

**TABLE 1**  
**FORMER BUFFALO GARDEN 41-13 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**CONTAMINANTS OF CONCERN**

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(4)</sup> (mg/kg)	Acenaphthene (mg/kg)	Benz(a) (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)	Barium (mg/kg)
Residential SSL <sup>(1,2)</sup>			1.2	490	5.8	58	30	27	2	500	360	1.1	110	240	240	180	18	24	15,000
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	0.55	0.011	9	8.9	0.54	1.3	0.006	0.019	82
AST01-B @ 3'	9/7/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA
AST01-E @ 2.5'	9/7/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEP01-FL @ 2.5'	9/7/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA
PWV01-B @ 4'	9/7/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA
PWV01-S @ 2.5'	9/7/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS01 @ 2.5'	9/8/2021	2.5 ft. bgs	<0.0020	0.53	0.11	13	0.39	5.2	0.043	2460	0.0195	0.0247	0.0162	0.0152	0.0630	0.0331	0.584	11.1	88.9
SS02 @ 15'	9/9/2021	15 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	25.6
SS03 @ 14'	9/9/2021	14 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	135
SS04 @ 6'	9/9/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	99.0
SS05 @ 14'	9/9/2021	14 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	31.5
SS06 @ 6'	9/9/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	30.8
SS07 @ 14'	9/9/2021	14 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	32.0
SS08 @ 6'	9/9/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	87.0
SS09 @ 14'	9/10/2021	14 ft. bgs	0.017	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	0.0078	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	28.5
SS10 @ 6'	9/10/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	90.6
SS12 @ 14'	9/13/2021	14 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	39.1
SS13 @ 6'	9/13/2021	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	62.0

**Notes:**

- Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.  
COGCC = Colorado Oil and Gas Conservation Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics  
TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics  
TEPH-ORO = Total extractable petroleum hydrocarbons - oil range organics  
mg/kg = Milligrams per kilogram  
M = Methylnaphthalene  
Benz(a) = Benzanthracene  
TMB = Trimethylbenzene  
= Source material characterization sample  
= Sample material excavated and transported off-site for disposal  
ft. = Feet  
bgs = Below ground surface  
**BOLD** = Analytical result is in exceedance of applicable standard  
**BOLD** = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

**TABLE 2**  
**FORMER GARDEN 41-13 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>
AST01-B @ 3'	9/7/2021	3 ft. bgs	7.92	0.0509	0.0142	0.0676
AST01-E @ 2.5'	9/7/2021	2.5 ft. bgs	7.90	0.0906	0.00264	0.157
PWV01-B @ 4'	9/7/2021	4 ft. bgs	8.08	0.0770	0.0266	<0.0100
PWV01-S @ 2.5'	9/7/2021	2.5 ft. bgs	7.41	0.0377	0.00409	<0.0100
SS01 @ 2.5'	9/8/2021	2.5 ft. bgs	8.12	0.215	0.0299	0.116
SS11 @ 2.5'	9/10/2021	2.5 ft. bgs	8.70	0.146	0.0316	<0.0100
SS14 @ 2.5'	9/13/2021	2.5 ft. bgs	7.90	0.204	0.0390	<0.0100
BKG02 @ 2.5'	9/10/2021	2.5 ft. bgs	8.33	0.0575	0.0208	<0.0100
BKG02 @ 6'	9/10/2021	6 ft. bgs	8.28	1.15	0.144	<0.0100
BKG02 @ 15'	9/10/2021	15 ft. bgs	8.56	0.500	0.205	<0.0100

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

bgs = Below ground surface

  = Source material characterization sample

  = Sample material excavated and transported off-site for disposal

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

TABLE 3  
FORMER GARDEN 41-13 TANK BATTERY  
SOIL ANALYTICAL RESULTS SUMMARY TABLE  
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
SS01 @ 2.5'	9/8/2021	2.5 ft. bgs	0.0195	<0.00500	0.0247	<0.00500	<0.00500	<0.00500	0.0162	<0.00500	0.0152	0.0630	<0.00500	0.0331	0.584	11.1

**Notes:**  
1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.  
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.  
3. SSLs are applicable if a pathway for communication with  
COGCC = Colorado Oil and Gas Conservation Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
PAHs = Polycyclic aromatic hydrocarbons  
Benz(a) = Benzanthracene  
Benzo(a) = Benzopyrene  
Benzo(b) = Benzofluoranthene  
Benzo(k) = Benzofluoranthene  
A,H = Dibenzoanthracene  
1,2,3-CD = Indenopyrene  
M = Methylnaphthalene  
mg/kg = Milligrams per kilogram  
ft. = Feet  
bgs = Below ground surface

**TABLE 4**  
**FORMER BUFFALO GARDEN 41-13 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**METALS**

Sample ID	Date Sampled	Depth	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL <sup>(1,2)</sup>			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
SS01 @ 2.5'	9/8/2021	2.5 ft. bgs	2.61	88.9	<0.246	<0.30 <sup>(4)</sup>	8.88	6.86	9.18	0.624	0.0489	38.7
BKG02 @ 2.5'	9/10/2021	2.5 ft. bgs	1.73	68.1	<0.209	<0.30 <sup>(4)</sup>	7.08	5.53	8.20	0.473	0.0344	30.8
BKG02 @ 6'	9/10/2021	6 ft. bgs	2.34	53.7	<0.212	<0.30 <sup>(4)</sup>	6.71	5.70	4.91	0.474	<0.0212	23.4
BKG02 @ 15'	9/10/2021	15 ft. bgs	5.52	53.1	<0.219	<0.30 <sup>(4)</sup>	15.9	10.9	13.3	0.737	0.0269	94.7
BKG03 @ 2.5'	6/2/2022	2.5 ft. bgs	2.23	89.3	<0.210	<0.30 <sup>(4)</sup>	9.68	6.01	11.2	0.536	0.0521	35.0
BKG03 @ 6'	6/2/2022	6 ft. bgs	2.51	54.6	<0.206	<0.30 <sup>(4)</sup>	6.90	3.67	6.29	0.338	0.0206	22.1
BKG03 @ 14'	6/2/2022	14 ft. bgs	3.49	33.0	<0.225	<0.30 <sup>(4)</sup>	5.22	5.56	4.92	0.375	<0.0225	26.6
BKG04 @ 2.5'	6/2/2022	2.5 ft. bgs	2.78	116	<0.215	<0.30 <sup>(4)</sup>	11.2	7.22	11.7	0.584	0.0571	42.0
BKG04 @ 6'	6/2/2022	6 ft. bgs	2.67	70.0	<0.215	<0.30 <sup>(4)</sup>	7.66	5.08	7.65	0.465	0.0258	27.9
BKG04 @ 11'	6/2/2022	11 ft. bgs	4.40	60.7	<0.217	<0.30 <sup>(4)</sup>	6.62	5.42	6.94	0.400	0.0244	26.3
BKG05 @ 2.5'	6/2/2022	2.5 ft. bgs	2.24	81.6	<0.211	<0.30 <sup>(4)</sup>	9.08	5.88	10.5	0.570	0.0492	33.4
BKG05 @ 6'	6/2/2022	6 ft. bgs	1.74	35.9	<0.205	<0.30 <sup>(4)</sup>	5.48	3.28	4.65	0.318	<0.0205	18.7
BKG05 @ 9'	6/2/2022	9 ft. bgs	2.45	37.4	<0.205	<0.30 <sup>(4)</sup>	7.46	3.75	5.74	0.323	<0.0205	20.3

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

COGCC = Colorado Oil and Gas Conservation Commission

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

mg/kg = Milligrams per kilogram

  = Source material characterization sample

ft. = Feet

bgs = Below ground surface

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

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

**TABLE 5**  
**FORMER GARDEN 41-13 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)
MH01 @ 0-6"	9/7/2021	0-6 in. bgs	40.143744	-104.944360	1.1	0.5
SEP01-FL @ 5'	9/7/2021	5 ft. bgs	40.143998	-104.944429	1.1	1.2
PWV01-B @ 4'	9/7/2021	4 ft. bgs	40.144334	-104.944442	1.1	0.2
PWV01-N @ 2.5'	9/7/2021	2.5 ft. bgs	40.144349	-104.944443	1.1	0.0
PWV01-W @ 2.5'	9/7/2021	2.5 ft. bgs	40.144334	-104.944458	1.1	0.0
PWV01-S @ 2.5'	9/7/2021	2.5 ft. bgs	40.144315	-104.944447	1.1	0.3
PWV01-E @ 2.5'	9/7/2021	2.5 ft. bgs	40.144327	-104.944419	1.1	0.1
AST01-B @ 5'	9/7/2021	5 ft. bgs	40.144292	-104.944457	1.3	5.6
AST01-N @ 2.5'	9/7/2021	2.5 ft. bgs	40.144304	-104.944452	1.2	0.4
AST01-W @ 2.5'	9/7/2021	2.5 ft. bgs	40.144300	-104.944470	1.1	1.0
AST01-S @ 2.5'	9/7/2021	2.5 ft. bgs	40.144284	-104.944458	1.1	0.0
AST01-E @ 2.5'	9/7/2021	2.5 ft. bgs	40.144287	-104.944443	1.2	1.1
WDL01 @ 2.5'	9/7/2021	2.5 ft. bgs	40.144264	-104.944375	1.1	5.1
SS01 @ 2.5'	9/8/2021	2.5 ft. bgs	40.143960	-104.944405	1.2	1,962
SS02 @ 15'	9/9/2021	15 ft. bgs	40.143966	-104.944420	1.1	27.8
SS03 @ 14'	9/9/2021	14 ft. bgs	40.143992	-104.944409	1.2	0.3
SS04 @ 6'	9/9/2021	6 ft. bgs	40.143992	-104.944409	1.2	0.1
SS05 @ 14'	9/9/2021	14 ft. bgs	40.143974	-104.944436	1.3	12.0
SS06 @ 6'	9/9/2021	6 ft. bgs	40.143974	-104.944436	1.3	0.1
SS07 @ 14'	9/9/2021	14 ft. bgs	40.143978	-104.944394	1.3	0.2
SS08 @ 6'	9/9/2021	6 ft. bgs	40.143978	-104.944394	1.3	0.0
SS09 @ 14'	9/10/2021	14 ft. bgs	40.143951	-104.944412	1.3	3.8
SS10 @ 6'	9/10/2021	6 ft. bgs	40.143951	-104.944412	1.3	0.0
SS11 @ 2.5'	9/10/2021	2.5 ft. bgs	40.143951	-104.944412	1.3	0.1
SS12 @ 14'	9/13/2021	14 ft. bgs	40.143942	-104.944422	1.4	3.8
SS13 @ 6'	9/13/2021	6 ft. bgs	40.143942	-104.944422	1.4	0.0
SS14 @ 2.5'	9/13/2021	2.5 ft. bgs	40.143985	-104.944393	1.6	0.0
BKG02 @ 2.5'	9/10/2021	2.5 ft. bgs	40.144013	-104.944194	1.6	0.4
BKG02 @ 6'	9/10/2021	6 ft. bgs	40.144013	-104.944194	1.6	0.0
BKG02 @ 14'	9/10/2021	15 ft. bgs	40.144013	-104.944194	1.6	0.1
BKG03 @ 2.5'	6/2/2022	2.5 ft. bgs	40.144099	-104.944603	NC	0.0
BKG03 @ 6'	6/2/2022	6 ft. bgs	40.144099	-104.944603	NC	0.0
BKG03 @ 14'	6/2/2022	14 ft. bgs	40.144099	-104.944603	NC	0.0
BKG04 @ 2.5'	6/2/2022	2.5 ft. bgs	40.143949	-104.944605	NC	0.0
BKG04 @ 6'	6/2/2022	6 ft. bgs	40.143949	-104.944605	NC	0.0
BKG04 @ 11'	6/2/2022	11 ft. bgs	40.143949	-104.944605	NC	0.0
BKG05 @ 2.5'	6/2/2022	2.5 ft. bgs	40.1439862	-104.9441972	NC	0.0
BKG05 @ 6'	6/2/2022	6 ft. bgs	40.1439862	-104.9441972	NC	0.0
BKG05 @ 9'	6/2/2022	9 ft. bgs	40.1439862	-104.9441972	NC	0.0

Notes:

**TABLE 5**  
**FORMER GARDEN 41-13 TANK BATTERY**  
**FIELD DATA SUMMARY TABLE**

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

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

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

  = Source material characterization sample

NC = Data not collected

## Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 15, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000


Denver, CO 80203

RE: Buffalo Gardens 41-13 Tank Battery

Work Order #2109085

Enclosed are the results of analyses for samples received by Summit Scientific on 09/07/21 19:47. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premier For Paul Shrewsbury  
President





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01-B@3'	2109085-01	Soil	09/07/21 14:54	09/07/21 19:47
AST01-E@2.5'	2109085-05	Soil	09/07/21 15:02	09/07/21 19:47

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.*

## 2109085

page 1 of 1

Peter Mavris     Mark Longhorn

E-Mail	mark.henrich@PBC.ac.uk
--------	------------------------

*(continued)*

Project Name: 8. Hydro Gardens 41-11 Term: 8.4.07

Project Number: \_\_\_\_\_

Sample Name: <u>Dylon Brightwell</u>				Project Number:				Analysis Requested:										Special Instructions:					
ID	Sample Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Other	ART-X - GEM	PPH - COC - 107	ART-X - SAR	Other - HVS	NOV - 305	PAH - 305	Metals - 305	TOX - 305	Other	
					BCL	INOL	None	Other	Water	Soil	Air Contaminant												
1	ASTel - B @ 2.5'	9/7/21	17:45	1		X			X				X	X	X	X						X	
2	ASTel - A @ 2.5'		14:56	2		X			X														X
3	ASTel - A @ 2.5'		14:58	3		X			X														X
4	ASTel - S @ 2.5'		16:00	2		X			X														X
5	ASTel - E @ 2.5'	X	16:02	3		X			X				X	X	X	X						X	
6																							
7																							
8																							
9																							
10																							
Retrieved by: <u>Dylon Brightwell</u>		Date/Time: <u>9/7/21 16:25</u>		Received by: <u>Tasman's Lock Box</u>		Date/Time: <u>9/7/21 16:25</u>		Turn Around Time: <u>Same Day</u>		(Check) <u>X</u>		72 hours		Standard		Notes: <u></u>							
Retrieved by: <u>Tasman's Lock Box</u>		Date/Time: <u></u>		Received by: <u></u>		Date/Time: <u></u>		14 hours															
								48 hours															
								Sample Integrity:															
Retrieved by: <u></u>		Date/Time: <u></u>		Received by: <u></u>		Date/Time: <u></u>		Temperature Upon Receipt: <u></u>															
								Samples intact: <u>Yes</u>		<u>No</u>													

## Sample Receipt Checklist

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

Client: PDC/Tasman Client Project ID Buffalo Gardens 41-13 Tank Batt

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

☐ ☒ ☐ ☐ ☐

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

Temp (°C)	4.2
-----------	-----

Thermometer ID: 61857155-K

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

WG

Custodian Printed Name or Initials

Signature of Custodian

9/2/21

Date/Time



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**AST01-B@3'**  
**2109085-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0127	09/07/21	09/07/21	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: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0128	"	09/08/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		126 %	30-150		"	"	"	"	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**AST01-B@3'**  
**2109085-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0676	0.0100	mg/L	1	BEI0181	09/09/21	09/11/21	EPA 6020B	

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

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4.74	0.0547	mg/L dry	1	BEI0197	09/09/21	09/13/21	EPA 6020B	
Magnesium	2.77	0.0547	"	"	"	"	"	"	
Sodium	0.157	0.0547	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0142	0.00100	units	1	BEI0263	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.4		%	1	BEI0132	09/08/21	09/08/21	Calculation	

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

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0509	0.0100	mmhos/cm	1	BEI0198	09/09/21	09/10/21	EPA 120.1	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**AST01-B@3'**  
**2109085-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 14:54**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.92</b>			pH Units	1	BEI0199	09/09/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**AST01-E@2.5'**  
**2109085-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0127	09/07/21	09/07/21	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: **09/07/21 15:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0128	"	09/08/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		126 %	30-150		"	"	"	"	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**AST01-E@2.5'**  
**2109085-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.157	0.0100	mg/L	1	BEI0193	09/09/21	09/12/21	EPA 6020B	

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

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	5.83	0.0569	mg/L dry	1	BEI0197	09/09/21	09/13/21	EPA 6020B	
Magnesium	3.83	0.0569	"	"	"	"	"	"	
Sodium	ND	0.0569	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.00264	0.00100	units	1	BEI0263	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.8		%	1	BEI0132	09/08/21	09/08/21	Calculation	

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

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0906	0.0100	mmhos/cm	1	BEI0198	09/09/21	09/10/21	EPA 120.1	

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

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**AST01-E@2.5'**  
**2109085-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 15:02**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.90</b>			pH Units	1	BEI0199	09/09/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

## 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 BEI0127 - EPA 5030 Soil MS

##### Blank (BEI0127-BLK1)

Prepared: 09/07/21 Analyzed: 09/08/21

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	0.0466		"	0.0400		117	23-173			
Surrogate: Toluene-d8	0.0433		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167			

