

**PDC Energy, Inc.**  
Third Quarter 2021 Groundwater Monitoring Summary

August 23, 2021

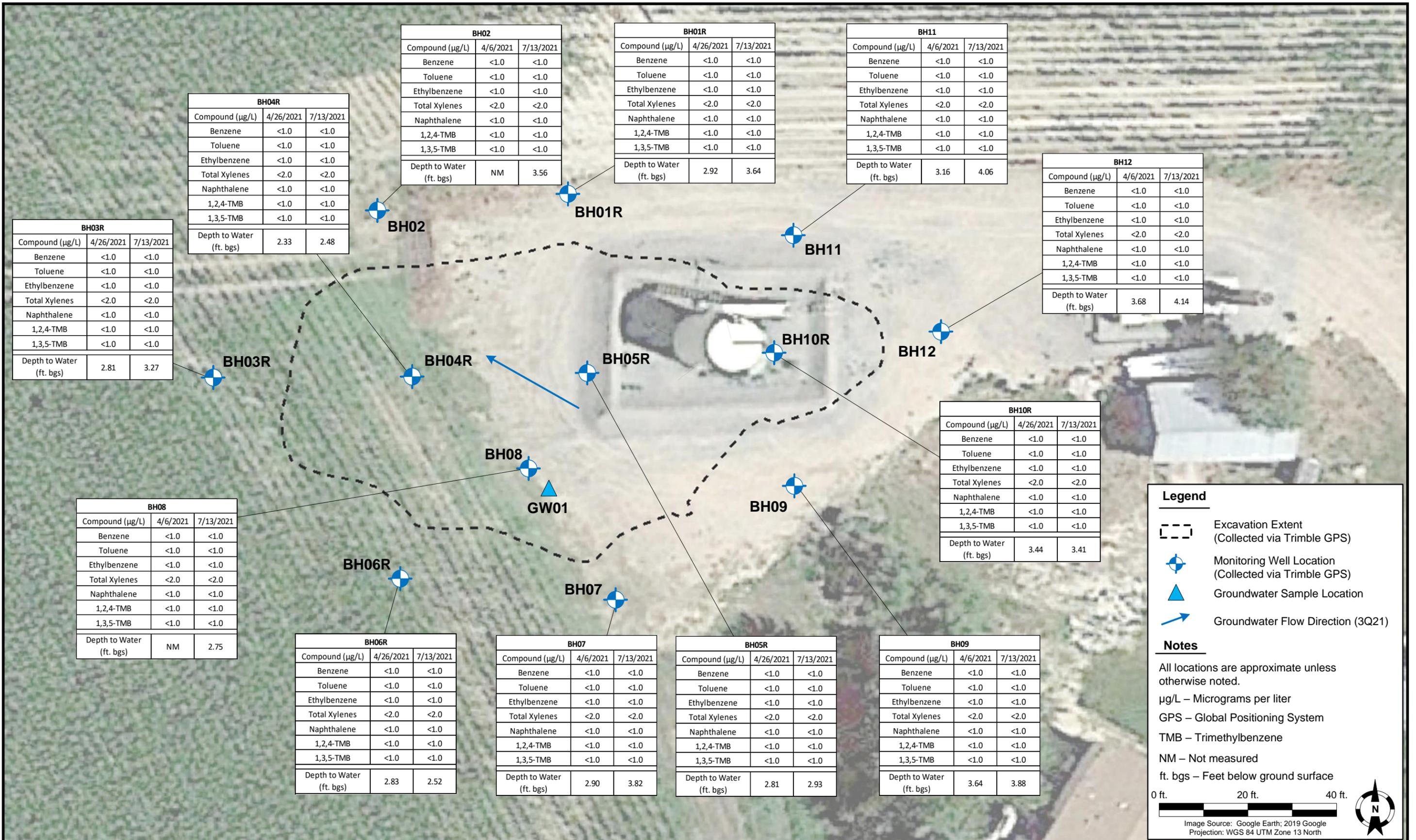
Former Owl Creek 7, 7-5 Tank Battery  
NESE Section 5 T6N R64W  
Remediation # 16159

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the former Owl Creek 7, 7-5 Tank Battery. On July 13, 2021, groundwater monitoring was conducted at 12 monitoring wells (BH01R, BH02, BH03R—BH06R, BH07—BH09, BH10R, BH11, and BH12). Temporary monitoring wells BH01R, BH02, BH03R—BH06R, BH07—BH08, BH10R, and BH11 were installed using a hand auger in cultivated land. The wells were purged, sampled, and subsequently abandoned. A GPS point was collected from all temporary monitoring well locations to ensure the groundwater sample locations remains consistent between quarters. Twelve groundwater samples were submitted for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260B, total dissolved solids (TDS) by Method SM 2540C, as well as chloride, and sulfate anions by EPA Method 300.0.

