

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

August 30, 2021

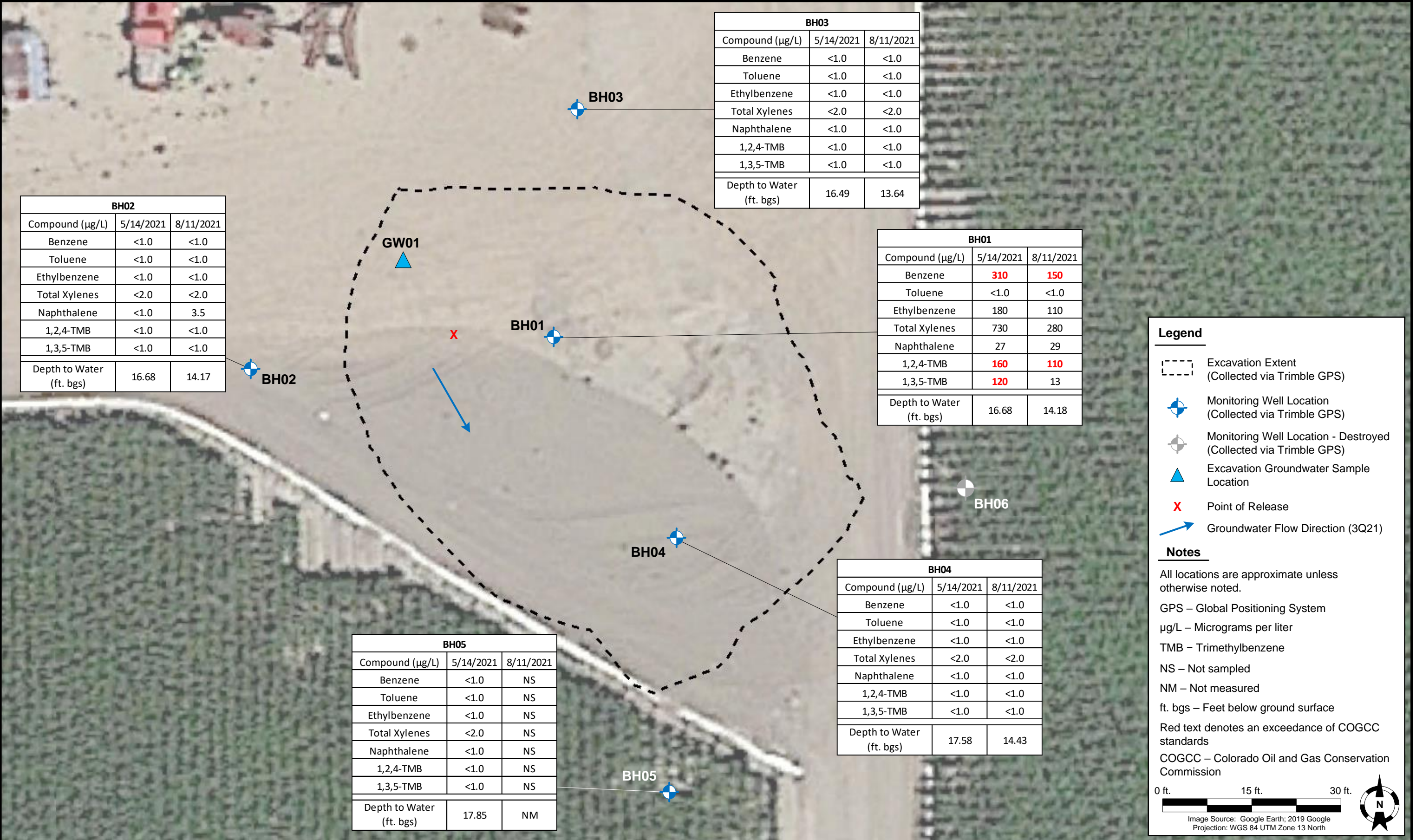
Former JR #1 Tank Battery  
SESW Section 13 T6N R65W  
Remediation # 12319

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the former JR #1 tank battery. On August 11, 2021, groundwater monitoring was conducted at five monitoring well locations (BH01 – BH05). Due to irrigation activities and requests from the landowner, BH05 was not sampled. Four groundwater samples were submitted to Summit Scientific Laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1, 2, 4-trimethylbenzene (TMB), 1, 3, 5-TMB by EPA Method 8260B, total dissolved solids (TDS) by Method SM 2540C, chloride, and sulfate anions by EPA Method 300.0.