##### LCS (BEI0127-BS1)

Prepared: 09/07/21 Analyzed: 09/08/21

Benzene	0.0873	0.0020	mg/kg	0.100		87.3	70-130			
Toluene	0.0992	0.0050	"	0.100		99.2	70-130			
Ethylbenzene	0.0726	0.0050	"	0.100		72.6	70-130			
m,p-Xylene	0.147	0.010	"	0.200		73.5	70-130			
o-Xylene	0.0776	0.0050	"	0.100		77.6	70-130			
1,2,4-Trimethylbenzene	0.0820	0.0050	"	0.100		82.0	70-130			
1,3,5-Trimethylbenzene	0.0765	0.0050	"	0.100		76.5	70-130			
Naphthalene	0.0848	0.0038	"	0.100		84.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0388		"	0.0400		97.1	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

##### Matrix Spike (BEI0127-MS1)

Source: 2109066-01

Prepared: 09/07/21 Analyzed: 09/08/21

Benzene	0.0916	0.0020	mg/kg	0.100	ND	91.6	70-130			
Toluene	0.0782	0.0050	"	0.100	ND	78.2	70-130			
Ethylbenzene	0.0795	0.0050	"	0.100	ND	79.5	70-130			
m,p-Xylene	0.161	0.010	"	0.200	ND	80.6	70-130			
o-Xylene	0.0872	0.0050	"	0.100	ND	87.2	70-130			
1,2,4-Trimethylbenzene	0.0921	0.0050	"	0.100	ND	92.1	70-130			
1,3,5-Trimethylbenzene	0.0848	0.0050	"	0.100	ND	84.8	70-130			
Naphthalene	0.100	0.0038	"	0.100	ND	100	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0380		"	0.0400		95.0	23-173			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0418		"	0.0400		104	21-167			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**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 BEI0127 - EPA 5030 Soil MS**

Matrix Spike Dup (BEI0127-MSD1)		Source: 2109066-01			Prepared: 09/07/21 Analyzed: 09/08/21					
Benzene	0.0970	0.0020	mg/kg	0.100	ND	97.0	70-130	5.73	30	
Toluene	0.0785	0.0050	"	0.100	ND	78.5	70-130	0.421	30	
Ethylbenzene	0.0775	0.0050	"	0.100	ND	77.5	70-130	2.60	30	
m,p-Xylene	0.157	0.010	"	0.200	ND	78.7	70-130	2.43	30	
o-Xylene	0.0865	0.0050	"	0.100	ND	86.5	70-130	0.726	30	
1,2,4-Trimethylbenzene	0.0901	0.0050	"	0.100	ND	90.1	70-130	2.17	30	
1,3,5-Trimethylbenzene	0.0823	0.0050	"	0.100	ND	82.3	70-130	2.98	30	
Naphthalene	0.110	0.0038	"	0.100	ND	110	70-130	9.50	30	
Surrogate: 1,2-Dichloroethane-d4		0.0406	"	0.0400		102	23-173			
Surrogate: Toluene-d8		0.0393	"	0.0400		98.3	20-170			
Surrogate: 4-Bromofluorobenzene		0.0423	"	0.0400		106	21-167			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**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 BEI0128 - EPA 3550A**

**Blank (BEI0128-BLK1)**

Prepared: 09/07/21 Analyzed: 09/08/21

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

**LCS (BEI0128-BS1)**

Prepared: 09/07/21 Analyzed: 09/08/21

C10-C28 (DRO)	543	50	mg/kg	500	109	70-130
---------------	-----	----	-------	-----	-----	--------

**Matrix Spike (BEI0128-MS1)**

Source: 2109066-01

Prepared: 09/07/21 Analyzed: 09/08/21

C10-C28 (DRO)	496	50	mg/kg	500	15.2	96.2	70-130
---------------	-----	----	-------	-----	------	------	--------

**Matrix Spike Dup (BEI0128-MSD1)**

Source: 2109066-01

Prepared: 09/07/21 Analyzed: 09/08/21

C10-C28 (DRO)	533	50	mg/kg	500	15.2	104	70-130	7.19	20
---------------	-----	----	-------	-----	------	-----	--------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**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 BEI0181 - EPA 3050B**

<b>Blank (BEI0181-BLK1)</b>				Prepared: 09/09/21 Analyzed: 09/11/21						
Boron	ND	0.0100	mg/L							
<b>LCS (BEI0181-BS1)</b>				Prepared: 09/09/21 Analyzed: 09/11/21						
Boron	4.89	0.0100	mg/L	5.00		97.8	80-120			
<b>Duplicate (BEI0181-DUP1)</b>				<b>Source: 2108107-08</b>		Prepared: 09/09/21 Analyzed: 09/11/21				
Boron	1.81	0.0100	mg/L		1.80			0.523	20	
<b>Matrix Spike (BEI0181-MS1)</b>				<b>Source: 2108107-08</b>		Prepared: 09/09/21 Analyzed: 09/11/21				
Boron	6.48	0.0100	mg/L	5.00	1.80	93.6	75-125			
<b>Matrix Spike Dup (BEI0181-MSD1)</b>				<b>Source: 2108107-08</b>		Prepared: 09/09/21 Analyzed: 09/11/21				
Boron	6.59	0.0100	mg/L	5.00	1.80	95.9	75-125	1.78	25	

**Batch BEI0193 - EPA 3050B**

<b>Blank (BEI0193-BLK1)</b>				Prepared: 09/09/21 Analyzed: 09/11/21						
Boron	ND	0.0100	mg/L							
<b>LCS (BEI0193-BS1)</b>				Prepared: 09/09/21 Analyzed: 09/11/21						
Boron	5.00	0.0100	mg/L	5.00		100	80-120			
<b>Duplicate (BEI0193-DUP1)</b>				<b>Source: 2108107-10</b>		Prepared: 09/09/21 Analyzed: 09/12/21				
Boron	1.68	0.0100	mg/L		1.67			1.01	20	
<b>Matrix Spike (BEI0193-MS1)</b>				<b>Source: 2108107-10</b>		Prepared: 09/09/21 Analyzed: 09/12/21				
Boron	6.76	0.0100	mg/L	5.00	1.67	102	75-125			

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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

09/15/21 10:46

**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 BEI0193 - EPA 3050B**

**Matrix Spike Dup (BEI0193-MSD1)**

**Source: 2108107-10**

Prepared: 09/09/21 Analyzed: 09/12/21

Boron	6.50	0.0100	mg/L	5.00	1.67	96.6	75-125	3.94	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**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 BEI0197 - General Preparation**

**Blank (BEI0197-BLK1)**

Prepared: 09/09/21 Analyzed: 09/13/21

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

**LCS (BEI0197-BS1)**

Prepared: 09/09/21 Analyzed: 09/13/21

Calcium	5.57	0.0500	mg/L wet	5.00	111	70-130
Magnesium	4.91	0.0500	"	5.00	98.3	70-130
Sodium	4.79	0.0500	"	5.00	95.8	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

### 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 BEI0132 - General Preparation

Duplicate (BEI0132-DUP1)		Source: 2109018-03		Prepared & Analyzed: 09/08/21						
% Solids	80.5		%		80.2			0.379		20

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

**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 BEI0198 - General Preparation**

**Blank (BEI0198-BLK1)**

Prepared: 09/09/21 Analyzed: 09/10/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEI0198-BS1)**

Prepared: 09/09/21 Analyzed: 09/10/21

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

**Duplicate (BEI0198-DUP1)**

**Source: 2109063-01**

Prepared: 09/09/21 Analyzed: 09/10/21

Specific Conductance (EC) 1.46 0.0100 mmhos/cm 1.46 0.137 20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

09/15/21 10:46

**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 BEI0199 - General Preparation**

**LCS (BEI0199-BS1)**

Prepared: 09/09/21 Analyzed: 09/13/21

pH	9.34	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEI0199-DUP1)**

**Source: 2109063-01**

Prepared: 09/09/21 Analyzed: 09/13/21

pH	7.82	pH Units	7.99	2.15	20
----	------	----------	------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:46

### 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

September 15, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

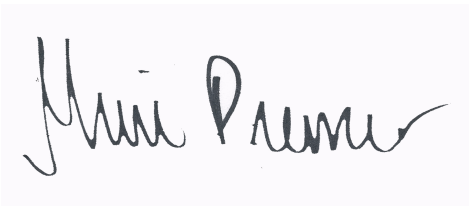
Denver, CO 80203

RE: Buffalo Gardens 41-13 Tank Battery

Work Order #2109091

Enclosed are the results of analyses for samples received by Summit Scientific on 09/07/21 20:59. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premier For Paul Shrewsbury  
President



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SEP-FL@2.5'	2109091-01	Soil	09/07/21 11:20	09/07/21 20:59
PWV01-B@4'	2109091-02	Soil	09/07/21 12:00	09/07/21 20:59
PWV01-S@2.5'	2109091-05	Soil	09/07/21 12:06	09/07/21 20:59

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.*

## 2109091

Page 1 of 1

Project Name		Project Number		Analysis Requested										Special Instructions																																																																																																																																																																																																																																																																																																															
Sample Description		Date Sampled	Time Sampled	# of containers	Preservative			Matrix			Analysis Requested							Special Instructions																																																																																																																																																																																																																																																																																																											
ID					DOC	DOC	None	Other	Water	Soil	Alc Contaminant	Other	CHLORINATION	THP (C6-C16)	PAT. C. SAR	Boron - BMS	NAC - #13	PAH - #14	Stds - #16	Stds - #17	Stds - #18	Stds - #19	Stds - #20	Stds - #21	Stds - #22	Stds - #23	Stds - #24	Stds - #25	Stds - #26	Stds - #27	Stds - #28	Stds - #29	Stds - #30	Stds - #31	Stds - #32	Stds - #33	Stds - #34	Stds - #35	Stds - #36	Stds - #37	Stds - #38	Stds - #39	Stds - #40	Stds - #41	Stds - #42	Stds - #43	Stds - #44	Stds - #45	Stds - #46	Stds - #47	Stds - #48	Stds - #49	Stds - #50	Stds - #51	Stds - #52	Stds - #53	Stds - #54	Stds - #55	Stds - #56	Stds - #57	Stds - #58	Stds - #59	Stds - #60	Stds - #61	Stds - #62	Stds - #63	Stds - #64	Stds - #65	Stds - #66	Stds - #67	Stds - #68	Stds - #69	Stds - #70	Stds - #71	Stds - #72	Stds - #73	Stds - #74	Stds - #75	Stds - #76	Stds - #77	Stds - #78	Stds - #79	Stds - #80	Stds - #81	Stds - #82	Stds - #83	Stds - #84	Stds - #85	Stds - #86	Stds - #87	Stds - #88	Stds - #89	Stds - #90	Stds - #91	Stds - #92	Stds - #93	Stds - #94	Stds - #95	Stds - #96	Stds - #97	Stds - #98	Stds - #99	Stds - #100	Stds - #101	Stds - #102	Stds - #103	Stds - #104	Stds - #105	Stds - #106	Stds - #107	Stds - #108	Stds - #109	Stds - #110	Stds - #111	Stds - #112	Stds - #113	Stds - #114	Stds - #115	Stds - #116	Stds - #117	Stds - #118	Stds - #119	Stds - #120	Stds - #121	Stds - #122	Stds - #123	Stds - #124	Stds - #125	Stds - #126	Stds - #127	Stds - #128	Stds - #129	Stds - #130	Stds - #131	Stds - #132	Stds - #133	Stds - #134	Stds - #135	Stds - #136	Stds - #137	Stds - #138	Stds - #139	Stds - #140	Stds - #141	Stds - #142	Stds - #143	Stds - #144	Stds - #145	Stds - #146	Stds - #147	Stds - #148	Stds - #149	Stds - #150	Stds - #151	Stds - #152	Stds - #153	Stds - #154	Stds - #155	Stds - #156	Stds - #157	Stds - #158	Stds - #159	Stds - #160	Stds - #161	Stds - #162	Stds - #163	Stds - #164	Stds - #165	Stds - #166	Stds - #167	Stds - #168	Stds - #169	Stds - #170	Stds - #171	Stds - #172	Stds - #173	Stds - #174	Stds - #175	Stds - #176	Stds - #177	Stds - #178	Stds - #179	Stds - #180	Stds - #181	Stds - #182	Stds - #183	Stds - #184	Stds - #185	Stds - #186	Stds - #187	Stds - #188	Stds - #189	Stds - #190	Stds - #191	Stds - #192	Stds - #193	Stds - #194	Stds - #195	Stds - #196	Stds - #197	Stds - #198	Stds - #199	Stds - #200	Stds - #201	Stds - #202	Stds - #203	Stds - #204	Stds - #205	Stds - #206	Stds - #207	Stds - #208	Stds - #209	Stds - #210	Stds - #211	Stds - #212	Stds - #213	Stds - #214	Stds - #215	Stds - #216	Stds - #217	Stds - #218	Stds - #219	Stds - #220	Stds - #221	Stds - #222	Stds - #223	Stds - #224	Stds - #225	Stds - #226	Stds - #227	Stds - #228	Stds - #229	Stds - #230	Stds - #231	Stds - #232	Stds - #233	Stds - #234	Stds - #235	Stds - #236	Stds - #237	Stds - #238	Stds - #239	Stds - #240	Stds - #241	Stds - #242	Stds - #243	Stds - #244	Stds - #245	Stds - #246	Stds - #247	Stds - #248	Stds - #249	Stds - #250	Stds - #251	Stds - #252	Stds - #253	Stds - #254	Stds - #255	Stds - #256	Stds - #257	Stds - #258	Stds - #259	Stds - #260	Stds - #261	Stds - #262	Stds - #263	Stds - #264	Stds - #265	Stds - #266	Stds - #267	Stds - #268	Stds - #269	Stds - #270	Stds - #271	Stds - #272	Stds - #273	Stds - #274	Stds - #275	Stds - #276	Stds - #277	Stds - #278	Stds - #279	Stds - #280	Stds - #281	Stds - #282	Stds - #283	Stds - #284	Stds - #285	Stds - #286	Stds - #287	Stds - #288	Stds - #289	Stds - #290	Stds - #291	Stds - #292	Stds - #293	Stds - #294	Stds - #295	Stds - #296	Stds - #297	Stds - #298	Stds - #299	Stds - #300	Stds - #301	Stds - #302	Stds - #303	Stds - #304	Stds - #305	Stds - #306	Stds - #307	Stds - #308	Stds - #309	Stds - #310	Stds - #311	Stds - #312	Stds - #313	

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check):	Notes:
Dylan Brightwell	9/21/16:15	Tasman's Lock Box	9/21/16:15	Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
Tasman's Lock Box				Temperature Upon Receipt: _____	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact: Yes No	

## Sample Receipt Checklist

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

Client: PDC/Tasman Client Project ID Buffalo Gardens 41-13 Tank Batt

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

☐ ☒ ☐ ☐ ☐

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

Temp (°C)	4.2
-----------	-----

Thermometer ID: 61857155-K

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

WG

Custodian Printed Name or Initials

Signature of Custodian

9/2/21

Date/Time



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

**SEP-FL@2.5'**  
**2109091-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0160	09/08/21	09/09/21	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: **09/07/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/07/21 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0161	09/08/21	09/09/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/07/21 11:20**

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

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

**PWV01-B@4'**  
**2109091-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0160	09/08/21	09/09/21	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: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.2 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0161	09/08/21	09/09/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		117 %	30-150		"	"	"	"	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

**PWV01-B@4'**  
**2109091-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	0.0100	mg/L	1	BEI0244	09/13/21	09/14/21	EPA 6020B	

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

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	2.16	0.0520	mg/L dry	1	BEI0197	09/09/21	09/13/21	EPA 6020B	
Magnesium	1.23	0.0520	"	"	"	"	"	"	
Sodium	0.198	0.0520	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Sodium Adsorption Ratio	0.0266	0.00100	units	1	BEI0263	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	96.2		%	1	BEI0245	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Specific Conductance (EC)	0.0770	0.0100	mmhos/cm	1	BEI0198	09/09/21	09/10/21	EPA 120.1	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

**PWV01-B@4'**  
**2109091-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 12:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>8.08</b>			pH Units	1	BEI0199	09/09/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

**PWV01-S@2.5'**  
**2109091-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0160	09/08/21	09/09/21	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: **09/07/21 12:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0161	09/08/21	09/09/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		119 %	30-150		"	"	"	"	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

**PWV01-S@2.5'**  
**2109091-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	0.0100	mg/L	1	BEI0244	09/13/21	09/14/21	EPA 6020B	

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

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>5.95</b>	0.0546	mg/L dry	1	BEI0197	09/09/21	09/13/21	EPA 6020B	
Magnesium	<b>4.40</b>	0.0546	"	"	"	"	"	"	
Sodium	ND	0.0546	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	<b>0.00409</b>	0.00100	units	1	BEI0263	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	<b>91.5</b>		%	1	BEI0245	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>0.0377</b>	0.0100	mmhos/cm	1	BEI0198	09/09/21	09/10/21	EPA 120.1	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

**PWV01-S@2.5'**  
**2109091-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/07/21 12:06**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.41</b>			pH Units	1	BEI0199	09/09/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