Third quarter 2021 analytical results indicated that organic compound concentrations were below the applicable COGCC Table 915-1 groundwater standard in all twelve monitoring wells. Monitoring well BH09 was utilized as the up-gradient well in order to observe and evaluate native site-specific groundwater conditions. Inorganic parameters were in exceedance of the COGCC Table 915-1 groundwater standards and 1.25x of the native site-specific groundwater concentrations collected from the up-gradient monitoring well (BH09) in monitoring wells BH03R, BH04R, BH05R, and BH08. Inorganic parameters were below the regulatory standards or within 1.25x the native site-specific groundwater concentration in the remaining eight monitoring wells. Sample locations and corresponding organic analytical results are illustrated on Figure 1. Groundwater elevation data is illustrated on Figure 2. Sample locations and corresponding inorganic analytical results are illustrated on Figure 3. Groundwater analytical results are summarized in Tables 1 and 2. The laboratory analytical report is included in Attachment A.

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the second quarter 2021 and will remain the selected remediation strategy through the fourth quarter 2021.

Fourth quarter 2021 groundwater sampling will be conducted in October 2021.



DATE: August 5, 2021

DESIGNED BY: B. Nelson

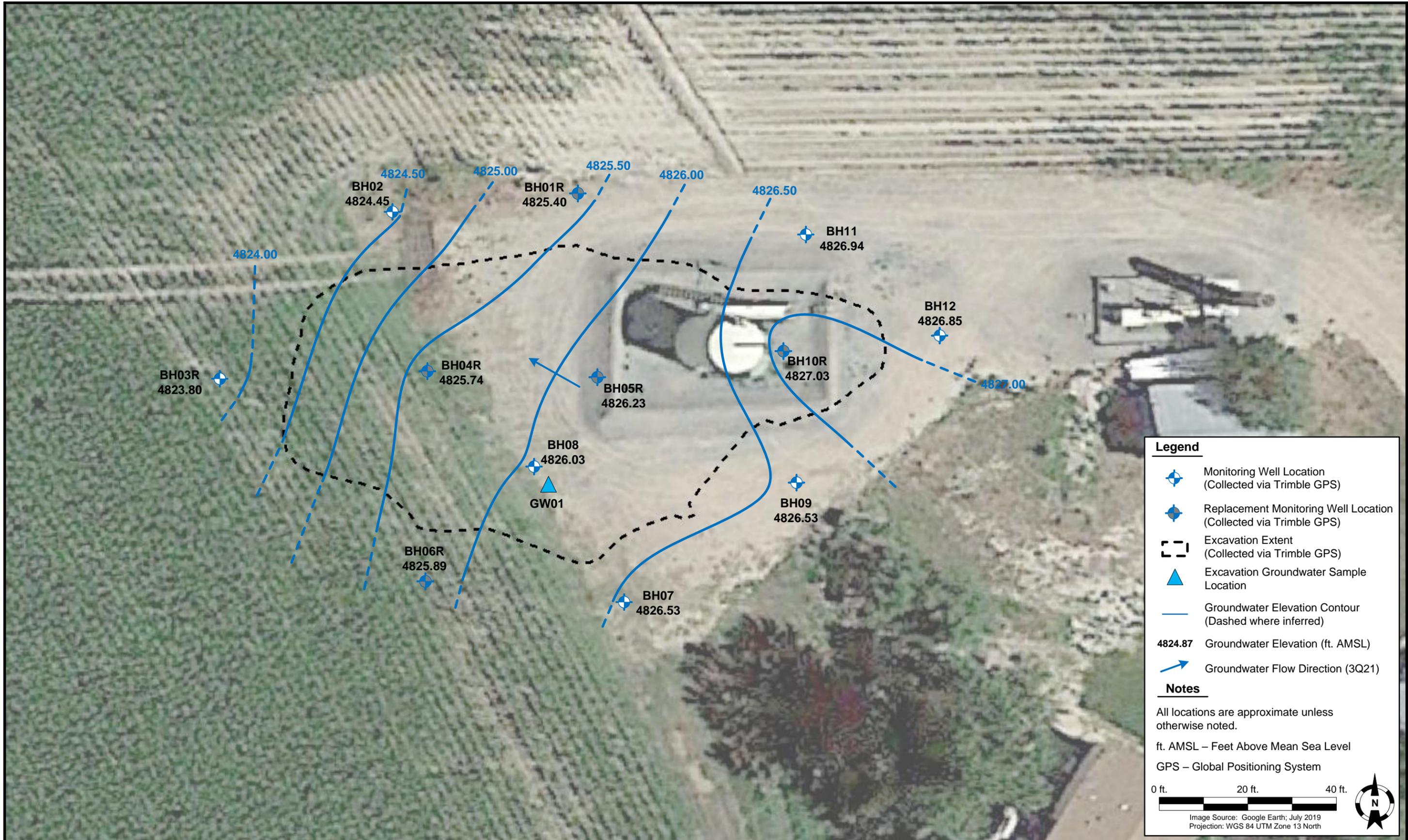
DRAWN BY: C. Ambler

**Tasman Geosciences, Inc.**  
 6855 W. 119<sup>th</sup> Ave.  
 Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**Former Owl Creek 7, 7-5 Tank Battery**  
 NESE, Section 5 Township 6 North, Range 64 West  
 Weld County, Colorado

**GROUNDWATER ANALYTICAL RESULTS MAP**

**FIGURE 1**



**Legend**

- Monitoring Well Location (Collected via Trimble GPS)
- Replacement Monitoring Well Location (Collected via Trimble GPS)