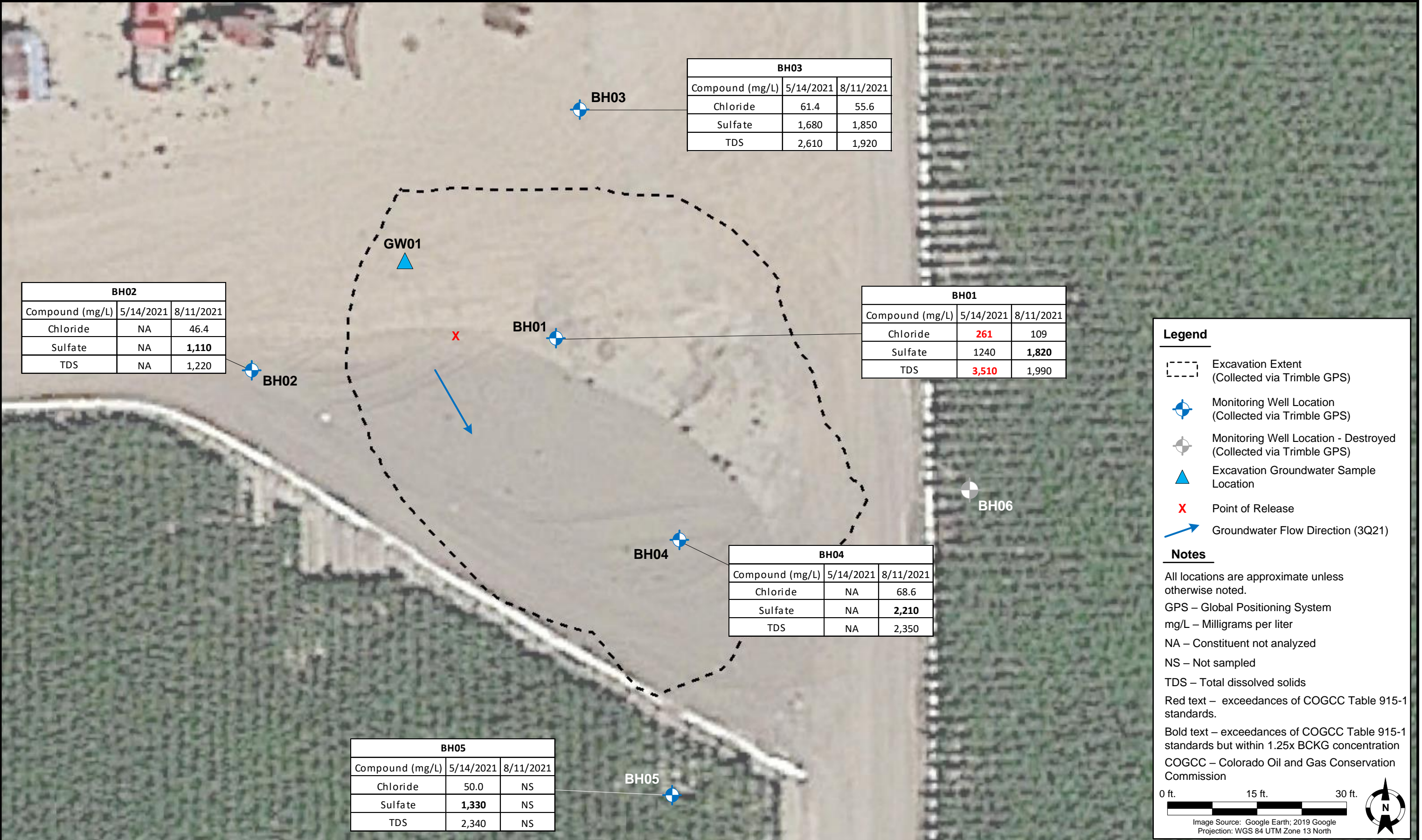
Third quarter 2021 analytical results indicated that organic compound concentrations were above the applicable COGCC Table 915-1 groundwater standards in monitoring well BH01. Organic compound concentrations were below regulatory standards in the three remaining monitoring well locations. Inorganic compound concentrations were below the applicable regulatory standards or within 1.25x background concentration of the up-gradient monitoring well (BH03) in all four monitoring well locations. Sample locations and corresponding analytical results are illustrated on Figures 1 and 2. Groundwater elevation data is illustrated in Figure 3. Groundwater analytical results are summarized in Tables 1 and 2. The laboratory report is included in Attachment A.