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

### Summit Scientific

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

#### Batch BEI0160 - EPA 5030 Soil MS

##### Blank (BEI0160-BLK1)

Prepared: 09/08/21 Analyzed: 09/09/21

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	0.0393		"	0.0400		98.2	23-173			
Surrogate: Toluene-d8	0.0422		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

##### LCS (BEI0160-BS1)

Prepared: 09/08/21 Analyzed: 09/09/21

Benzene	0.0656	0.0020	mg/kg	0.0750		87.5	70-130			
Toluene	0.0766	0.0050	"	0.0750		102	70-130			
Ethylbenzene	0.0805	0.0050	"	0.0750		107	70-130			
m,p-Xylene	0.163	0.010	"	0.150		109	70-130			
o-Xylene	0.0864	0.0050	"	0.0750		115	70-130			
1,2,4-Trimethylbenzene	0.0867	0.0050	"	0.0750		116	70-130			
1,3,5-Trimethylbenzene	0.0811	0.0050	"	0.0750		108	70-130			
Naphthalene	0.0933	0.0038	"	0.0750		124	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0333		"	0.0400		83.3	23-173			
Surrogate: Toluene-d8	0.0378		"	0.0400		94.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

##### Matrix Spike (BEI0160-MS1)

Source: 2109063-01

Prepared: 09/08/21 Analyzed: 09/09/21

Benzene	0.0596	0.0020	mg/kg	0.0750	ND	79.4	70-130			
Toluene	0.0712	0.0050	"	0.0750	ND	95.0	70-130			
Ethylbenzene	0.0709	0.0050	"	0.0750	ND	94.5	70-130			
m,p-Xylene	0.146	0.010	"	0.150	ND	97.5	70-130			
o-Xylene	0.0769	0.0050	"	0.0750	ND	103	70-130			
1,2,4-Trimethylbenzene	0.0778	0.0050	"	0.0750	ND	104	70-130			
1,3,5-Trimethylbenzene	0.0720	0.0050	"	0.0750	ND	96.0	70-130			
Naphthalene	0.0921	0.0038	"	0.0750	ND	123	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0319		"	0.0400		79.7	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0400		97.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

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

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

**Batch BEI0160 - EPA 5030 Soil MS**

Matrix Spike Dup (BEI0160-MSD1)		Source: 2109063-01			Prepared: 09/08/21 Analyzed: 09/09/21					
Benzene	0.0650	0.0020	mg/kg	0.0750	ND	86.6	70-130	8.62	30	
Toluene	0.0816	0.0050	"	0.0750	ND	109	70-130	13.5	30	
Ethylbenzene	0.0784	0.0050	"	0.0750	ND	105	70-130	10.1	30	
m,p-Xylene	0.163	0.010	"	0.150	ND	109	70-130	10.8	30	
o-Xylene	0.0860	0.0050	"	0.0750	ND	115	70-130	11.1	30	
1,2,4-Trimethylbenzene	0.0888	0.0050	"	0.0750	ND	118	70-130	13.2	30	
1,3,5-Trimethylbenzene	0.0816	0.0050	"	0.0750	ND	109	70-130	12.6	30	
Naphthalene	0.0734	0.0038	"	0.0750	ND	97.9	70-130	22.5	30	
Surrogate: 1,2-Dichloroethane-d4		0.0363	"	0.0400		90.8	23-173			
Surrogate: Toluene-d8		0.0404	"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene		0.0412	"	0.0400		103	21-167			

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

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

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

**Batch BEI0161 - EPA 3550A**

**Blank (BEI0161-BLK1)**

Prepared: 09/08/21 Analyzed: 09/10/21

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

**LCS (BEI0161-BS1)**

Prepared: 09/08/21 Analyzed: 09/10/21

C10-C28 (DRO)	595	50	mg/kg	500	119	70-130
---------------	-----	----	-------	-----	-----	--------

**Matrix Spike (BEI0161-MS1)**

Source: 2109063-01

Prepared: 09/08/21 Analyzed: 09/10/21

C10-C28 (DRO)	614	50	mg/kg	500	13.0	120	70-130
---------------	-----	----	-------	-----	------	-----	--------

**Matrix Spike Dup (BEI0161-MSD1)**

Source: 2109063-01

Prepared: 09/08/21 Analyzed: 09/10/21

C10-C28 (DRO)	603	50	mg/kg	500	13.0	118	70-130	1.80	20
---------------	-----	----	-------	-----	------	-----	--------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

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

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

**Batch BEI0244 - EPA 3050B**

**Blank (BEI0244-BLK1)**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron ND 0.0100 mg/L

**LCS (BEI0244-BS1)**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron 4.88 0.0100 mg/L 5.00 97.6 80-120

**Duplicate (BEI0244-DUP1)**

**Source: 2109091-02**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron ND 0.0100 mg/L ND 20

**Matrix Spike (BEI0244-MS1)**

**Source: 2109091-02**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron 5.00 0.0100 mg/L 5.00 ND 100 75-125

**Matrix Spike Dup (BEI0244-MSD1)**

**Source: 2109091-02**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron 4.70 0.0100 mg/L 5.00 ND 94.0 75-125 6.22 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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

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

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

**Batch BEI0197 - General Preparation**

**Blank (BEI0197-BLK1)**

Prepared: 09/09/21 Analyzed: 09/13/21

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

**LCS (BEI0197-BS1)**

Prepared: 09/09/21 Analyzed: 09/13/21

Calcium	5.57	0.0500	mg/L wet	5.00	111	70-130
Magnesium	4.91	0.0500	"	5.00	98.3	70-130
Sodium	4.79	0.0500	"	5.00	95.8	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

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

#### Summit Scientific

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

#### Batch BEI0245 - General Preparation

##### Duplicate (BEI0245-DUP1)

Source: 2109091-02

Prepared & Analyzed: 09/13/21

% Solids	96.1	%	96.2	0.0998	20
----------	------	---	------	--------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

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

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

**Batch BEI0198 - General Preparation**

**Blank (BEI0198-BLK1)**

Prepared: 09/09/21 Analyzed: 09/10/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEI0198-BS1)**

Prepared: 09/09/21 Analyzed: 09/10/21

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

**Duplicate (BEI0198-DUP1)**

**Source: 2109063-01**

Prepared: 09/09/21 Analyzed: 09/10/21

Specific Conductance (EC) 1.46 0.0100 mmhos/cm 1.46 0.137 20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

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

**Summit Scientific**

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

**Batch BEI0199 - General Preparation**

**LCS (BEI0199-BS1)**

Prepared: 09/09/21 Analyzed: 09/13/21

pH	9.34	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEI0199-DUP1)**

**Source: 2109063-01**

Prepared: 09/09/21 Analyzed: 09/13/21

pH	7.82	pH Units	7.99	2.15	20
----	------	----------	------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:41

### Notes and Definitions

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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 15, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000


Denver, CO 80203

RE: Buffalo Gardens 41-13 Tank Battery

Work Order #2109098

Enclosed are the results of analyses for samples received by Summit Scientific on 09/08/21 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premier For Paul Shrewsbury  
President





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@2.5'	2109098-01	Soil	09/08/21 10:30	09/08/21 17:30

Summit Scientific

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

2109098

# Summit Scientific

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@PDCI.com  
City/State/Zip: Broomfield/ CO 80020  
Phone: 303-487-1228 Project Name: Buffalo Gardens 41-13 Tank Battery  
Sampler Name: Dylan Brightwell Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested								Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBEEN - 8260B <sup>915</sup>	TPH - (C6 - C36) <sup>915</sup>	pH, EC, SAR <sup>915</sup>	Boron - HWS <sup>915</sup>	VOC - 915	PAH - 915	Metals - 915		TMBS (1/27)(0.35) <sup>915</sup>
1	5501 @ 2.5'	9/8/21	1030	3			X			X			X	X	X	X		X	X	X	pH, EC, SAR by saturated paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
Dylan Brightwell	9/8/21 14:55	Tasman's Lock Box	9/8/21 14:55	Same Day	X 72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
Tasman's Lock Box	09/08/2021 1730		09/08/2021 1730	48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
				Temperature Upon Receipt:	S	
				Samples Intact:	Yes No	

# Sample Receipt Checklist

S2 Work Order 2109698

Client: PDC / TARMAN

Client Project ID: Buffalo Gardens 41-13

Shipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other ☒

Airbill #: \_\_\_\_\_

Matrix (check all that apply):

☐ Air

☒ Soil/Solid

☐ Water

☐ Other: \_\_\_\_\_

(Describe)

Temp (°C)

5

Thermometer ID: 61857155-K

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

Signature of Custodian

Date/Time

07/08/2004



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**SS01@2.5'**  
**2109098-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0167	09/08/21	09/09/21	EPA 8260B	
Toluene	0.53	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.11	0.0050	"	"	"	"	"	"	
Xylenes (total)	13	0.10	"	10	"	"	"	"	
1,2,4-Trimethylbenzene	0.39	0.0050	"	1	"	"	"	"	
1,3,5-Trimethylbenzene	5.2	0.050	"	10	"	"	"	"	
Naphthalene	0.043	0.0038	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	2300	5.0	"	10	"	"	"	"	E

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	70.4 %	23-173			"	"	"	"	
Surrogate: Toluene-d8	90.5 %	20-170			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	275 %	21-167			"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	160	50	mg/kg	1	BEI0168	09/08/21	09/08/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	131 %	30-150			"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**SS01@2.5'**  
**2109098-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Acenaphthene</b>	<b>0.0195</b>	0.00500	mg/kg	1	BEI0190	09/09/21	09/11/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
<b>Benzo (a) anthracene</b>	<b>0.0247</b>	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
<b>Chrysene</b>	<b>0.0162</b>	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
<b>Fluoranthene</b>	<b>0.0152</b>	0.00500	"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.0630</b>	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
<b>Pyrene</b>	<b>0.0331</b>	0.00500	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>0.584</b>	0.0500	"	10	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>11.1</b>	1.05	"	210	"	"	"	"	

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		53.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		40.8 %	40-150		"	"	"	"	

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

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.116</b>	0.0100	mg/L	1	BEI0181	09/09/21	09/11/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**SS01@2.5'**  
**2109098-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	2.61	0.246	mg/kg dry	1	BEI0178	09/09/21	09/11/21	EPA 6020B
Barium	88.9	0.492	"	"	"	"	"	"
Cadmium	ND	0.246	"	"	"	"	"	"
Copper	8.88	0.492	"	"	"	"	"	"
Lead	6.86	0.246	"	"	"	"	"	"
Nickel	9.18	0.492	"	"	"	"	"	"
Selenium	0.624	0.320	"	"	"	"	"	"
Silver	0.0489	0.0246	"	"	"	"	"	"
Zinc	38.7	0.492	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEI0257	09/13/21	09/13/21	EPA 7196A	

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

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	3.14	0.0615	mg/L dry	1	BEI0240	09/13/21	09/13/21	EPA 6020B	
Magnesium	2.08	0.0615	"	"	"	"	"	"	
Sodium	0.278	0.0615	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0299	0.00100	units	1	BEI0300	09/14/21	09/14/21	Calculation	

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

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**SS01@2.5'**  
**2109098-01 (Soil)**

**Summit Scientific**

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

% Solids	81.4	%	1	BEI0173	09/09/21	09/09/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

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

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.215	0.0100	mmhos/cm	1	BEI0243	09/13/21	09/13/21	EPA 120.1	

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

Date Sampled: **09/08/21 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.12		pH Units	1	BEI0242	09/13/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

## 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 BEI0167 - EPA 5030 Soil MS

##### Blank (BEI0167-BLK1)

Prepared: 09/08/21 Analyzed: 09/09/21

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	0.0436		"	0.0400		109	23-173			
Surrogate: Toluene-d8	0.0435		"	0.0400		109	20-170			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	21-167			

##### LCS (BEI0167-BS1)

Prepared: 09/08/21 Analyzed: 09/09/21

Benzene	0.0941	0.0020	mg/kg	0.100		94.1	70-130			
Toluene	0.0740	0.0050	"	0.100		74.0	70-130			
Ethylbenzene	0.0765	0.0050	"	0.100		76.5	70-130			
m,p-Xylene	0.154	0.010	"	0.200		76.9	70-130			
o-Xylene	0.0823	0.0050	"	0.100		82.3	70-130			
1,2,4-Trimethylbenzene	0.0854	0.0050	"	0.100		85.4	70-130			
1,3,5-Trimethylbenzene	0.0791	0.0050	"	0.100		79.1	70-130			
Naphthalene	0.0942	0.0038	"	0.100		94.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0400		92.6	23-173			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	21-167			

##### Matrix Spike (BEI0167-MS1)

Source: 2109095-01

Prepared: 09/08/21 Analyzed: 09/09/21

Benzene	0.0898	0.0020	mg/kg	0.100	ND	89.8	70-130			
Toluene	0.0977	0.0050	"	0.100	ND	97.7	70-130			
Ethylbenzene	0.0988	0.0050	"	0.100	ND	98.8	70-130			
m,p-Xylene	0.199	0.010	"	0.200	ND	99.6	70-130			
o-Xylene	0.0759	0.0050	"	0.100	ND	75.9	70-130			
1,2,4-Trimethylbenzene	0.0754	0.0050	"	0.100	ND	75.4	70-130			
1,3,5-Trimethylbenzene	0.0700	0.0050	"	0.100	ND	70.0	70-130			
Naphthalene	0.0892	0.0038	"	0.100	ND	89.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0340		"	0.0400		85.0	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0400		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.3	21-167			

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**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 BEI0167 - EPA 5030 Soil MS**

Matrix Spike Dup (BEI0167-MSD1)		Source: 2109095-01			Prepared: 09/08/21 Analyzed: 09/09/21					
Benzene	0.0901	0.0020	mg/kg	0.100	ND	90.1	70-130	0.300	30	
Toluene	0.0988	0.0050	"	0.100	ND	98.8	70-130	1.16	30	
Ethylbenzene	0.0983	0.0050	"	0.100	ND	98.3	70-130	0.487	30	
m,p-Xylene	0.198	0.010	"	0.200	ND	99.2	70-130	0.453	30	
o-Xylene	0.0760	0.0050	"	0.100	ND	76.0	70-130	0.237	30	
1,2,4-Trimethylbenzene	0.0768	0.0050	"	0.100	ND	76.8	70-130	1.81	30	
1,3,5-Trimethylbenzene	0.0706	0.0050	"	0.100	ND	70.6	70-130	0.854	30	
Naphthalene	0.0911	0.0038	"	0.100	ND	91.1	70-130	2.10	30	
Surrogate: 1,2-Dichloroethane-d4		0.0361	"	0.0400		90.2	23-173			
Surrogate: Toluene-d8		0.0397	"	0.0400		99.3	20-170			
Surrogate: 4-Bromofluorobenzene		0.0391	"	0.0400		97.6	21-167			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**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 BEI0168 - EPA 3550A**

**Blank (BEI0168-BLK1)**

Prepared: 09/08/21 Analyzed: 09/09/21

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

**LCS (BEI0168-BS1)**

Prepared: 09/08/21 Analyzed: 09/09/21

C10-C28 (DRO)	556	50	mg/kg	500	111	70-130
---------------	-----	----	-------	-----	-----	--------

**Matrix Spike (BEI0168-MS1)**

Source: 2109095-01

Prepared: 09/08/21 Analyzed: 09/09/21

C10-C28 (DRO)	593	50	mg/kg	500	15.3	115	70-130
---------------	-----	----	-------	-----	------	-----	--------

**Matrix Spike Dup (BEI0168-MSD1)**

Source: 2109095-01

Prepared: 09/08/21 Analyzed: 09/09/21

C10-C28 (DRO)	555	50	mg/kg	500	15.3	108	70-130	6.61	20
---------------	-----	----	-------	-----	------	-----	--------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BEI0190 - EPA 5030 Soil MS

##### Blank (BEI0190-BLK1)

Prepared: 09/09/21 Analyzed: 09/10/21

Acenaphthene	ND	0.00500	mg/kg								
Anthracene	ND	0.00500	"								
Benzo (a) anthracene	ND	0.00500	"								
Benzo (a) pyrene	ND	0.00500	"								
Benzo (b) fluoranthene	ND	0.00500	"								
Benzo (k) fluoranthene	ND	0.00500	"								
Chrysene	ND	0.00500	"								
Dibenz (a,h) anthracene	ND	0.00500	"								
Fluoranthene	ND	0.00500	"								
Fluorene	ND	0.00500	"								
Indeno (1,2,3-cd) pyrene	ND	0.00500	"								
Pyrene	ND	0.00500	"								
1-Methylnaphthalene	ND	0.00500	"								
2-Methylnaphthalene	ND	0.00500	"								
Surrogate: 2-Methylnaphthalene-d10	0.0247		"	0.0333		74.2		40-150			
Surrogate: Fluoranthene-d10	0.0188		"	0.0333		56.4		40-150			