- Excavation Extent (Collected via Trimble GPS)
- Excavation Groundwater Sample Location
- Groundwater Elevation Contour (Dashed where inferred)
- 4824.87 Groundwater Elevation (ft. AMSL)
- Groundwater Flow Direction (3Q21)

**Notes**

All locations are approximate unless otherwise noted.

ft. AMSL – Feet Above Mean Sea Level

GPS – Global Positioning System

0 ft.      20 ft.      40 ft.

Image Source: Google Earth; July 2019  
Projection: WGS 84 UTM Zone 13 North

DATE: July 14, 2021

DESIGNED BY: B. Nelson

DRAWN BY: C. Ambler



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6855 West 119<sup>th</sup> Avenue  
Broomfield, CO 80020

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Weld County, Colorado

**GROUNDWATER ELEVATION CONTOUR MAP (07/13/2021)**

**FIGURE 2**

BH02		
Compound (mg/L)	4/6/2021	7/13/2021
Chloride	4.30	14.4
Sulfate	132	<b>474</b>
TDS	596	530

BH01R		
Compound (mg/L)	4/26/2021	7/13/2021
Chloride	<b>157</b>	16.2
Sulfate	<b>254</b>	<b>263</b>
TDS	<b>1,140</b>	572

BH11		
Compound (mg/L)	4/6/2021	7/13/2021
Chloride	<b>9.80</b>	10.0
Sulfate	235	<b>266</b>
TDS	<b>624</b>	505

BH12		
Compound (mg/L)	4/6/2021	7/13/2021
Chloride	6.74	24.8
Sulfate	129	<b>439</b>
TDS	504	528

BH04R		
Compound (mg/L)	4/26/2021	7/13/2021
Chloride	<b>740</b>	<b>343</b>
Sulfate	<b>2,530</b>	<b>2,420</b>
TDS	<b>4,590</b>	<b>2,850</b>

BH03R		
Compound (mg/L)	4/26/2021	7/13/2021
Chloride	205	<b>292</b>
Sulfate	237	<b>1,500</b>
TDS	<b>1,550</b>	<b>1,860</b>

BH08		
Compound (mg/L)	4/6/2021	7/13/2021
Chloride	6.88	<b>47.2</b>
Sulfate	227	<b>1,100</b>
TDS	<b>686</b>	<b>1,340</b>

BH06R		
Compound (mg/L)	4/26/2021	7/13/2021
Chloride	172	19.8
Sulfate	<b>303</b>	<b>342</b>
TDS	<b>1,270</b>	653

BH07		
Compound (mg/L)	4/6/2021	7/13/2021
Chloride	3.34	21.2
Sulfate	125	<b>431</b>
TDS	561	640

