130	6.10	30	
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0455		"	0.0400		114	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	21-167			

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

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

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

**Batch BEJ0467 - EPA 3550A**

**Blank (BEJ0467-BLK1)**

Prepared: 10/22/21 Analyzed: 10/23/21

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

**LCS (BEJ0467-BS1)**

Prepared: 10/22/21 Analyzed: 10/23/21

C10-C28 (DRO)	505	50	mg/kg	500	101	70-130
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**Matrix Spike (BEJ0467-MS1)**

Source: 2110398-01

Prepared: 10/22/21 Analyzed: 10/23/21

C10-C28 (DRO)	655	50	mg/kg	500	36.8	124	70-130
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**Matrix Spike Dup (BEJ0467-MSD1)**

Source: 2110398-01

Prepared: 10/22/21 Analyzed: 10/23/21

C10-C28 (DRO)	675	50	mg/kg	500	36.8	128	70-130	3.02	20
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Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

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

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

**Batch BEJ0477 - EPA 3050B**

**Blank (BEJ0477-BLK1)**

Prepared & Analyzed: 10/25/21

Boron ND 0.0100 mg/L

**LCS (BEJ0477-BS1)**

Prepared & Analyzed: 10/25/21

Boron 5.39 0.0100 mg/L 5.00 108 80-120

**Matrix Spike (BEJ0477-MS1)**

**Source: 2110292-01**

Prepared & Analyzed: 10/25/21

Boron 5.62 0.0100 mg/L 5.00 0.173 109 75-125

**Matrix Spike Dup (BEJ0477-MSD1)**

**Source: 2110292-01**

Prepared & Analyzed: 10/25/21

Boron 5.44 0.0100 mg/L 5.00 0.173 105 75-125 3.27 25

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

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

**Summit Scientific**

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

**Batch BEJ0469 - General Preparation**

**Blank (BEJ0469-BLK1)**

Prepared: 10/25/21 Analyzed: 10/27/21

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

**LCS (BEJ0469-BS1)**

Prepared: 10/25/21 Analyzed: 10/27/21

Calcium	5.53	0.0500	mg/L wet	5.00	111	70-130
Magnesium	5.07	0.0500	"	5.00	101	70-130
Sodium	4.88	0.0500	"	5.00	97.6	70-130

**Batch BEK0141 - General Preparation**

**Blank (BEK0141-BLK1)**

Prepared: 11/05/21 Analyzed: 11/09/21

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

**LCS (BEK0141-BS1)**

Prepared: 11/05/21 Analyzed: 11/09/21

Calcium	5.79	0.0500	mg/L wet	5.00	116	70-130
Magnesium	5.37	0.0500	"	5.00	107	70-130
Sodium	5.34	0.0500	"	5.00	107	70-130

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

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

**Summit Scientific**

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

**Batch BEJ0498 - General Preparation**

<b>Duplicate (BEJ0498-DUP1)</b>		<b>Source: 2110386-01</b>			Prepared: 10/25/21 Analyzed: 10/26/21						
% Solids	93.0		%		92.9			0.0527		20	

**Batch BEK0135 - General Preparation**

<b>Duplicate (BEK0135-DUP1)</b>		<b>Source: 2110398-02</b>			Prepared & Analyzed: 11/05/21						
% Solids	93.6		%		94.4			0.857		20	

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**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 BEJ0514 - General Preparation**

**Blank (BEJ0514-BLK1)**

Prepared & Analyzed: 10/26/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEJ0514-BS1)**

Prepared & Analyzed: 10/26/21

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 95-105

**Duplicate (BEJ0514-DUP1)**

**Source: 2110393-01**

Prepared & Analyzed: 10/26/21

Specific Conductance (EC) 0.724 0.0100 mmhos/cm 0.730 0.784 20

Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

**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 BEJ0513 - General Preparation**

**LCS (BEJ0513-BS1)**

Prepared & Analyzed: 10/26/21

pH	9.27	pH Units	9.18	101	95-105
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**Duplicate (BEJ0513-DUP1)**

Source: 2110393-01

Prepared & Analyzed: 10/26/21

pH	8.15	pH Units	8.14	0.123	20
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Summit Scientific

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

Project: Hall 28-1,5 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/10/21 10:56

### Notes and Definitions

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