##### LCS (BEI0190-BS1)

Prepared: 09/09/21 Analyzed: 09/10/21

Acenaphthene	0.0296	0.00500	mg/kg	0.0333		88.7		31-137			
Anthracene	0.0286	0.00500	"	0.0333		85.7		30-120			
Benzo (a) anthracene	0.0293	0.00500	"	0.0333		88.0		30-120			
Benzo (a) pyrene	0.0343	0.00500	"	0.0333		103		30-120			
Benzo (b) fluoranthene	0.0365	0.00500	"	0.0333		110		30-120			
Benzo (k) fluoranthene	0.0381	0.00500	"	0.0333		114		30-120			
Chrysene	0.0287	0.00500	"	0.0333		86.1		30-120			
Dibenz (a,h) anthracene	0.0182	0.00500	"	0.0333		54.7		30-120			
Fluoranthene	0.0305	0.00500	"	0.0333		91.5		30-120			
Fluorene	0.0307	0.00500	"	0.0333		92.1		30-120			
Indeno (1,2,3-cd) pyrene	0.0191	0.00500	"	0.0333		57.4		30-120			
Pyrene	0.0278	0.00500	"	0.0333		83.5		35-142			
1-Methylnaphthalene	0.0307	0.00500	"	0.0333		92.1		35-142			
2-Methylnaphthalene	0.0264	0.00500	"	0.0333		79.1		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0215		"	0.0333		64.5		40-150			
Surrogate: Fluoranthene-d10	0.0170		"	0.0333		51.0		40-150			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BEI0190 - EPA 5030 Soil MS

Matrix Spike (BEI0190-MS1)				Source: 2109097-01		Prepared: 09/09/21		Analyzed: 09/10/21	
Acenaphthene	0.0274	0.00500	mg/kg	0.0333	ND	82.1	31-137		
Anthracene	0.0261	0.00500	"	0.0333	ND	78.4	30-120		
Benzo (a) anthracene	0.0275	0.00500	"	0.0333	ND	82.4	30-120		
Benzo (a) pyrene	0.0307	0.00500	"	0.0333	ND	92.2	30-120		
Benzo (b) fluoranthene	0.0337	0.00500	"	0.0333	ND	101	30-120		
Benzo (k) fluoranthene	0.0357	0.00500	"	0.0333	ND	107	30-120		
Chrysene	0.0268	0.00500	"	0.0333	ND	80.4	30-120		
Dibenz (a,h) anthracene	0.0172	0.00500	"	0.0333	ND	51.7	30-120		
Fluoranthene	0.0282	0.00500	"	0.0333	ND	84.5	30-120		
Fluorene	0.0283	0.00500	"	0.0333	ND	84.8	30-120		
Indeno (1,2,3-cd) pyrene	0.0182	0.00500	"	0.0333	ND	54.7	30-120		
Pyrene	0.0258	0.00500	"	0.0333	ND	77.3	35-142		
1-Methylnaphthalene	0.0303	0.00500	"	0.0333	ND	90.8	15-130		
2-Methylnaphthalene	0.0260	0.00500	"	0.0333	ND	77.9	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0190		"	0.0333		57.1	40-150		
Surrogate: Fluoranthene-d10	0.0155		"	0.0333		46.4	40-150		

Matrix Spike Dup (BEI0190-MSD1)				Source: 2109097-01		Prepared: 09/09/21		Analyzed: 09/10/21	
Acenaphthene	0.0319	0.00500	mg/kg	0.0333	ND	95.6	31-137	15.2	30
Anthracene	0.0323	0.00500	"	0.0333	ND	96.8	30-120	21.0	30
Benzo (a) anthracene	0.0345	0.00500	"	0.0333	ND	103	30-120	22.6	30
Benzo (a) pyrene	0.0275	0.00500	"	0.0333	ND	82.4	30-120	11.2	30
Benzo (b) fluoranthene	0.0300	0.00500	"	0.0333	ND	90.1	30-120	11.6	30
Benzo (k) fluoranthene	0.0327	0.00500	"	0.0333	ND	98.0	30-120	8.90	30
Chrysene	0.0336	0.00500	"	0.0333	ND	101	30-120	22.5	30
Dibenz (a,h) anthracene	0.0181	0.00500	"	0.0333	ND	54.2	30-120	4.85	30
Fluoranthene	0.0334	0.00500	"	0.0333	ND	100	30-120	17.0	30
Fluorene	0.0333	0.00500	"	0.0333	ND	99.9	30-120	16.3	30
Indeno (1,2,3-cd) pyrene	0.0183	0.00500	"	0.0333	ND	54.9	30-120	0.438	30
Pyrene	0.0301	0.00500	"	0.0333	ND	90.3	35-142	15.5	30
1-Methylnaphthalene	0.0346	0.00500	"	0.0333	ND	104	15-130	13.3	50
2-Methylnaphthalene	0.0274	0.00500	"	0.0333	ND	82.2	15-130	5.33	50
Surrogate: 2-Methylnaphthalene-d10	0.0227		"	0.0333		68.1	40-150		
Surrogate: Fluoranthene-d10	0.0185		"	0.0333		55.5	40-150		

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**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 BEI0181 - EPA 3050B**

**Blank (BEI0181-BLK1)**

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

Boron ND 0.0100 mg/L

**LCS (BEI0181-BS1)**

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

Boron 4.89 0.0100 mg/L 5.00 97.8 80-120

**Duplicate (BEI0181-DUP1)**

**Source: 2108107-08**

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

Boron 1.81 0.0100 mg/L 1.80 0.523 20

**Matrix Spike (BEI0181-MS1)**

**Source: 2108107-08**

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

Boron 6.48 0.0100 mg/L 5.00 1.80 93.6 75-125

**Matrix Spike Dup (BEI0181-MSD1)**

**Source: 2108107-08**

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

Boron 6.59 0.0100 mg/L 5.00 1.80 95.9 75-125 1.78 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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BEI0178 - EPA 3050B**

**Blank (BEI0178-BLK1)**

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

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

**LCS (BEI0178-BS1)**

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

Arsenic	44.3	0.200	mg/kg wet	40.0	111	80-120
Barium	37.0	0.400	"	40.0	92.6	80-120
Cadmium	1.99	0.200	"	2.00	99.5	80-120
Copper	37.4	0.400	"	40.0	93.6	80-120
Lead	18.4	0.200	"	20.0	92.1	80-120
Nickel	35.8	0.400	"	40.0	89.4	80-120
Selenium	4.26	0.260	"	4.00	107	80-120
Silver	1.81	0.0200	"	2.00	90.6	80-120
Zinc	44.6	0.400	"	40.0	112	80-120

**Duplicate (BEI0178-DUP1)**

Source: 2109089-07

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

Arsenic	6.03	0.270	mg/kg dry	6.36	5.28	20
Barium	206	0.541	"	195	5.42	20
Cadmium	0.223	0.270	"	0.211	5.80	20
Copper	13.6	0.541	"	13.3	2.50	20
Lead	9.31	0.270	"	9.05	2.85	20
Nickel	17.1	0.541	"	16.4	4.34	20
Selenium	0.965	0.351	"	0.887	8.44	20
Silver	0.118	0.0270	"	0.116	1.37	20
Zinc	50.1	0.541	"	48.3	3.66	20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BEI0178 - EPA 3050B**

Matrix Spike (BEI0178-MS1)		Source: 2109089-07			Prepared: 09/09/21		Analyzed: 09/11/21	
Arsenic	65.3	0.270	mg/kg dry	54.1	6.36	109	75-125	
Barium	256	0.541	"	54.1	195	114	75-125	
Cadmium	2.98	0.270	"	2.70	0.211	102	75-125	
Copper	61.8	0.541	"	54.1	13.3	89.7	75-125	
Lead	33.6	0.270	"	27.0	9.05	90.7	75-125	
Nickel	65.6	0.541	"	54.1	16.4	91.0	75-125	
Selenium	5.75	0.351	"	5.41	0.887	89.9	75-125	
Silver	2.63	0.0270	"	2.70	0.116	92.9	75-125	
Zinc	107	0.541	"	54.1	48.3	110	75-125	

Matrix Spike Dup (BEI0178-MSD1)		Source: 2109089-07			Prepared: 09/09/21		Analyzed: 09/11/21	
Arsenic	63.9	0.270	mg/kg dry	54.1	6.36	106	75-125	2.17 25
Barium	255	0.541	"	54.1	195	111	75-125	0.599 25
Cadmium	2.95	0.270	"	2.70	0.211	101	75-125	1.10 25
Copper	60.8	0.541	"	54.1	13.3	87.9	75-125	1.54 25
Lead	33.5	0.270	"	27.0	9.05	90.4	75-125	0.198 25
Nickel	64.2	0.541	"	54.1	16.4	88.4	75-125	2.16 25
Selenium	5.75	0.351	"	5.41	0.887	89.9	75-125	0.000747 25
Silver	2.60	0.0270	"	2.70	0.116	91.7	75-125	1.25 25
Zinc	108	0.541	"	54.1	48.3	110	75-125	0.479 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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BEI0257 - 3060A Mod**

**Blank (BEI0257-BLK1)**

Prepared & Analyzed: 09/13/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEI0257-BS1)**

Prepared & Analyzed: 09/13/21

Chromium, Hexavalent 25.5 0.30 mg/kg wet 25.0 102 80-120

**Duplicate (BEI0257-DUP1)**

**Source: 2109095-01**

Prepared & Analyzed: 09/13/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEI0257-MS1)**

**Source: 2109095-01**

Prepared & Analyzed: 09/13/21

Chromium, Hexavalent 28.5 0.30 mg/kg dry 29.0 ND 98.0 75-125

**Matrix Spike Dup (BEI0257-MSD1)**

**Source: 2109095-01**

Prepared & Analyzed: 09/13/21

Chromium, Hexavalent 28.5 0.30 mg/kg dry 29.0 ND 98.0 75-125 0.00 20

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**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 BEI0240 - General Preparation**

**Blank (BEI0240-BLK1)**

Prepared & Analyzed: 09/13/21

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

**LCS (BEI0240-BS1)**

Prepared & Analyzed: 09/13/21

Calcium	5.12	0.0500	mg/L wet	5.00	102	70-130
Magnesium	4.88	0.0500	"	5.00	97.7	70-130
Sodium	4.83	0.0500	"	5.00	96.6	70-130

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

### 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 BEI0173 - General Preparation

##### Duplicate (BEI0173-DUP1)

Source: 2108371-09

Prepared & Analyzed: 09/09/21

% Solids	88.9	%		89.2		0.338	20
----------	------	---	--	------	--	-------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

**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 BEI0243 - General Preparation**

**Blank (BEI0243-BLK1)**

Prepared & Analyzed: 09/13/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEI0243-BS1)**

Prepared & Analyzed: 09/13/21

Specific Conductance (EC) 0.165 0.0100 mmhos/cm 0.150 110 90-110

**Duplicate (BEI0243-DUP1)**

**Source: 2109095-01**

Prepared & Analyzed: 09/13/21

Specific Conductance (EC) 0.311 0.0100 mmhos/cm 0.302 2.97 20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

09/15/21 10:53

**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 BEI0242 - General Preparation**

**LCS (BEI0242-BS1)**

Prepared & Analyzed: 09/13/21

pH	9.33	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEI0242-DUP1)**

**Source: 2109095-01**

Prepared & Analyzed: 09/13/21

pH	8.77	pH Units	8.84	0.795	20
----	------	----------	------	-------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
09/15/21 10:53

### Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 04, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

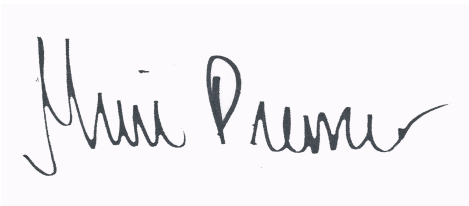
Denver, CO 80203

RE: Buffalo Gardens 41-13 Tank Battery

Work Order #2109137

Enclosed are the results of analyses for samples received by Summit Scientific on 09/09/21 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premier For Paul Shrewsbury  
President



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS02@15'	2109137-01	Soil	09/09/21 13:00	09/09/21 18:00
SS03@14'	2109137-02	Soil	09/09/21 13:14	09/09/21 18:00
SS04@6'	2109137-03	Soil	09/09/21 13:16	09/09/21 18:00
SS05@14'	2109137-04	Soil	09/09/21 13:30	09/09/21 18:00
SS06@6'	2109137-05	Soil	09/09/21 13:32	09/09/21 18:00
SS07@14'	2109137-06	Soil	09/09/21 13:38	09/09/21 18:00
SS08@6'	2109137-07	Soil	09/09/21 13:40	09/09/21 18:00

Summit Scientific

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

# Summit Scientific

2109137

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

Page      of     

Client: PDC - Tasman Project Manager: Mark Longhurst  
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCTE.com  
City/State/Zip: Broomfield/ CO 80020  
Phone: 303-487-1228 Project Name: Buffalo Gardens 41-13 Tank Battery  
Sampler Name: Dylon Brightwell Project Number:                     

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested										Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBTEEN - 8260B <sup>915</sup>	TPH - (C6 - C36) <sup>915</sup>	pH, EC, SAR <sup>915</sup>	Boron - HWS <sup>915</sup>	VOC - 915	PAH - 915	Metals - 915	TimB <sub>2</sub> C <sub>12</sub> /I/Q(12.5) <sup>915</sup>				
1	SS02 @ 15'	9/9/21	13:00	3			X			X				X	X							X	pH, EC, SAR by saturated paste	
2	SS03 @ 14'		13:14	3			X			X				X	X							X		
3	SS04 @ 6'		13:16	3			X			X				X	X							X		
4	SS05 @ 14'		13:30	3			X			X				X	X							X		
5	SS06 @ 6'		13:32	3			X			X				X	X							X		
6	SS07 @ 14'		13:36	3			X			X				X	X							X		
7	SS09 @ 6'	↓	13:40	3			X			X				X	X							X		
8																								
9																								
10																								

Relinquished by: <u>Dylon Brightwell</u> Date/Time: <u>9/9/21 15:20</u>	Received by: <u>Tasman's Lock Box</u> Date/Time: <u>9/9/21 15:20</u>	<b>Turn Around Time (Check)</b> Same Day <u>X</u> 72 hours <u>    </u> 24 hours <u>    </u> Standard <u>    </u> 48 hours <u>    </u> <b>Sample Integrity:</b> Temperature Upon Receipt: <u>10</u> Samples Intact: <u>Yes</u> No	<b>Notes:</b>
Relinquished by: <u>Tasman's Lock Box</u> Date/Time: <u>9/9/21 1800</u>	Received by: <u>Will [Signature]</u> Date/Time: <u>9/9/21 1800</u>		
Relinquished by: <u>                    </u> Date/Time: <u>                    </u>	Received by: <u>                    </u> Date/Time: <u>                    </u>		



# Sample Receipt Checklist

2109137

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

Client: PDC HASMAN Client Project ID: Buffalo Gardens 41-13 Tank Battery

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

☐ ☒ ☐ ☐ ☐

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

Temp (°C)	10
-----------	----

Thermometer ID: 61857155-K

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

Additional Comments (if any):

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

WG  
Custodian Printed Name or Initials

Will Rahi  
Signature of Custodian

9/9/21  
Date/Time



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS02@15'**  
**2109137-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0201	09/09/21	09/09/21	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: **09/09/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/21 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0200	09/09/21	09/09/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:00**

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

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS02@15'**  
**2109137-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		68.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		61.4 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Barium	25.6	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/09/21 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	85.2		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS03@14'**  
**2109137-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/21 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0201	09/09/21	09/09/21	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: **09/09/21 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		97.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/21 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0200	09/09/21	09/09/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		128 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS03@14'**  
**2109137-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/21 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		86.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		69.6 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/21 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Barium	135	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/09/21 13:14**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	86.0		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS04@6'**  
**2109137-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/21 13:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0201	09/09/21	09/09/21	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: **09/09/21 13:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/21 13:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0200	09/09/21	09/09/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		125 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS04@6'**  
**2109137-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		90.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		71.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	99.0	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/09/21 13:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.3		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS05@14'**  
**2109137-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0201	09/09/21	09/09/21	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: **09/09/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		95.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.9 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0200	09/09/21	09/10/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		127 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS05@14'**  
**2109137-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		69.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		59.9 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Barium	31.5	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/09/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	85.2		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS06@6'**  
**2109137-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/21 13:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0201	09/09/21	09/09/21	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: **09/09/21 13:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		96.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.1 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/21 13:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0200	09/09/21	09/10/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		126 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS06@6'**  
**2109137-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/21 13:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 2-Methylnaphthalene-d10		76.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		65.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/21 13:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Barium	<b>30.8</b>	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/09/21 13:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	<b>85.8</b>		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS07@14'**  
**2109137-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/21 13:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0201	09/09/21	09/09/21	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: **09/09/21 13:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.4 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/21 13:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0200	09/09/21	09/10/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:38**

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

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS07@14'**  
**2109137-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/21 13:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		67.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		61.1 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/21 13:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Barium	32.0	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/09/21 13:38**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	86.0		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS08@6'**  
**2109137-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/09/21 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0201	09/09/21	09/09/21	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: **09/09/21 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/09/21 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0200	09/09/21	09/10/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		127 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**SS08@6'**  
**2109137-07 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/09/21 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/09/21 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		99.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		72.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/09/21 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Barium	<b>87.0</b>	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/09/21 13:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	<b>83.6</b>		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 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 BEI0201 - EPA 5030 Soil MS