BH05R		
Compound (mg/L)	4/26/2021	7/13/2021
Chloride	<b>561</b>	<b>85.4</b>
Sulfate	<b>2,610</b>	<b>1,280</b>
TDS	<b>4,290</b>	<b>1,390</b>

BH10R		
Compound (mg/L)	4/26/2021	7/13/2021
Chloride	189	8.60
Sulfate	<b>410</b>	<b>376</b>
TDS	<b>1,540</b>	578

BH09		
Compound (mg/L)	4/6/2021	7/13/2021
Chloride	6.06	23.8
Sulfate	176	<b>495</b>
TDS	647	633

**Legend**

- Excavation Extent (Collected via Trimble GPS)
- Monitoring Well Location (Collected via Trimble GPS)
- Groundwater Sample Location
- Groundwater Flow Direction (3Q21)

**Notes**

All locations are approximate unless otherwise noted.

GPS – Global Positioning System  
 mg/L – Micrograms per liter  
 TDS – Total dissolved solids

Red text – exceedances of COGCC Table 915-1 standards.  
 Bold text – exceedances of COGCC Table 915-1 standards but within 1.25x of up-gradient monitoring well BH09 concentration

COGCC – Colorado Oil and Gas Conservation Commission

0 ft. 20 ft. 40 ft.

Image Source: Google Earth; 2019 Google  
 Projection: WGS 84 UTM Zone 13 North

DATE: August 5, 2021

DESIGNED BY: B. Nelson

DRAWN BY: C. Ambler



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**GROUNDWATER ANALYTICAL RESULTS MAP (INORGANIC PARAMETERS)**

**FIGURE 2**

**TABLE 1  
FORMER OWL CREEK 7, 7-5 TANK BATTERY  
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE  
ORGANIC COMPOUNDS**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	Fluorene (µg/L)	Depth to Water <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
<b>COGCC Table 915-1 Groundwater Standard (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	<b>140</b>	<b>67</b>	<b>67</b>	<b>280</b>	-	-
GW01	2/22/2021	<1.0	<1.0	2.9	5.9	2.8	12	1.8	NA	6	-
BH01R	4/26/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	2.92	4824.87
BH01R	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	3.64	4825.40
BH02	4/6/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	NM	NM
BH02	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	3.56	4824.45
BH03R	4/26/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	2.81	4822.99
BH03R	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	3.27	4823.80
BH04R	4/26/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	2.33	4824.69
BH04R	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	2.48	4825.74
BH05R	4/26/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	2.81	4825.06
BH05R	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	2.93	4826.23
BH06R	4/26/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	2.83	4824.25
BH06R	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	2.52	4825.89
BH07	4/6/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	2.90	4825.78
BH07	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	3.82	4826.53
BH08	4/6/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	NM	NM
BH08	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	2.75	4826.03
BH09	4/6/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	3.64	4826.77
BH09	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	3.88	4826.53
BH10R	4/26/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	3.44	4825.70
BH10R	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	3.41	4827.03
BH11	4/6/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	3.16	4826.40
BH11	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	4.06	4826.94
BH12	4/6/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	3.68	4827.31
BH12	7/13/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	4.14	4826.85