##### Blank (BEI0201-BLK1)

Prepared: 09/09/21 Analyzed: 09/10/21

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	0.0426		"	0.0400		107	23-173			
Surrogate: Toluene-d8	0.0430		"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	21-167			

##### LCS (BEI0201-BS1)

Prepared: 09/09/21 Analyzed: 09/10/21

Benzene	0.0630	0.0020	mg/kg	0.0750		84.0	70-130			
Toluene	0.0760	0.0050	"	0.0750		101	70-130			
Ethylbenzene	0.0772	0.0050	"	0.0750		103	70-130			
m,p-Xylene	0.157	0.010	"	0.150		105	70-130			
o-Xylene	0.0806	0.0050	"	0.0750		107	70-130			
1,2,4-Trimethylbenzene	0.0806	0.0050	"	0.0750		107	70-130			
1,3,5-Trimethylbenzene	0.0765	0.0050	"	0.0750		102	70-130			
Naphthalene	0.0787	0.0038	"	0.0750		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0342		"	0.0400		85.6	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400		100	21-167			

##### Matrix Spike (BEI0201-MS1)

Source: 2109134-01

Prepared: 09/09/21 Analyzed: 09/10/21

Benzene	0.0659	0.0020	mg/kg	0.0750	ND	87.9	70-130			
Toluene	0.0767	0.0050	"	0.0750	ND	102	70-130			
Ethylbenzene	0.0783	0.0050	"	0.0750	ND	104	70-130			
m,p-Xylene	0.159	0.010	"	0.150	ND	106	70-130			
o-Xylene	0.0832	0.0050	"	0.0750	ND	111	70-130			
1,2,4-Trimethylbenzene	0.0830	0.0050	"	0.0750	ND	111	70-130			
1,3,5-Trimethylbenzene	0.0776	0.0050	"	0.0750	ND	103	70-130			
Naphthalene	0.0935	0.0038	"	0.0750	ND	125	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0372		"	0.0400		93.0	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 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 BEI0201 - EPA 5030 Soil MS**

Matrix Spike Dup (BEI0201-MSD1)		Source: 2109134-01			Prepared: 09/09/21 Analyzed: 09/10/21					
Benzene	0.0624	0.0020	mg/kg	0.0750	ND	83.2	70-130	5.47	30	
Toluene	0.0764	0.0050	"	0.0750	ND	102	70-130	0.431	30	
Ethylbenzene	0.0768	0.0050	"	0.0750	ND	102	70-130	1.90	30	
m,p-Xylene	0.152	0.010	"	0.150	ND	102	70-130	4.12	30	
o-Xylene	0.0820	0.0050	"	0.0750	ND	109	70-130	1.49	30	
1,2,4-Trimethylbenzene	0.0827	0.0050	"	0.0750	ND	110	70-130	0.326	30	
1,3,5-Trimethylbenzene	0.0776	0.0050	"	0.0750	ND	103	70-130	0.00	30	
Naphthalene	0.0909	0.0038	"	0.0750	ND	121	70-130	2.83	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	0.0376		"	0.0400		94.0	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.6	21-167			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 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 BEI0200 - EPA 3550A**

**Blank (BEI0200-BLK1)**

Prepared: 09/09/21 Analyzed: 09/10/21

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

**LCS (BEI0200-BS1)**

Prepared: 09/09/21 Analyzed: 09/10/21

C10-C28 (DRO)	601	50	mg/kg	500	120	70-130
---------------	-----	----	-------	-----	-----	--------

**Matrix Spike (BEI0200-MS1)**

Source: 2109134-01

Prepared: 09/09/21 Analyzed: 09/10/21

C10-C28 (DRO)	401	50	mg/kg	500	18.5	76.4	70-130
---------------	-----	----	-------	-----	------	------	--------

**Matrix Spike Dup (BEI0200-MSD1)**

Source: 2109134-01

Prepared: 09/09/21 Analyzed: 09/10/21

C10-C28 (DRO)	395	50	mg/kg	500	18.5	75.2	70-130	1.47	20
---------------	-----	----	-------	-----	------	------	--------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

### PAH by EPA Method 8270D SIM - Quality Control

#### Summit Scientific

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

#### Batch BEI0589 - EPA 5030 Soil MS

##### Blank (BEI0589-BLK1)

Prepared: 09/28/21 Analyzed: 09/30/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0188		"	0.0333		56.4	40-150			
Surrogate: Fluoranthene-d10	0.0203		"	0.0333		60.9	40-150			

##### LCS (BEI0589-BS1)

Prepared: 09/28/21 Analyzed: 09/30/21

Acenaphthene	0.0274	0.00500	mg/kg	0.0333		82.2	31-137			
Anthracene	0.0316	0.00500	"	0.0333		94.7	30-120			
Benzo (a) anthracene	0.0314	0.00500	"	0.0333		94.2	30-120			
Benzo (a) pyrene	0.0318	0.00500	"	0.0333		95.3	30-120			
Benzo (b) fluoranthene	0.0228	0.00500	"	0.0333		68.4	30-120			
Benzo (k) fluoranthene	0.0290	0.00500	"	0.0333		87.1	30-120			
Chrysene	0.0313	0.00500	"	0.0333		94.0	30-120			
Dibenz (a,h) anthracene	0.0337	0.00500	"	0.0333		101	30-120			
Fluoranthene	0.0330	0.00500	"	0.0333		98.9	30-120			
Fluorene	0.0273	0.00500	"	0.0333		82.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0321	0.00500	"	0.0333		96.3	30-120			
Pyrene	0.0336	0.00500	"	0.0333		101	35-142			
1-Methylnaphthalene	0.0363	0.00500	"	0.0333		109	35-142			
2-Methylnaphthalene	0.0319	0.00500	"	0.0333		95.8	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.0	40-150			
Surrogate: Fluoranthene-d10	0.0138		"	0.0333		41.3	40-150			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BEI0589 - EPA 5030 Soil MS

Matrix Spike (BEI0589-MS1)		Source: 2109388-01		Prepared: 09/28/21 Analyzed: 09/30/21							
Acenaphthene	0.0401	0.00500	mg/kg	0.0333	0.0153	74.5	31-137				
Anthracene	0.0253	0.00500	"	0.0333	ND	76.0	30-120				
Benzo (a) anthracene	0.0313	0.00500	"	0.0333	0.00645	74.6	30-120				
Benzo (a) pyrene	0.0262	0.00500	"	0.0333	ND	78.7	30-120				
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333	ND	69.8	30-120				
Benzo (k) fluoranthene	0.0253	0.00500	"	0.0333	ND	75.8	30-120				
Chrysene	0.0310	0.00500	"	0.0333	ND	93.1	30-120				
Dibenz (a,h) anthracene	0.0224	0.00500	"	0.0333	ND	67.1	30-120				
Fluoranthene	0.0293	0.00500	"	0.0333	ND	88.0	30-120				
Fluorene	0.0366	0.00500	"	0.0333	0.0329	11.1	30-120				QM-07
Indeno (1,2,3-cd) pyrene	0.0228	0.00500	"	0.0333	ND	68.3	30-120				
Pyrene	0.0357	0.00500	"	0.0333	ND	107	35-142				
1-Methylnaphthalene	0.382	0.00500	"	0.0333	0.297	256	15-130				QM-07
2-Methylnaphthalene	0.495	0.00500	"	0.0333	0.411	254	15-130				QM-07
Surrogate: 2-Methylnaphthalene-d10	0.0149		"	0.0333		44.6	40-150				
Surrogate: Fluoranthene-d10	0.0168		"	0.0333		50.4	40-150				

Matrix Spike Dup (BEI0589-MSD1)		Source: 2109388-01		Prepared: 09/28/21 Analyzed: 09/30/21							
Acenaphthene	0.0435	0.00500	mg/kg	0.0333	0.0153	84.8	31-137	8.25	30		
Anthracene	0.0241	0.00500	"	0.0333	ND	72.3	30-120	5.00	30		
Benzo (a) anthracene	0.0329	0.00500	"	0.0333	0.00645	79.4	30-120	5.07	30		
Benzo (a) pyrene	0.0265	0.00500	"	0.0333	ND	79.4	30-120	0.930	30		
Benzo (b) fluoranthene	0.0231	0.00500	"	0.0333	ND	69.3	30-120	0.739	30		
Benzo (k) fluoranthene	0.0255	0.00500	"	0.0333	ND	76.5	30-120	0.932	30		
Chrysene	0.0307	0.00500	"	0.0333	ND	92.0	30-120	1.15	30		
Dibenz (a,h) anthracene	0.0236	0.00500	"	0.0333	ND	70.7	30-120	5.20	30		
Fluoranthene	0.0301	0.00500	"	0.0333	ND	90.2	30-120	2.45	30		
Fluorene	0.0411	0.00500	"	0.0333	0.0329	24.6	30-120	11.6	30		QM-07
Indeno (1,2,3-cd) pyrene	0.0244	0.00500	"	0.0333	ND	73.1	30-120	6.69	30		
Pyrene	0.0406	0.00500	"	0.0333	ND	122	35-142	12.8	30		
1-Methylnaphthalene	0.392	0.00500	"	0.0333	0.297	285	15-130	2.52	50		QM-07
2-Methylnaphthalene	0.571	0.00500	"	0.0333	0.411	482	15-130	14.2	50		QM-07
Surrogate: 2-Methylnaphthalene-d10	0.0172		"	0.0333		51.6	40-150				
Surrogate: Fluoranthene-d10	0.0156		"	0.0333		46.7	40-150				

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BEI0651 - EPA 3050B**

**Blank (BEI0651-BLK1)**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium ND 0.400 mg/kg wet

**LCS (BEI0651-BS1)**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium 44.6 0.400 mg/kg wet 40.0 112 80-120

**Duplicate (BEI0651-DUP1)**

**Source: 2109137-01**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium 27.6 0.400 mg/kg dry 25.6 7.55 20

**Matrix Spike (BEI0651-MS1)**

**Source: 2109137-01**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium 73.3 0.400 mg/kg dry 46.9 25.6 102 75-125

**Matrix Spike Dup (BEI0651-MSD1)**

**Source: 2109137-01**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium 70.6 0.400 mg/kg dry 46.9 25.6 96.0 75-125 3.76 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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
10/04/21 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 BEI0646 - General Preparation**

**Duplicate (BEI0646-DUP1)**

Source: 2109137-01

Prepared & Analyzed: 09/30/21

% Solids	86.0	%	85.2	0.886	20
----------	------	---	------	-------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:11

### Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 04, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

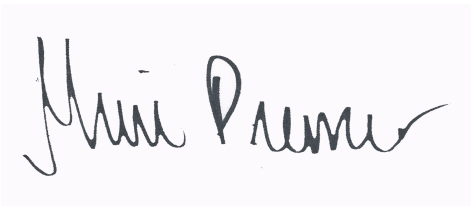
Denver, CO 80203

RE: Buffalo Gardens 41-13 Tank Battery

Work Order #2109148

Enclosed are the results of analyses for samples received by Summit Scientific on 09/10/21 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premier For Paul Shrewsbury  
President





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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG02@2.5'	2109148-01	Soil	09/10/21 08:16	09/10/21 18:00
BKG02@6'	2109148-02	Soil	09/10/21 08:18	09/10/21 18:00
BKG02@15'	2109148-03	Soil	09/10/21 08:35	09/10/21 18:00
SS09@14'	2109148-04	Soil	09/10/21 10:46	09/10/21 18:00
SS10@6'	2109148-05	Soil	09/10/21 11:04	09/10/21 18:00
SS11@2.5'	2109148-06	Soil	09/10/21 11:24	09/10/21 18:00

Summit Scientific

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

# Summit Scientific

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	Buffalo Gardens 41-13 Tank Battery
Sampler Name:	Dylan Brightwell	Project Number:	

[illegible]

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
Dylan Brightwell	9/10/21 12:30	Tasman's Lock Box	9/10/21 12:30	Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
				24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	48 hours <input type="checkbox"/>	
Tasman's Lock Box	9/10/21 1800	Will Perkins	9/10/21 1800	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 5	
				Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

### Sample Receipt Checklist

S2 Work Order 2109148

Client: PDC Client Project ID: Buffalo Gardens 41-13 TB

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

☐ ☒ ☐ ☐ ☐

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

Temp (°C)	5.0
-----------	-----

Thermometer ID: 61857155-K

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

PS  
Custodian Printed Name or Initials

\_\_\_\_\_  
Signature of Custodian

9/10/21  
\_\_\_\_\_  
Date/Time



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**BKG02@2.5'**  
**2109148-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/10/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	0.0100	mg/L	1	BEI0244	09/13/21	09/14/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/10/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	1.73	0.209	mg/kg dry	1	BEI0295	09/14/21	09/15/21	EPA 6020B	
Barium	68.1	0.418	"	"	"	"	"	"	
Cadmium	ND	0.209	"	"	"	"	"	"	
Copper	7.08	0.418	"	"	"	"	"	"	
Lead	5.53	0.209	"	"	"	"	"	"	
Nickel	8.20	0.418	"	"	"	"	"	"	
Selenium	0.473	0.272	"	"	"	"	"	"	
Silver	0.0344	0.0209	"	"	"	"	"	"	
Zinc	30.8	0.418	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/10/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEI0321	09/15/21	09/15/21	EPA 7196A	

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

Date Sampled: **09/10/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	0.970	0.0523	mg/L dry	1	BEI0240	09/13/21	09/14/21	EPA 6020B	
Magnesium	0.745	0.0523	"	"	"	"	"	"	
Sodium	0.112	0.0523	"	"	"	"	"	"	

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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**BKG02@2.5'**  
**2109148-01 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **09/10/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0208	0.00100	units	1	BEI0300	09/14/21	09/14/21	Calculation	

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

Date Sampled: **09/10/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.6		%	1	BEI0245	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/10/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0575	0.0100	mmhos/cm	1	BEI0243	09/13/21	09/13/21	EPA 120.1	

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

Date Sampled: **09/10/21 08:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.33		pH Units	1	BEI0242	09/13/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**BKG02@6'**  
**2109148-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/10/21 08:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	0.0100	mg/L	1	BEI0244	09/13/21	09/14/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/10/21 08:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	<b>2.34</b>	0.212	mg/kg dry	1	BEI0295	09/14/21	09/15/21	EPA 6020B	
Barium	<b>53.7</b>	0.425	"	"	"	"	"	"	
Cadmium	ND	0.212	"	"	"	"	"	"	
Copper	<b>6.71</b>	0.425	"	"	"	"	"	"	
Lead	<b>5.70</b>	0.212	"	"	"	"	"	"	
Nickel	<b>4.91</b>	0.425	"	"	"	"	"	"	
Selenium	<b>0.474</b>	0.276	"	"	"	"	"	"	
Silver	ND	0.0212	"	"	"	"	"	"	
Zinc	<b>23.4</b>	0.425	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/10/21 08:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEI0321	09/15/21	09/15/21	EPA 7196A	

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

Date Sampled: **09/10/21 08:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	<b>12.7</b>	0.0531	mg/L dry	1	BEI0240	09/13/21	09/14/21	EPA 6020B	
Magnesium	<b>2.07</b>	0.0531	"	"	"	"	"	"	
Sodium	<b>2.10</b>	0.0531	"	"	"	"	"	"	

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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**BKG02@6'**  
**2109148-02 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **09/10/21 08:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.144	0.00100	units	1	BEI0300	09/14/21	09/14/21	Calculation	

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

Date Sampled: **09/10/21 08:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.1		%	1	BEI0245	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/10/21 08:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.15	0.0100	mmhos/cm	1	BEI0243	09/13/21	09/13/21	EPA 120.1	

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

Date Sampled: **09/10/21 08:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.28		pH Units	1	BEI0242	09/13/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**BKG02@15'**  
**2109148-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/10/21 08:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	ND	0.0100	mg/L	1	BEI0244	09/13/21	09/14/21	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **09/10/21 08:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	5.52	0.219	mg/kg dry	1	BEI0295	09/14/21	09/15/21	EPA 6020B	
Barium	53.1	0.437	"	"	"	"	"	"	
Cadmium	ND	0.219	"	"	"	"	"	"	
Copper	15.9	0.437	"	"	"	"	"	"	
Lead	10.9	0.219	"	"	"	"	"	"	
Nickel	13.3	0.437	"	"	"	"	"	"	
Selenium	0.737	0.284	"	"	"	"	"	"	
Silver	0.0269	0.0219	"	"	"	"	"	"	
Zinc	94.7	0.437	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **09/10/21 08:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEI0321	09/15/21	09/15/21	EPA 7196A	

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

Date Sampled: **09/10/21 08:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	4.98	0.0547	mg/L dry	1	BEI0240	09/13/21	09/14/21	EPA 6020B	
Magnesium	2.27	0.0547	"	"	"	"	"	"	
Sodium	2.20	0.0547	"	"	"	"	"	"	

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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**BKG02@15'**  
**2109148-03 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **09/10/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.205	0.00100	units	1	BEI0300	09/14/21	09/14/21	Calculation	

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

Date Sampled: **09/10/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.4		%	1	BEI0245	09/13/21	09/13/21	Calculation	

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

Date Sampled: **09/10/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.500	0.0100	mmhos/cm	1	BEI0243	09/13/21	09/13/21	EPA 120.1	

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

Date Sampled: **09/10/21 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.56		pH Units	1	BEI0242	09/13/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**SS09@14'**  
**2109148-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/10/21 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.017</b>	0.0020	mg/kg	1	BEI0228	09/10/21	09/11/21	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	"	"	"	"	"	"	
<b>Naphthalene</b>	<b>0.0078</b>	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/10/21 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.3 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/10/21 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0229	"	09/11/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/10/21 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		86.9 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**SS09@14'**  
**2109148-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/10/21 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/10/21 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		98.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		74.5 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/10/21 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	28.5	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/10/21 10:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	76.6		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**SS10@6'**  
**2109148-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/10/21 11:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0228	09/10/21	09/11/21	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: **09/10/21 11:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.5 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/10/21 11:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0229	"	09/11/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/10/21 11:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		86.6 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**SS10@6'**  
**2109148-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/10/21 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/10/21 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		90.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		71.2 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/10/21 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	90.6	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/10/21 11:04**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	76.6		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**SS11@2.5'**  
**2109148-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/10/21 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	0.0100	mg/L	1	BEI0244	09/13/21	09/14/21	EPA 6020B	

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

Date Sampled: **09/10/21 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	13.4	0.0545	mg/L dry	1	BEI0240	09/13/21	09/14/21	EPA 6020B	
Magnesium	2.23	0.0545	"	"	"	"	"	"	
Sodium	0.474	0.0545	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/10/21 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0316	0.00100	units	1	BEI0300	09/14/21	09/14/21	Calculation	

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

Date Sampled: **09/10/21 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.8		%	1	BEI0282	09/14/21	09/14/21	Calculation	

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

Date Sampled: **09/10/21 11:24**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.146	0.0100	mmhos/cm	1	BEI0243	09/13/21	09/13/21	EPA 120.1	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**SS11@2.5'**  
**2109148-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/10/21 11:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>8.70</b>			pH Units	1	BEI0242	09/13/21	09/13/21	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

## 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 BEI0228 - EPA 5030 Soil MS

##### Blank (BEI0228-BLK1)

Prepared: 09/10/21 Analyzed: 09/11/21

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	0.0414		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0373		"	0.0400		93.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0367		"	0.0400		91.8	21-167			

##### LCS (BEI0228-BS1)

Prepared: 09/10/21 Analyzed: 09/11/21

Benzene	0.0942	0.0020	mg/kg	0.100		94.2	70-130			
Toluene	0.0761	0.0050	"	0.100		76.1	70-130			
Ethylbenzene	0.0784	0.0050	"	0.100		78.4	70-130			
m,p-Xylene	0.157	0.010	"	0.200		78.5	70-130			
o-Xylene	0.0808	0.0050	"	0.100		80.8	70-130			
1,2,4-Trimethylbenzene	0.0772	0.0050	"	0.100		77.2	70-130			
1,3,5-Trimethylbenzene	0.0738	0.0050	"	0.100		73.8	70-130			
Naphthalene	0.0786	0.0038	"	0.100		78.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0345		"	0.0400		86.2	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0400		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0376		"	0.0400		94.1	21-167			

##### Matrix Spike (BEI0228-MS1)

Source: 2109148-04

Prepared: 09/10/21 Analyzed: 09/11/21

Benzene	0.110	0.0020	mg/kg	0.100	0.0174	92.3	70-130			
Toluene	0.0741	0.0050	"	0.100	ND	74.1	70-130			
Ethylbenzene	0.0798	0.0050	"	0.100	ND	79.8	70-130			
m,p-Xylene	0.158	0.010	"	0.200	ND	79.2	70-130			
o-Xylene	0.0836	0.0050	"	0.100	ND	83.6	70-130			
1,2,4-Trimethylbenzene	0.0825	0.0050	"	0.100	ND	82.5	70-130			
1,3,5-Trimethylbenzene	0.0778	0.0050	"	0.100	ND	77.8	70-130			
Naphthalene	0.0872	0.0038	"	0.100	0.00783	79.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0327		"	0.0400		81.8	23-173			
Surrogate: Toluene-d8	0.0382		"	0.0400		95.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400		96.4	21-167			

Summit Scientific

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





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**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 BEI0228 - EPA 5030 Soil MS**

Matrix Spike Dup (BEI0228-MSD1)	Source: 2109148-04			Prepared: 09/10/21 Analyzed: 09/11/21						
Benzene	0.0903	0.0020	mg/kg	0.100	0.0174	72.9	70-130	19.4	30	
Toluene	0.0732	0.0050	"	0.100	ND	73.2	70-130	1.22	30	
Ethylbenzene	0.0773	0.0050	"	0.100	ND	77.3	70-130	3.13	30	
m,p-Xylene	0.154	0.010	"	0.200	ND	76.8	70-130	3.04	30	
o-Xylene	0.0830	0.0050	"	0.100	ND	83.0	70-130	0.828	30	
1,2,4-Trimethylbenzene	0.0823	0.0050	"	0.100	ND	82.3	70-130	0.218	30	
1,3,5-Trimethylbenzene	0.0767	0.0050	"	0.100	ND	76.7	70-130	1.40	30	
Naphthalene	0.0964	0.0038	"	0.100	0.00783	88.6	70-130	9.97	30	
Surrogate: 1,2-Dichloroethane-d4	0.0353		"	0.0400		88.3	23-173			
Surrogate: Toluene-d8	0.0374		"	0.0400		93.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	21-167			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**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 BEI0229 - EPA 3550A**

**Blank (BEI0229-BLK1)**

Prepared: 09/10/21 Analyzed: 09/11/21

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

**LCS (BEI0229-BS1)**

Prepared: 09/10/21 Analyzed: 09/11/21

C10-C28 (DRO)	612	50	mg/kg	500	122	70-130
---------------	-----	----	-------	-----	-----	--------

**Matrix Spike (BEI0229-MS1)**

Source: 2109148-04

Prepared: 09/10/21 Analyzed: 09/11/21

C10-C28 (DRO)	536	50	mg/kg	500	14.8	104	70-130
---------------	-----	----	-------	-----	------	-----	--------

**Matrix Spike Dup (BEI0229-MSD1)**

Source: 2109148-04

Prepared: 09/10/21 Analyzed: 09/11/21

C10-C28 (DRO)	512	50	mg/kg	500	14.8	99.5	70-130	4.51	20
---------------	-----	----	-------	-----	------	------	--------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BEI0589 - EPA 5030 Soil MS

##### Blank (BEI0589-BLK1)

Prepared: 09/28/21 Analyzed: 09/30/21

Acenaphthene	ND	0.00500	mg/kg								
Anthracene	ND	0.00500	"								
Benzo (a) anthracene	ND	0.00500	"								
Benzo (a) pyrene	ND	0.00500	"								
Benzo (b) fluoranthene	ND	0.00500	"								
Benzo (k) fluoranthene	ND	0.00500	"								
Chrysene	ND	0.00500	"								
Dibenz (a,h) anthracene	ND	0.00500	"								
Fluoranthene	ND	0.00500	"								
Fluorene	ND	0.00500	"								
Indeno (1,2,3-cd) pyrene	ND	0.00500	"								
Pyrene	ND	0.00500	"								
1-Methylnaphthalene	ND	0.00500	"								
2-Methylnaphthalene	ND	0.00500	"								
Surrogate: 2-Methylnaphthalene-d10	0.0188		"	0.0333		56.4		40-150			
Surrogate: Fluoranthene-d10	0.0203		"	0.0333		60.9		40-150			

##### LCS (BEI0589-BS1)

Prepared: 09/28/21 Analyzed: 09/30/21

Acenaphthene	0.0274	0.00500	mg/kg	0.0333		82.2		31-137			
Anthracene	0.0316	0.00500	"	0.0333		94.7		30-120			
Benzo (a) anthracene	0.0314	0.00500	"	0.0333		94.2		30-120			
Benzo (a) pyrene	0.0318	0.00500	"	0.0333		95.3		30-120			
Benzo (b) fluoranthene	0.0228	0.00500	"	0.0333		68.4		30-120			
Benzo (k) fluoranthene	0.0290	0.00500	"	0.0333		87.1		30-120			
Chrysene	0.0313	0.00500	"	0.0333		94.0		30-120			
Dibenz (a,h) anthracene	0.0337	0.00500	"	0.0333		101		30-120			
Fluoranthene	0.0330	0.00500	"	0.0333		98.9		30-120			
Fluorene	0.0273	0.00500	"	0.0333		82.0		30-120			
Indeno (1,2,3-cd) pyrene	0.0321	0.00500	"	0.0333		96.3		30-120			
Pyrene	0.0336	0.00500	"	0.0333		101		35-142			
1-Methylnaphthalene	0.0363	0.00500	"	0.0333		109		35-142			
2-Methylnaphthalene	0.0319	0.00500	"	0.0333		95.8		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.0		40-150			
Surrogate: Fluoranthene-d10	0.0138		"	0.0333		41.3		40-150			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BEI0589 - EPA 5030 Soil MS

Matrix Spike (BEI0589-MS1)		Source: 2109388-01		Prepared: 09/28/21 Analyzed: 09/30/21							
Acenaphthene	0.0401	0.00500	mg/kg	0.0333	0.0153	74.5	31-137				
Anthracene	0.0253	0.00500	"	0.0333	ND	76.0	30-120				
Benzo (a) anthracene	0.0313	0.00500	"	0.0333	0.00645	74.6	30-120				
Benzo (a) pyrene	0.0262	0.00500	"	0.0333	ND	78.7	30-120				
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333	ND	69.8	30-120				
Benzo (k) fluoranthene	0.0253	0.00500	"	0.0333	ND	75.8	30-120				
Chrysene	0.0310	0.00500	"	0.0333	ND	93.1	30-120				
Dibenz (a,h) anthracene	0.0224	0.00500	"	0.0333	ND	67.1	30-120				
Fluoranthene	0.0293	0.00500	"	0.0333	ND	88.0	30-120				
Fluorene	0.0366	0.00500	"	0.0333	0.0329	11.1	30-120				QM-07
Indeno (1,2,3-cd) pyrene	0.0228	0.00500	"	0.0333	ND	68.3	30-120				
Pyrene	0.0357	0.00500	"	0.0333	ND	107	35-142				
1-Methylnaphthalene	0.382	0.00500	"	0.0333	0.297	256	15-130				QM-07
2-Methylnaphthalene	0.495	0.00500	"	0.0333	0.411	254	15-130				QM-07
Surrogate: 2-Methylnaphthalene-d10	0.0149		"	0.0333		44.6	40-150				
Surrogate: Fluoranthene-d10	0.0168		"	0.0333		50.4	40-150				

Matrix Spike Dup (BEI0589-MSD1)		Source: 2109388-01		Prepared: 09/28/21 Analyzed: 09/30/21							
Acenaphthene	0.0435	0.00500	mg/kg	0.0333	0.0153	84.8	31-137	8.25	30		
Anthracene	0.0241	0.00500	"	0.0333	ND	72.3	30-120	5.00	30		
Benzo (a) anthracene	0.0329	0.00500	"	0.0333	0.00645	79.4	30-120	5.07	30		
Benzo (a) pyrene	0.0265	0.00500	"	0.0333	ND	79.4	30-120	0.930	30		
Benzo (b) fluoranthene	0.0231	0.00500	"	0.0333	ND	69.3	30-120	0.739	30		
Benzo (k) fluoranthene	0.0255	0.00500	"	0.0333	ND	76.5	30-120	0.932	30		
Chrysene	0.0307	0.00500	"	0.0333	ND	92.0	30-120	1.15	30		
Dibenz (a,h) anthracene	0.0236	0.00500	"	0.0333	ND	70.7	30-120	5.20	30		
Fluoranthene	0.0301	0.00500	"	0.0333	ND	90.2	30-120	2.45	30		
Fluorene	0.0411	0.00500	"	0.0333	0.0329	24.6	30-120	11.6	30		QM-07
Indeno (1,2,3-cd) pyrene	0.0244	0.00500	"	0.0333	ND	73.1	30-120	6.69	30		
Pyrene	0.0406	0.00500	"	0.0333	ND	122	35-142	12.8	30		
1-Methylnaphthalene	0.392	0.00500	"	0.0333	0.297	285	15-130	2.52	50		QM-07
2-Methylnaphthalene	0.571	0.00500	"	0.0333	0.411	482	15-130	14.2	50		QM-07
Surrogate: 2-Methylnaphthalene-d10	0.0172		"	0.0333		51.6	40-150				
Surrogate: Fluoranthene-d10	0.0156		"	0.0333		46.7	40-150				

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**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 BEI0244 - EPA 3050B**

**Blank (BEI0244-BLK1)**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron ND 0.0100 mg/L

**LCS (BEI0244-BS1)**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron 4.88 0.0100 mg/L 5.00 97.6 80-120

**Duplicate (BEI0244-DUP1)**

**Source: 2109091-02**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron ND 0.0100 mg/L ND 20

**Matrix Spike (BEI0244-MS1)**

**Source: 2109091-02**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron 5.00 0.0100 mg/L 5.00 ND 100 75-125

**Matrix Spike Dup (BEI0244-MSD1)**

**Source: 2109091-02**

Prepared: 09/13/21 Analyzed: 09/14/21

Boron 4.70 0.0100 mg/L 5.00 ND 94.0 75-125 6.22 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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BEI0295 - EPA 3050B**

**Blank (BEI0295-BLK1)**

Prepared: 09/14/21 Analyzed: 09/15/21

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

**LCS (BEI0295-BS1)**

Prepared: 09/14/21 Analyzed: 09/15/21

Arsenic	42.7	0.200	mg/kg wet	40.0	107	80-120
Barium	37.0	0.400	"	40.0	92.5	80-120
Cadmium	2.07	0.200	"	2.00	103	80-120
Copper	38.9	0.400	"	40.0	97.3	80-120
Lead	18.0	0.200	"	20.0	90.2	80-120
Nickel	37.7	0.400	"	40.0	94.2	80-120
Selenium	3.86	0.260	"	4.00	96.5	80-120
Silver	1.72	0.0200	"	2.00	85.9	80-120
Zinc	45.0	0.400	"	40.0	112	80-120

**Duplicate (BEI0295-DUP1)**

Source: 2109136-01

Prepared: 09/14/21 Analyzed: 09/15/21

Arsenic	10.4	0.235	mg/kg dry	9.27	11.6	20
Barium	12.6	0.471	"	13.8	9.56	20
Cadmium	0.0453	0.235	"	0.0513	12.5	20
Copper	11.7	0.471	"	13.2	12.2	20
Lead	18.7	0.235	"	17.0	9.68	20
Nickel	9.32	0.471	"	9.18	1.50	20
Selenium	1.80	0.306	"	1.70	5.80	20
Silver	0.0388	0.0235	"	0.0403	3.58	20
Zinc	125	0.471	"	125	0.397	20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BEI0295 - EPA 3050B**

Matrix Spike (BEI0295-MS1)		Source: 2109136-01			Prepared: 09/14/21		Analyzed: 09/15/21			
Arsenic	52.0	0.235	mg/kg dry	47.1	9.27	90.8	75-125			
Barium	55.9	0.471	"	47.1	13.8	89.4	75-125			
Cadmium	2.40	0.235	"	2.35	0.0513	99.9	75-125			
Copper	54.7	0.471	"	47.1	13.2	88.3	75-125			
Lead	44.7	0.235	"	23.5	17.0	117	75-125			
Nickel	50.7	0.471	"	47.1	9.18	88.2	75-125			
Selenium	5.64	0.306	"	4.71	1.70	83.8	75-125			
Silver	1.99	0.0235	"	2.35	0.0403	82.8	75-125			
Zinc	176	0.471	"	47.1	125	109	75-125			

Matrix Spike Dup (BEI0295-MSD1)		Source: 2109136-01			Prepared: 09/14/21		Analyzed: 09/15/21			
Arsenic	63.1	0.235	mg/kg dry	47.1	9.27	114	75-125	19.3	25	
Barium	55.9	0.471	"	47.1	13.8	89.3	75-125	0.129	25	
Cadmium	2.50	0.235	"	2.35	0.0513	104	75-125	3.95	25	
Copper	61.7	0.471	"	47.1	13.2	103	75-125	12.0	25	
Lead	45.3	0.235	"	23.5	17.0	120	75-125	1.48	25	
Nickel	57.0	0.471	"	47.1	9.18	102	75-125	11.7	25	
Selenium	5.60	0.306	"	4.71	1.70	83.0	75-125	0.676	25	
Silver	2.03	0.0235	"	2.35	0.0403	84.4	75-125	1.82	25	
Zinc	175	0.471	"	47.1	125	107	75-125	0.521	25	

**Batch BEI0651 - EPA 3050B**

Blank (BEI0651-BLK1)					Prepared: 09/30/21		Analyzed: 10/04/21			
Barium	ND	0.400	mg/kg wet							

LCS (BEI0651-BS1)					Prepared: 09/30/21		Analyzed: 10/04/21			
Barium	44.6	0.400	mg/kg wet	40.0		112	80-120			

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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BEI0651 - EPA 3050B**