**Notes:**

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

2. Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

TMB = Trimethylbenzene

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

ft. = Feet

AMSL = Above Mean Sea Level

NM = Not Measured

NA = Constituent Not Analyzed

**TABLE 2**  
**FORMER OWL CREEK 7, 7-5 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
<b>COGCC Table 915-1 Groundwater Standard (mg/L) <sup>(1)</sup></b>		<b>&lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>
BH01R	4/26/2021	<b>1,140</b>	<b>157</b>	<b>254</b>
BH01R	7/13/2021	572	16.2	<b>263</b>
BH02	4/6/2021	596	4.30	132
BH02	7/13/2021	530	14.4	<b>474</b>
BH03R	4/26/2021	<b>1,550</b>	205	237
BH03R	7/13/2021	<b>1,860</b>	<b>292</b>	<b>1500</b>
BH04R	4/26/2021	<b>4,590</b>	<b>740</b>	<b>2,530</b>
BH04R	7/13/2021	<b>2,850</b>	<b>343</b>	<b>2,420</b>
BH05R	4/26/2021	<b>4,290</b>	<b>561</b>	<b>2,610</b>
BH05R	7/13/2021	<b>1,390</b>	<b>85.4</b>	<b>1,280</b>
BH06R	4/26/2021	<b>1,270</b>	172	<b>303</b>
BH06R	7/13/2021	653	19.8	<b>342</b>
BH07	4/6/2021	561	3.34	125
BH07	7/13/2021	640	21.2	<b>431</b>
BH08	4/6/2021	686	6.88	227
BH08	7/13/2021	<b>1,340</b>	<b>47.2</b>	<b>1100</b>
BH09	4/6/2021	647	6.06	176
BH09	7/13/2021	633	23.8	<b>495</b>
BH10R	4/26/2021	<b>1,540</b>	189	<b>410</b>
BH10R	7/13/2021	578	8.60	<b>376</b>
BH11	4/6/2021	624	<b>9.80</b>	235
BH11	7/13/2021	505	10.0	<b>266</b>
BH12	4/6/2021	504	6.74	129
BH12	7/13/2021	528	24.8	<b>439</b>

**TABLE 2**  
**FORMER OWL CREEK 7, 7-5 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
<b>COGCC Table 915-1 Groundwater Standard (mg/L) <sup>(1)</sup></b>		<b>&lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>	<b>250 or &lt;1.25 x BCKG</b>

**Notes:**

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

TDS = Total dissolved solids

COGCC = Colorado Oil and Gas Conservation Commission

BCKG = Background

mg/L = Milligrams per liter

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

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

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

  = Up-gradient well used for background concentration.

## Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 02, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Owl Creek 7,7-5

Work Order #2107176

Enclosed are the results of analyses for samples received by Summit Scientific on 07/13/21 17:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury

President



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

Project: Owl Creek 7,7-5

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01R	2107176-01	Water	07/13/21 14:51	07/13/21 17:45
BH02	2107176-02	Water	07/13/21 14:35	07/13/21 17:45
BH03R	2107176-03	Water	07/13/21 14:33	07/13/21 17:45
BH04R	2107176-04	Water	07/13/21 14:48	07/13/21 17:45
BH05R	2107176-05	Water	07/13/21 15:15	07/13/21 17:45
BH06R	2107176-06	Water	07/13/21 14:57	07/13/21 17:45
BH07	2107176-07	Water	07/13/21 15:22	07/13/21 17:45
BH08	2107176-08	Water	07/13/21 15:07	07/13/21 17:45
BH09	2107176-09	Water	07/13/21 15:19	07/13/21 17:45
BH10R	2107176-10	Water	07/13/21 15:08	07/13/21 17:45
BH11	2107176-11	Water	07/13/21 15:00	07/13/21 17:45
BH12	2107176-12	Water	07/13/21 15:10	07/13/21 17:45

Summit Scientific

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

# Summit Scientific

S<sub>2</sub>

2107176.1

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

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: Owl Creek 7, 7-5  
 Sampler Name: Yianni Tsambis Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX	NAP	1,3,5 TMB	1,2,4 TMB	TDS	Cl		SO4	
1	BH01R	7/13/21	1451	4	0		4			X				X	X	X	X	X	X	X	
2	BH02		1435		0		4														
3	BH03R		1433		0		4														
4	BH04R		1448		3		1														
5	BH05R		1515		0		4														
6	BH06R		1457		0		4														
7	BH07		1522		0		4														
8	BH08		1507		0		4														
9	BH09		1519		3		1														
10	BH10R		1508		0		4														

Relinquished by: <u>[Signature]</u>	Date/Time: <u>7/13/21 1720</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>7/13/21 1720</u>	Turn Around Time (Check) Same Day <u>---</u> 72 hours 24 hours <u>---</u> Standard <u>X</u> 48 hours <u>---</u> Sample Integrity: Temperature Upon Receipt: <u>3</u> Samples Intact: <u>(Yes)</u> No	Notes:
Relinquished by: <u>Tasman's Lockbox</u>	Date/Time: <u>7/13/21 1745</u>	Received by: <u>[Signature]</u>	Date/Time: <u>7/13/21 1745</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

# Summit Scientific

S<sub>2</sub>

2107176.2

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

Page 2 of 2

Client: PDC / Tasman Project Manager: Mark Longhurst  
 Address: 6855 W. 119th Ave E-Mail: mark.longhurst@pdce.com  
 City/State/Zip: Broomfield / CO/ 80020  
 Phone: 303-487-1228 Project Name: Owl Creek 7, 7-5  
 Sampler Name: Yianni Tsambis Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested						Special Instructions			
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX	NAP	1,3,5 TMB	1,2,4 TMB	TDS		Cl	SO4	
1	BH11	7/13/21	1500	4	0					X				X	X	X	X	X	X	X	
2	BH12		1510	1	3					X				X	X	X	X	X	X	X	
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <u>[Signature]</u> Date/Time: <u>7/13/21 1720</u>	Received by: <u>Tasman's Lock Box</u> Date/Time: <u>7/13/21 1720</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/> Sample Integrity: <u>3</u> Temperature Upon Receipt: <u>3</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: <u>Tasman's lock box</u> Date/Time: <u>7/13/21 1745</u>	Received by: <u>[Signature]</u> Date/Time: <u>7/13/21 1745</u>		
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____		

2107176

Sample Receipt Checklist

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

Client: PDC / Tasman Client Project ID: Owl Creek 7, 7-5

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

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

Temp (°C)	3
-----------	---

Thermometer ID: 61857155-K

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

JB  
Custodian Printed Name or Initials

John Burr  
Signature of Custodian

7/13/21  
Date/Time



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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH01R**  
**2107176-01 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 14:51**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 14:51**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		101 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 14:51**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	16.2	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	263	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 14:51**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	572	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH02**  
**2107176-02 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		105 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	14.4	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	474	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 14:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	530	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH03R**  
**2107176-03 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 14:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 14:33**

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

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 14:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>292</b>	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>1500</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 14:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1860</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH04R**  
**2107176-04 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 14:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 14:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		104 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 14:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>343</b>	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>2420</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 14:48**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>2850</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH05R**  
**2107176-05 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		104 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>85.4</b>	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>1280</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 15:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	<b>1390</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH06R**  
**2107176-06 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 14:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 14:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		103 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 14:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>19.8</b>	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>342</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 14:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>653</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH07**  
**2107176-07 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 15:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 15:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		98.1 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 15:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>21.2</b>	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>431</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 15:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>604</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH08**  
**2107176-08 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 15:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 15:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		104 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 15:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	47.2	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	1100	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 15:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	1340	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH09**  
**2107176-09 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 15:19**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 15:19**

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

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 15:19**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>23.8</b>	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>495</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 15:19**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>633</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH10R**  
**2107176-10 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 15:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 15:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		100 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 15:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>8.60</b>	0.600		mg/L	10	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>376</b>	60.0		"	200	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 15:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>578</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH11**  
**2107176-11 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 15:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 15:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		100 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 15:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>10.0</b>	6.00		mg/L	100	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>266</b>	60.0		"	200	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 15:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>505</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

**BH12**  
**2107176-12 (Water)**

**Summit Scientific**

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

Date Sampled: **07/13/21 15:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEG0246	07/14/21	07/15/21	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **07/13/21 15:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		101 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **07/13/21 15:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>24.8</b>	12.0		mg/L	200	BEG0313	07/19/21	07/19/21	EPA 300.0	
Sulfate	<b>439</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **07/13/21 15:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>528</b>	10.0		mg/L	1	BEG0277	07/16/21	07/16/21	SM2540C	

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

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

#### Summit Scientific

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

#### Batch BEG0246 - EPA 5030 Water MS

##### Blank (BEG0246-BLK1)

Prepared & Analyzed: 07/14/21

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	2.0	"								
Naphthalene	ND	1.0	"								
1,2,4-Trimethylbenzene	ND	1.0	"								
1,3,5-Trimethylbenzene	ND	1.0	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	13.5		"	13.3		101		23-173			
<i>Surrogate: Toluene-d8</i>	13.3		"	13.3		99.5		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	13.0		"	13.3		97.1		21-167			

##### LCS (BEG0246-BS1)

Prepared & Analyzed: 07/14/21

Benzene	52.6	1.0	ug/l	50.0		105		51-132			
Toluene	52.1	1.0	"	50.0		104		51-138			
Ethylbenzene	51.0	1.0	"	50.0		102		58-146			
m,p-Xylene	102	2.0	"	100		102		57-144			
o-Xylene	51.3	1.0	"	50.0		103		53-146			
Naphthalene	53.4	1.0	"	50.0		107		70-130			
1,2,4-Trimethylbenzene	50.2	1.0	"	50.0		100		70-130			
1,3,5-Trimethylbenzene	50.3	1.0	"	50.0		101		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	13.7		"	13.3		103		23-173			
<i>Surrogate: Toluene-d8</i>	13.3		"	13.3		99.8		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	13.2		"	13.3		99.2		21-167			