<b>Duplicate (BEI0651-DUP1)</b>		<b>Source: 2109137-01</b>			Prepared: 09/30/21 Analyzed: 10/04/21					
Barium	27.6	0.400	mg/kg dry		25.6			7.55	20	
<b>Matrix Spike (BEI0651-MS1)</b>		<b>Source: 2109137-01</b>			Prepared: 09/30/21 Analyzed: 10/04/21					
Barium	73.3	0.400	mg/kg dry	46.9	25.6	102	75-125			
<b>Matrix Spike Dup (BEI0651-MSD1)</b>		<b>Source: 2109137-01</b>			Prepared: 09/30/21 Analyzed: 10/04/21					
Barium	70.6	0.400	mg/kg dry	46.9	25.6	96.0	75-125	3.76	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BEI0321 - 3060A Mod**

**Blank (BEI0321-BLK1)**

Prepared & Analyzed: 09/15/21

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BEI0321-BS1)**

Prepared & Analyzed: 09/15/21

Chromium, Hexavalent 24.5 0.30 mg/kg wet 25.0 98.0 80-120

**Duplicate (BEI0321-DUP1)**

**Source: 2109148-01**

Prepared & Analyzed: 09/15/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BEI0321-MS1)**

**Source: 2109148-01**

Prepared & Analyzed: 09/15/21

Chromium, Hexavalent 27.7 0.30 mg/kg dry 26.2 ND 106 75-125

**Matrix Spike Dup (BEI0321-MSD1)**

**Source: 2109148-01**

Prepared & Analyzed: 09/15/21

Chromium, Hexavalent 27.7 0.30 mg/kg dry 26.2 ND 106 75-125 0.00 20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**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 BEI0240 - General Preparation**

**Blank (BEI0240-BLK1)**

Prepared & Analyzed: 09/13/21

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

**LCS (BEI0240-BS1)**

Prepared & Analyzed: 09/13/21

Calcium	5.12	0.0500	mg/L wet	5.00	102	70-130
Magnesium	4.88	0.0500	"	5.00	97.7	70-130
Sodium	4.83	0.0500	"	5.00	96.6	70-130

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

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

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

**Batch BEI0245 - General Preparation**

<b>Duplicate (BEI0245-DUP1)</b>		<b>Source: 2109091-02</b>			Prepared & Analyzed: 09/13/21						
% Solids	96.1		%		96.2			0.0998	20		

**Batch BEI0282 - General Preparation**

<b>Duplicate (BEI0282-DUP1)</b>		<b>Source: 2107097-07</b>			Prepared & Analyzed: 09/14/21						
% Solids	84.8		%		84.4			0.434	20		

**Batch BEI0646 - General Preparation**

<b>Duplicate (BEI0646-DUP1)</b>		<b>Source: 2109137-01</b>			Prepared & Analyzed: 09/30/21						
% Solids	86.0		%		85.2			0.886	20		

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**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 BEI0243 - General Preparation**

**Blank (BEI0243-BLK1)**

Prepared & Analyzed: 09/13/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEI0243-BS1)**

Prepared & Analyzed: 09/13/21

Specific Conductance (EC) 0.165 0.0100 mmhos/cm 0.150 110 90-110

**Duplicate (BEI0243-DUP1)**

**Source: 2109095-01**

Prepared & Analyzed: 09/13/21

Specific Conductance (EC) 0.311 0.0100 mmhos/cm 0.302 2.97 20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

**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 BEI0242 - General Preparation**

**LCS (BEI0242-BS1)**

Prepared & Analyzed: 09/13/21

pH	9.33	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

**Duplicate (BEI0242-DUP1)**

Source: 2109095-01

Prepared & Analyzed: 09/13/21

pH	8.77	pH Units	8.84	0.795	20
----	------	----------	------	-------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:17

### Notes and Definitions

QM-07      The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

DET      Analyte DETECTED

ND      Analyte NOT DETECTED at or above the reporting limit

NR      Not Reported

dry      Sample results reported on a dry weight basis

RPD      Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 04, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

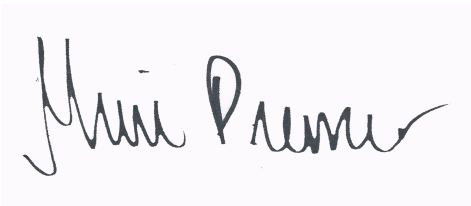
Denver, CO 80203

RE: Buffalo Gardens 41-13 Tank Battery

Work Order #2109179

Enclosed are the results of analyses for samples received by Summit Scientific on 09/13/21 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premier For Paul Shrewsbury  
President



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS12@14'	2109179-01	Soil	09/13/21 13:30	09/13/21 18:00
SS13@6'	2109179-02	Soil	09/13/21 13:34	09/13/21 18:00
SS14@2.5'	2109179-03	Soil	09/13/21 13:40	09/13/21 18:00

Summit Scientific

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



# Summit Scientific

2109179

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:	Buffalo Gardens 41-13 Tank Battery
Sampler Name:	Dylan Brightwell	Project Number:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions				
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR								
1	SS 12 @ 14'	9/13/21	13:30	3			X			X				X	X	X									pH, EC, SAR by saturated paste
2	SS 13 @ 6'	↓	13:34	3			X			X				X	X	X									
3	SS 14 @ 2.5'	↓	13:40	3			X			X								X	X						
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
Dylan Brightwell	9/13/21 15:02	Tasman's Lock Box	9/13/21 15:02	Same Day	X 72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
Tasman's Lock Box	09/13/2021	Will Sal...	9/13/21 1800	48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	Temperature Upon Receipt:	
				Samples Intact:	Yes No	

2109179

## Sample Receipt Checklist

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

Client: PDC/TASMAN Client Project ID: Buffalo Gardens 41-13 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) 10

Thermometer ID: 61857155-K

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

W/G  
Custodian Printed Name or InitialsWill G. Galt  
Signature of Custodian9/13/21  
Date/Time



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**SS12@14'**  
**2109179-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/13/21 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEI0273	09/13/21	09/13/21	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: **09/13/21 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.2 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/13/21 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0274	09/13/21	09/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/21 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		85.3 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**SS12@14'**  
**2109179-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/13/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/13/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10		75.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		62.4 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/13/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Barium	39.1	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/13/21 13:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
% Solids	86.3		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**SS13@6'**  
**2109179-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/13/21 13:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEI0273	09/13/21	09/13/21	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: **09/13/21 13:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.5 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/13/21 13:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEI0274	09/13/21	09/13/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/21 13:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		88.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**SS13@6'**  
**2109179-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **09/13/21 13:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEI0589	09/28/21	09/30/21	EPA 8270D SIM	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/13/21 13:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		72.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		64.4 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **09/13/21 13:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	<b>62.0</b>	0.400	mg/kg dry	1	BEI0651	09/30/21	10/04/21	EPA 6020B	

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

Date Sampled: **09/13/21 13:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	<b>88.5</b>		%	1	BEI0646	09/30/21	09/30/21	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**SS14@2.5'**  
**2109179-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/13/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	0.0100	mg/L	1	BEI0313	09/15/21	09/17/21	EPA 6020B	

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

Date Sampled: **09/13/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>6.75</b>	0.0576	mg/L dry	1	BEI0350	09/16/21	09/21/21	EPA 6020B	
Magnesium	<b>3.52</b>	0.0576	"	"	"	"	"	"	
Sodium	<b>0.502</b>	0.0576	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **09/13/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	<b>0.0390</b>	0.00100	units	1	BEI0475	09/22/21	09/22/21	Calculation	

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

Date Sampled: **09/13/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	<b>86.8</b>		%	1	BEI0305	09/15/21	09/15/21	Calculation	

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

Date Sampled: **09/13/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>0.204</b>	0.0100	mmhos/cm	1	BEI0351	09/16/21	09/17/21	EPA 120.1	

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

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**SS14@2.5'**  
**2109179-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **09/13/21 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.90</b>			pH Units	1	BEI0352	09/16/21	09/17/21	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

## 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 BEI0273 - EPA 5030 Soil MS

##### Blank (BEI0273-BLK1)

Prepared & Analyzed: 09/13/21

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	0.0405		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	21-167			

##### LCS (BEI0273-BS1)

Prepared & Analyzed: 09/13/21

Benzene	0.147	0.0020	mg/kg	0.150		97.7	70-130			
Toluene	0.121	0.0050	"	0.150		80.4	70-130			
Ethylbenzene	0.142	0.0050	"	0.150		94.5	70-130			
m,p-Xylene	0.270	0.010	"	0.300		89.9	70-130			
o-Xylene	0.147	0.0050	"	0.150		98.0	70-130			
1,2,4-Trimethylbenzene	0.137	0.0050	"	0.150		91.2	70-130			
1,3,5-Trimethylbenzene	0.134	0.0050	"	0.150		89.6	70-130			
Naphthalene	0.157	0.0038	"	0.150		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0413		"	0.0400		103	23-173			
Surrogate: Toluene-d8	0.0373		"	0.0400		93.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0407		"	0.0400		102	21-167			

##### Matrix Spike (BEI0273-MS1)

Source: 2109170-01

Prepared & Analyzed: 09/13/21

Benzene	0.133	0.0020	mg/kg	0.150	ND	88.7	70-130			
Toluene	0.122	0.0050	"	0.150	ND	81.4	70-130			
Ethylbenzene	0.127	0.0050	"	0.150	ND	84.7	70-130			
m,p-Xylene	0.243	0.010	"	0.300	ND	81.0	70-130			
o-Xylene	0.130	0.0050	"	0.150	ND	86.8	70-130			
1,2,4-Trimethylbenzene	0.120	0.0050	"	0.150	ND	79.7	70-130			
1,3,5-Trimethylbenzene	0.118	0.0050	"	0.150	ND	78.7	70-130			
Naphthalene	0.139	0.0038	"	0.150	ND	92.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0423		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0414		"	0.0400		103	21-167			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**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 BEI0273 - EPA 5030 Soil MS**

Matrix Spike Dup (BEI0273-MSD1)		Source: 2109170-01			Prepared & Analyzed: 09/13/21					
Benzene	0.138	0.0020	mg/kg	0.150	ND	91.7	70-130	3.35	30	
Toluene	0.113	0.0050	"	0.150	ND	75.1	70-130	8.05	30	
Ethylbenzene	0.131	0.0050	"	0.150	ND	87.5	70-130	3.30	30	
m,p-Xylene	0.248	0.010	"	0.300	ND	82.7	70-130	2.02	30	
o-Xylene	0.133	0.0050	"	0.150	ND	89.0	70-130	2.46	30	
1,2,4-Trimethylbenzene	0.124	0.0050	"	0.150	ND	82.7	70-130	3.62	30	
1,3,5-Trimethylbenzene	0.122	0.0050	"	0.150	ND	81.0	70-130	2.98	30	
Naphthalene	0.141	0.0038	"	0.150	ND	94.2	70-130	1.78	30	
Surrogate: 1,2-Dichloroethane-d4		0.0424	"	0.0400		106	23-173			
Surrogate: Toluene-d8		0.0370	"	0.0400		92.5	20-170			
Surrogate: 4-Bromofluorobenzene		0.0399	"	0.0400		99.7	21-167			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**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 BEI0274 - EPA 3550A**

**Blank (BEI0274-BLK1)**

Prepared & Analyzed: 09/13/21

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

**LCS (BEI0274-BS1)**

Prepared & Analyzed: 09/13/21

C10-C28 (DRO)	579	50	mg/kg	500	116	70-130
---------------	-----	----	-------	-----	-----	--------

**Matrix Spike (BEI0274-MS1)**

Source: 2109174-01

Prepared & Analyzed: 09/13/21

C10-C28 (DRO)	575	50	mg/kg	500	13.3	112	70-130
---------------	-----	----	-------	-----	------	-----	--------

**Matrix Spike Dup (BEI0274-MSD1)**

Source: 2109174-01

Prepared & Analyzed: 09/13/21

C10-C28 (DRO)	590	50	mg/kg	500	13.3	115	70-130	2.48	20
---------------	-----	----	-------	-----	------	-----	--------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BEI0589 - EPA 5030 Soil MS

##### Blank (BEI0589-BLK1)

Prepared: 09/28/21 Analyzed: 09/30/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0188		"	0.0333		56.4	40-150			
Surrogate: Fluoranthene-d10	0.0203		"	0.0333		60.9	40-150			

##### LCS (BEI0589-BS1)

Prepared: 09/28/21 Analyzed: 09/30/21

Acenaphthene	0.0274	0.00500	mg/kg	0.0333		82.2	31-137			
Anthracene	0.0316	0.00500	"	0.0333		94.7	30-120			
Benzo (a) anthracene	0.0314	0.00500	"	0.0333		94.2	30-120			
Benzo (a) pyrene	0.0318	0.00500	"	0.0333		95.3	30-120			
Benzo (b) fluoranthene	0.0228	0.00500	"	0.0333		68.4	30-120			
Benzo (k) fluoranthene	0.0290	0.00500	"	0.0333		87.1	30-120			
Chrysene	0.0313	0.00500	"	0.0333		94.0	30-120			
Dibenz (a,h) anthracene	0.0337	0.00500	"	0.0333		101	30-120			
Fluoranthene	0.0330	0.00500	"	0.0333		98.9	30-120			
Fluorene	0.0273	0.00500	"	0.0333		82.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0321	0.00500	"	0.0333		96.3	30-120			
Pyrene	0.0336	0.00500	"	0.0333		101	35-142			
1-Methylnaphthalene	0.0363	0.00500	"	0.0333		109	35-142			
2-Methylnaphthalene	0.0319	0.00500	"	0.0333		95.8	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.0	40-150			
Surrogate: Fluoranthene-d10	0.0138		"	0.0333		41.3	40-150			

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

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

#### Batch BEI0589 - EPA 5030 Soil MS

Matrix Spike (BEI0589-MS1)		Source: 2109388-01			Prepared: 09/28/21 Analyzed: 09/30/21						
Acenaphthene	0.0401	0.00500	mg/kg	0.0333	0.0153	74.5	31-137				
Anthracene	0.0253	0.00500	"	0.0333	ND	76.0	30-120				
Benzo (a) anthracene	0.0313	0.00500	"	0.0333	0.00645	74.6	30-120				
Benzo (a) pyrene	0.0262	0.00500	"	0.0333	ND	78.7	30-120				
Benzo (b) fluoranthene	0.0233	0.00500	"	0.0333	ND	69.8	30-120				
Benzo (k) fluoranthene	0.0253	0.00500	"	0.0333	ND	75.8	30-120				
Chrysene	0.0310	0.00500	"	0.0333	ND	93.1	30-120				
Dibenz (a,h) anthracene	0.0224	0.00500	"	0.0333	ND	67.1	30-120				
Fluoranthene	0.0293	0.00500	"	0.0333	ND	88.0	30-120				
Fluorene	0.0366	0.00500	"	0.0333	0.0329	11.1	30-120				QM-07
Indeno (1,2,3-cd) pyrene	0.0228	0.00500	"	0.0333	ND	68.3	30-120				
Pyrene	0.0357	0.00500	"	0.0333	ND	107	35-142				
1-Methylnaphthalene	0.382	0.00500	"	0.0333	0.297	256	15-130				QM-07
2-Methylnaphthalene	0.495	0.00500	"	0.0333	0.411	254	15-130				QM-07
Surrogate: 2-Methylnaphthalene-d10		0.0149	"	0.0333		44.6	40-150				
Surrogate: Fluoranthene-d10		0.0168	"	0.0333		50.4	40-150				

Matrix Spike Dup (BEI0589-MSD1)		Source: 2109388-01			Prepared: 09/28/21 Analyzed: 09/30/21						
Acenaphthene	0.0435	0.00500	mg/kg	0.0333	0.0153	84.8	31-137	8.25	30		
Anthracene	0.0241	0.00500	"	0.0333	ND	72.3	30-120	5.00	30		
Benzo (a) anthracene	0.0329	0.00500	"	0.0333	0.00645	79.4	30-120	5.07	30		
Benzo (a) pyrene	0.0265	0.00500	"	0.0333	ND	79.4	30-120	0.930	30		
Benzo (b) fluoranthene	0.0231	0.00500	"	0.0333	ND	69.3	30-120	0.739	30		
Benzo (k) fluoranthene	0.0255	0.00500	"	0.0333	ND	76.5	30-120	0.932	30		
Chrysene	0.0307	0.00500	"	0.0333	ND	92.0	30-120	1.15	30		
Dibenz (a,h) anthracene	0.0236	0.00500	"	0.0333	ND	70.7	30-120	5.20	30		
Fluoranthene	0.0301	0.00500	"	0.0333	ND	90.2	30-120	2.45	30		
Fluorene	0.0411	0.00500	"	0.0333	0.0329	24.6	30-120	11.6	30		QM-07
Indeno (1,2,3-cd) pyrene	0.0244	0.00500	"	0.0333	ND	73.1	30-120	6.69	30		
Pyrene	0.0406	0.00500	"	0.0333	ND	122	35-142	12.8	30		
1-Methylnaphthalene	0.392	0.00500	"	0.0333	0.297	285	15-130	2.52	50		QM-07
2-Methylnaphthalene	0.571	0.00500	"	0.0333	0.411	482	15-130	14.2	50		QM-07
Surrogate: 2-Methylnaphthalene-d10		0.0172	"	0.0333		51.6	40-150				
Surrogate: Fluoranthene-d10		0.0156	"	0.0333		46.7	40-150				