##### Matrix Spike (BEG0246-MS1)

Source: 2107138-01

Prepared & Analyzed: 07/14/21

Benzene	51.4	1.0	ug/l	50.0	ND	103		34-141			
Toluene	50.9	1.0	"	50.0	ND	102		27-151			
Ethylbenzene	48.9	1.0	"	50.0	ND	97.9		29-160			
m,p-Xylene	98.1	2.0	"	100	ND	98.1		20-166			
o-Xylene	49.0	1.0	"	50.0	ND	97.9		33-159			
Naphthalene	55.8	1.0	"	50.0	ND	112		70-130			
1,2,4-Trimethylbenzene	49.3	1.0	"	50.0	ND	98.6		70-130			
1,3,5-Trimethylbenzene	49.7	1.0	"	50.0	ND	99.4		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	13.9		"	13.3		104		23-173			
<i>Surrogate: Toluene-d8</i>	13.4		"	13.3		101		20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	13.0		"	13.3		97.7		21-167			

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 08/02/21 13:13

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

**Summit Scientific**

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

**Batch BEG0246 - EPA 5030 Water MS**

Matrix Spike Dup (BEG0246-MSD1)	Source: 2107138-01			Prepared & Analyzed: 07/14/21							
Benzene	39.4	1.0	ug/l	50.0	ND	78.9	34-141	26.4	30		
Toluene	39.2	1.0	"	50.0	ND	78.3	27-151	26.0	30		
Ethylbenzene	37.8	1.0	"	50.0	ND	75.6	29-160	25.7	30		
m,p-Xylene	75.9	2.0	"	100	ND	75.9	20-166	25.5	30		
o-Xylene	38.3	1.0	"	50.0	ND	76.6	33-159	24.5	30		
Naphthalene	49.1	1.0	"	50.0	ND	98.2	70-130	12.9	30		
1,2,4-Trimethylbenzene	39.0	1.0	"	50.0	ND	78.0	70-130	23.3	30		
1,3,5-Trimethylbenzene	39.3	1.0	"	50.0	ND	78.5	70-130	23.5	30		
Surrogate: 1,2-Dichloroethane-d4	15.1		"	13.3		113	23-173				
Surrogate: Toluene-d8	13.3		"	13.3		99.8	20-170				
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.4	21-167				

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 08/02/21 13:13

**Anions by EPA Method 300.0 - Quality Control**  
**Summit Scientific**

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

**Batch BEG0313 - General Preparation**

**Blank (BEG0313-BLK1)**

Prepared & Analyzed: 07/19/21

Chloride	ND	0.0600	mg/L						
Sulfate	ND	0.300	"						

**LCS (BEG0313-BS1)**

Prepared & Analyzed: 07/19/21

Chloride	3.24	0.0600	mg/L	3.00	108	90-110			
Sulfate	15.8	0.300	"	15.0	105	90-110			

**Duplicate (BEG0313-DUP1)**

Source: 2107140-01

Prepared & Analyzed: 07/19/21

Chloride	252	12.0	mg/L		257		2.28	20	
Sulfate	2720	60.0	"		2720		0.125	20	

**Matrix Spike (BEG0313-MS1)**

Source: 2107140-01

Prepared & Analyzed: 07/19/21

Chloride	795	12.0	mg/L	600	257	89.6	80-120		
Sulfate	5970	60.0	"	3000	2720	109	80-120		

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 08/02/21 13:13

**Total Dissolved Solids by SM2540C - Quality Control**

**Summit Scientific**

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

**Batch BEG0277 - General Preparation**

**Blank (BEG0277-BLK1)**

Prepared & Analyzed: 07/16/21

Total Dissolved Solids                      ND                      10.0                      mg/L

**Duplicate (BEG0277-DUP1)**

**Source: 2107140-01**

Prepared & Analyzed: 07/16/21

Total Dissolved Solids                      2830                      10.0                      mg/L                      3350                      17.0                      20

Summit Scientific

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

Project: Owl Creek 7,7-5

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/02/21 13:13

### Notes and Definitions

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