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**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 BEI0313 - EPA 3050B**

**Blank (BEI0313-BLK1)**

Prepared: 09/15/21 Analyzed: 09/17/21

Boron ND 0.0100 mg/L

**LCS (BEI0313-BS1)**

Prepared: 09/15/21 Analyzed: 09/17/21

Boron 5.04 0.0100 mg/L 5.00 101 80-120

**Duplicate (BEI0313-DUP1)**

Source: 2109170-01

Prepared: 09/15/21 Analyzed: 09/17/21

Boron 0.0823 0.0100 mg/L 0.0889 7.73 20

**Matrix Spike (BEI0313-MS1)**

Source: 2109170-01

Prepared: 09/15/21 Analyzed: 09/17/21

Boron 5.34 0.0100 mg/L 5.00 0.0889 105 75-125

**Matrix Spike Dup (BEI0313-MSD1)**

Source: 2109170-01

Prepared: 09/15/21 Analyzed: 09/17/21

Boron 5.16 0.0100 mg/L 5.00 0.0889 101 75-125 3.50 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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BEI0651 - EPA 3050B**

**Blank (BEI0651-BLK1)**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium ND 0.400 mg/kg wet

**LCS (BEI0651-BS1)**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium 44.6 0.400 mg/kg wet 40.0 112 80-120

**Duplicate (BEI0651-DUP1)**

**Source: 2109137-01**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium 27.6 0.400 mg/kg dry 25.6 7.55 20

**Matrix Spike (BEI0651-MS1)**

**Source: 2109137-01**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium 73.3 0.400 mg/kg dry 46.9 25.6 102 75-125

**Matrix Spike Dup (BEI0651-MSD1)**

**Source: 2109137-01**

Prepared: 09/30/21 Analyzed: 10/04/21

Barium 70.6 0.400 mg/kg dry 46.9 25.6 96.0 75-125 3.76 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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**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 BEI0350 - General Preparation**

**Blank (BEI0350-BLK1)**

Prepared: 09/16/21 Analyzed: 09/21/21

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

**LCS (BEI0350-BS1)**

Prepared: 09/16/21 Analyzed: 09/21/21

Calcium	5.50	0.0500	mg/L wet	5.00	110	70-130
Magnesium	5.11	0.0500	"	5.00	102	70-130
Sodium	4.96	0.0500	"	5.00	99.2	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**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 BEI0305 - General Preparation**

<b>Duplicate (BEI0305-DUP1)</b>		<b>Source: 2109174-01</b>			Prepared & Analyzed: 09/15/21					
% Solids	88.1		%		88.3			0.225	20	

**Batch BEI0646 - General Preparation**

<b>Duplicate (BEI0646-DUP1)</b>		<b>Source: 2109137-01</b>			Prepared & Analyzed: 09/30/21					
% Solids	86.0		%		85.2			0.886	20	

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**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 BEI0351 - General Preparation**

**Blank (BEI0351-BLK1)**

Prepared: 09/16/21 Analyzed: 09/17/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BEI0351-BS1)**

Prepared: 09/16/21 Analyzed: 09/17/21

Specific Conductance (EC) 0.161 0.0100 mmhos/cm 0.150 107 90-110

**Duplicate (BEI0351-DUP1)**

**Source: 2109173-01**

Prepared: 09/16/21 Analyzed: 09/17/21

Specific Conductance (EC) 4.08 0.0100 mmhos/cm 4.08 0.00 20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

**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 BEI0352 - General Preparation**

**LCS (BEI0352-BS1)**

Prepared: 09/16/21 Analyzed: 09/17/21

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

**Duplicate (BEI0352-DUP1)**

**Source: 2109173-01**

Prepared: 09/16/21 Analyzed: 09/17/21

pH	8.31	pH Units	8.31	0.00	20
----	------	----------	------	------	----

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/04/21 13:25

### Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 17, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Buffalo Gardens 41-13 Tank Battery

Work Order #2206061

Enclosed are the results of analyses for samples received by Summit Scientific on 06/02/22 17:48. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mikayla Axtell For Paul Shrewsbury

President



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG03@2.5'	2206061-01	Soil	06/02/22 09:20	06/02/22 17:48
BKG03@6'	2206061-02	Soil	06/02/22 09:25	06/02/22 17:48
BKG03@14'	2206061-03	Soil	06/02/22 10:38	06/02/22 17:48
BKG04@2.5'	2206061-04	Soil	06/02/22 09:50	06/02/22 17:48
BKG04@6'	2206061-05	Soil	06/02/22 10:00	06/02/22 17:48
BKG04@11'	2206061-06	Soil	06/02/22 10:25	06/02/22 17:48
BKG05@2.5'	2206061-07	Soil	06/02/22 10:55	06/02/22 17:48
BKG05@6'	2206061-08	Soil	06/02/22 11:11	06/02/22 17:48
BKG05@9'	2206061-09	Soil	06/02/22 11:38	06/02/22 17:48

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

2206061

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 1

Client: PDC / Tasman Project Manager: Mark Longhurst  
 Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com  
 City/State/Zip: Broomfield/ CO/ 80020  
 Phone: 303-487-1228 Project Name: BUFFALO GARDENS 41-13 Tank Battery  
 Sampler Name: Dyer Murrel 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)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	PAHs - 915	Metals - 915	
1	BK603 @ 2.5'	6.2.22	920	1			X			X									X	pH, EC, SAR by saturated paste
2	BK603 @ 6'		925																	
3	BK603 @ 10'		1038																	
4	BK604 @ 2.5'		956																	
5	BK604 @ 6'		1000																	
6	BK604 @ 11'		1025																	
7	BK605 @ 2.5'		1055																	
8	BK605 @ 6'		1111																	
9	BK605 @ 9'		1138																	
10																				

Relinquished by: <u>Tyr</u> Date/Time: <u>6.2.22 1240</u>	Received by: <u>Tasman's Lock Box</u> Date/Time: _____	<b>Turn Around Time (Check)</b> Same Day _____ 72 hours _____ 24 hours _____ Standard <u>X</u> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: <u>7.1</u> Samples Intact: <u>Yes</u> No	<b>Notes:</b>
Relinquished by: <u>Tasman's Lock Box</u> Date/Time: <u>6222 1748</u>	Received by: <u>[Signature]</u> Date/Time: <u>6222 1748</u>		
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2206061

Client: PodrasmanClient Project ID: Buffalo Gardens 4113 Tank Battery

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

	-			
--	---	--	--	--

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 7.1Thermometer # 1

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

0222

Date/Time





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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG03@2.5'**  
**2206061-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 09:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.23	0.210	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
Barium	89.3	0.420	"	"	"	"	"	"	
Cadmium	ND	0.210	"	"	"	"	"	"	
Copper	9.68	0.420	"	"	"	"	"	"	
Lead	6.01	0.210	"	"	"	"	"	"	
Nickel	11.2	0.420	"	"	"	"	"	"	
Selenium	0.536	0.273	"	"	"	"	"	"	
Silver	0.0521	0.0210	"	"	"	"	"	"	
Zinc	35.0	0.420	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 09:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 09:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	95.3		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG03@6'**  
**2206061-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 09:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>2.51</b>	0.206	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
<b>Barium</b>	<b>54.6</b>	0.412	"	"	"	"	"	"	
Cadmium	ND	0.206	"	"	"	"	"	"	
<b>Copper</b>	<b>6.90</b>	0.412	"	"	"	"	"	"	
<b>Lead</b>	<b>3.67</b>	0.206	"	"	"	"	"	"	
<b>Nickel</b>	<b>6.29</b>	0.412	"	"	"	"	"	"	
<b>Selenium</b>	<b>0.388</b>	0.268	"	"	"	"	"	"	
Silver	ND	0.0206	"	"	"	"	"	"	
<b>Zinc</b>	<b>22.1</b>	0.412	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 09:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 09:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>97.0</b>		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG03@14'**  
**2206061-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 10:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.49	0.225	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
Barium	33.0	0.450	"	"	"	"	"	"	
Cadmium	ND	0.225	"	"	"	"	"	"	
Copper	5.22	0.450	"	"	"	"	"	"	
Lead	5.56	0.225	"	"	"	"	"	"	
Nickel	4.92	0.450	"	"	"	"	"	"	
Selenium	0.375	0.292	"	"	"	"	"	"	
Silver	ND	0.0225	"	"	"	"	"	"	
Zinc	26.6	0.450	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 10:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 10:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.9		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG04@2.5'**  
**2206061-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.78	0.215	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
Barium	116	0.429	"	"	"	"	"	"	
Cadmium	ND	0.215	"	"	"	"	"	"	
Copper	11.2	0.429	"	"	"	"	"	"	
Lead	7.22	0.215	"	"	"	"	"	"	
Nickel	11.7	0.429	"	"	"	"	"	"	
Selenium	0.584	0.279	"	"	"	"	"	"	
Silver	0.0571	0.0215	"	"	"	"	"	"	
Zinc	42.0	0.429	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	93.2		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG04@6'**  
**2206061-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 10:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.67	0.215	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
Barium	70.0	0.431	"	"	"	"	"	"	
Cadmium	ND	0.215	"	"	"	"	"	"	
Copper	7.66	0.431	"	"	"	"	"	"	
Lead	5.08	0.215	"	"	"	"	"	"	
Nickel	7.65	0.431	"	"	"	"	"	"	
Selenium	0.465	0.280	"	"	"	"	"	"	
Silver	0.0258	0.0215	"	"	"	"	"	"	
Zinc	27.9	0.431	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 10:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 10:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	92.9		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG04@11'**  
**2206061-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.40	0.217	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
Barium	60.7	0.434	"	"	"	"	"	"	
Cadmium	ND	0.217	"	"	"	"	"	"	
Copper	6.62	0.434	"	"	"	"	"	"	
Lead	5.42	0.217	"	"	"	"	"	"	
Nickel	6.94	0.434	"	"	"	"	"	"	
Selenium	0.400	0.282	"	"	"	"	"	"	
Silver	0.0244	0.0217	"	"	"	"	"	"	
Zinc	26.3	0.434	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 10:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	92.1		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG05@2.5'**  
**2206061-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 10:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.24	0.211	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
Barium	81.6	0.423	"	"	"	"	"	"	
Cadmium	ND	0.211	"	"	"	"	"	"	
Copper	9.08	0.423	"	"	"	"	"	"	
Lead	5.88	0.211	"	"	"	"	"	"	
Nickel	10.5	0.423	"	"	"	"	"	"	
Selenium	0.570	0.275	"	"	"	"	"	"	
Silver	0.0492	0.0211	"	"	"	"	"	"	
Zinc	33.4	0.423	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 10:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 10:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	94.6		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG05@6'**  
**2206061-08 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 11:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.74	0.205	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
Barium	35.9	0.411	"	"	"	"	"	"	
Cadmium	ND	0.205	"	"	"	"	"	"	
Copper	5.48	0.411	"	"	"	"	"	"	
Lead	3.28	0.205	"	"	"	"	"	"	
Nickel	4.65	0.411	"	"	"	"	"	"	
Selenium	0.318	0.267	"	"	"	"	"	"	
Silver	ND	0.0205	"	"	"	"	"	"	
Zinc	18.7	0.411	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 11:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 11:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	97.4		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**BKG05@9'**  
**2206061-09 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **06/02/22 11:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>2.45</b>	0.205	mg/kg dry	1	BFF0425	06/15/22	06/17/22	EPA 6020B	
<b>Barium</b>	<b>37.4</b>	0.410	"	"	"	"	"	"	
Cadmium	ND	0.205	"	"	"	"	"	"	
<b>Copper</b>	<b>7.46</b>	0.410	"	"	"	"	"	"	
<b>Lead</b>	<b>3.75</b>	0.205	"	"	"	"	"	"	
<b>Nickel</b>	<b>5.74</b>	0.410	"	"	"	"	"	"	
<b>Selenium</b>	<b>0.323</b>	0.267	"	"	"	"	"	"	
Silver	ND	0.0205	"	"	"	"	"	"	
<b>Zinc</b>	<b>20.3</b>	0.410	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **06/02/22 11:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFF0340	06/13/22	06/13/22	EPA 7196A	

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

Date Sampled: **06/02/22 11:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>97.5</b>		%	1	BFF0359	06/13/22	06/14/22	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: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

### Total Metals by EPA 6020B - Quality Control

#### Summit Scientific

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

#### Batch BFF0425 - EPA 3050B

##### Blank (BFF0425-BLK1)

Prepared: 06/15/22 Analyzed: 06/16/22

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Selenium	ND	0.260	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"

##### LCS (BFF0425-BS1)

Prepared: 06/15/22 Analyzed: 06/16/22

Arsenic	47.9	0.200	mg/kg wet	40.0	120	80-120
Barium	44.4	0.400	"	40.0	111	80-120
Cadmium	2.12	0.200	"	2.00	106	80-120
Copper	47.5	0.400	"	40.0	119	80-120
Lead	19.6	0.200	"	20.0	98.2	80-120
Nickel	46.2	0.400	"	40.0	116	80-120
Selenium	3.95	0.260	"	4.00	98.7	80-120
Silver	2.08	0.0200	"	2.00	104	80-120
Zinc	44.6	0.400	"	40.0	111	80-120

##### Duplicate (BFF0425-DUP1)

Source: 2206059-01

Prepared: 06/15/22 Analyzed: 06/16/22

Arsenic	2.97	0.236	mg/kg dry	3.37	12.5	20
Barium	112	0.473	"	94.2	16.9	20
Cadmium	0.147	0.236	"	0.161	9.20	20
Copper	6.88	0.473	"	7.99	15.0	20
Lead	5.37	0.236	"	5.32	1.04	20
Nickel	8.41	0.473	"	9.18	8.79	20
Selenium	0.496	0.307	"	0.530	6.72	20
Silver	0.0282	0.0236	"	0.0314	10.9	20
Zinc	23.8	0.473	"	27.8	15.6	20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BFF0425 - EPA 3050B**

**Matrix Spike (BFF0425-MS1)**

Source: 2206059-01

Prepared: 06/15/22 Analyzed: 06/16/22

Arsenic	57.6	0.236	mg/kg dry	47.3	3.37	115	75-125			
Barium	191	0.473	"	47.3	94.2	205	75-125			QM-02
Cadmium	2.66	0.236	"	2.36	0.161	106	75-125			
Copper	64.3	0.473	"	47.3	7.99	119	75-125			
Lead	26.5	0.236	"	23.6	5.32	89.8	75-125			
Nickel	63.8	0.473	"	47.3	9.18	115	75-125			
Selenium	4.33	0.307	"	4.73	0.530	80.5	75-125			
Silver	2.41	0.0236	"	2.36	0.0314	101	75-125			
Zinc	87.7	0.473	"	47.3	27.8	127	75-125			QM-05

**Matrix Spike Dup (BFF0425-MSD1)**

Source: 2206059-01

Prepared: 06/15/22 Analyzed: 06/16/22

Arsenic	57.5	0.236	mg/kg dry	47.3	3.37	114	75-125	0.196	25	
Barium	204	0.473	"	47.3	94.2	232	75-125	6.55	25	QM-02
Cadmium	2.62	0.236	"	2.36	0.161	104	75-125	1.84	25	
Copper	62.0	0.473	"	47.3	7.99	114	75-125	3.77	25	
Lead	27.3	0.236	"	23.6	5.32	92.8	75-125	2.66	25	
Nickel	62.3	0.473	"	47.3	9.18	112	75-125	2.41	25	
Selenium	4.41	0.307	"	4.73	0.530	82.0	75-125	1.65	25	
Silver	2.39	0.0236	"	2.36	0.0314	99.7	75-125	1.08	25	
Zinc	86.8	0.473	"	47.3	27.8	125	75-125	0.997	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: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BFF0340 - 3060A Mod**

**Blank (BFF0340-BLK1)**

Prepared & Analyzed: 06/13/22

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BFF0340-BS1)**

Prepared & Analyzed: 06/13/22

Chromium, Hexavalent 29.2 0.30 mg/kg wet 25.0 117 80-120

**Duplicate (BFF0340-DUP1)**

**Source: 2206054-01**

Prepared & Analyzed: 06/13/22

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BFF0340-MS1)**

**Source: 2206054-01**

Prepared & Analyzed: 06/13/22

Chromium, Hexavalent 32.3 0.30 mg/kg dry 26.5 ND 122 75-125

**Matrix Spike Dup (BFF0340-MSD1)**

**Source: 2206054-01**

Prepared & Analyzed: 06/13/22

Chromium, Hexavalent 31.4 0.30 mg/kg dry 26.5 ND 119 75-125 2.83 20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

**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 BFF0359 - General Preparation**

Duplicate (BFF0359-DUP1)		Source: 2206061-01		Prepared: 06/13/22 Analyzed: 06/14/22	
% Solids	95.2		%	95.3	0.0978 20

Summit Scientific

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



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

Project: Buffalo Gardens 41-13 Tank Battery  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/17/22 11:50

### Notes and Definitions

QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
QM-02	The RPD and/or percent recovery for this QC sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
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