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the first quarter 2019 and will remain the selected remediation strategy for the fourth quarter 2021.

Fourth quarter 2021 groundwater sampling will be conducted during November 2021.







DATE:	August 26, 2021
DESIGNED BY:	C. Hamlin
DRAWN BY:	C. Ambler



**TASMAN**  
GEOSCIENCES

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

**PDC Energy, Inc. – DJ Basin**  
**Former JR #1 Tank Battery**  
SESW, Section 13, Township 6 North, Range 65 West  
Weld County, Colorado

GROUNDWATER  
ANALYTICAL RESULTS  
MAP  
(INORGANIC PARAMETERS)

FIGURE  
3





**TABLE 1**  
**FORMER JR #1 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)	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>-</b>	<b>-</b>
BH01	5/14/2021	<b>310</b>	<1.0	180	730	27	<b>160</b>	<b>120</b>	16.68	4673.07
BH01	8/11/2021	<b>150</b>	<1.0	110	280	29	<b>110</b>	13	14.18	4675.57
BH02	5/14/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	16.68	4673.21
BH02	8/11/2021	<1.0	<1.0	<1.0	<2.0	3.5	<1.0	<1.0	14.17	4675.72
BH03	5/14/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	16.49	4673.40
BH03	8/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	13.64	4676.25
BH04	5/14/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	17.58	4671.62
BH04	8/11/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	14.43	4674.77
BH05	5/14/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	17.85	4671.29
BH05	8/11/2021	NS							NM	NM

**Notes:**

- Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.
  - 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.  
NS = Not sampled  
NM = Not measured  
ft. = Feet  
AMSL = Above Mean Sea Level  
**BOLD** = Analytical result is in exceedance of applicable standard.

**TABLE 2**  
**FORMER JR #1 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>
BH01	5/14/2021	<b>3,510</b>	<b>261</b>	<b>1,240</b>
BH01	8/11/2021	1,990	109	<b>1,820</b>
BH02	8/11/2021	1,220	46.4	<b>1,110</b>
BH03	5/14/2021	2,610	61.4	1,680
BH03	8/11/2021	1,920	55.6	1,850
BH04	8/11/2021	2,350	68.6	<b>2,210</b>
BH05	5/14/2021	2,340	50.0	<b>1,330</b>
BH05	8/11/2021	NS	NS	NS

**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.

  = Up-gradient well location used for background concentration.

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

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



## Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 17, 2021


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

RE: JR #1

Work Order #2108164

Enclosed are the results of analyses for samples received by Summit Scientific on 08/11/21 18:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premer For Paul Shrewsbury  
President





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

Project: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2108164-01	Water	08/11/21 09:12	08/11/21 18:10
BH02	2108164-02	Water	08/11/21 09:02	08/11/21 18:10
BH03	2108164-03	Water	08/11/21 08:58	08/11/21 18:10
BH04	2108164-04	Water	08/11/21 09:00	08/11/21 18:10

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>

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

2108164

Page 1 of 1

Client: PDC / Tasman Geosciences

Project Manager: Mark Longhurst

Address: 6855 W. 119th Ave.

E-Mail: mark.longhurst@pdc.com

City/State/Zip: Broomfield / CO/ 80020

Phone: 303-487-1228

Project Name: JR #1

Sampler Name: Hadlie Green

Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	1,2,4-TMB	1,3,5-TMB	TDS	Chloride	Sulfate		
1	BH01	8/11/21	0912	4			4		X					X	X	X	X	X	X		
2	BH02	I	0902	1	3		1		I					I	I	I	I	I	I		
3	BH03		0858	3			1														
4	BH04	I	0900	1	3		1		I					I	I	I	I	I	I		
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <u>Hadlie Green</u>	Date/Time: <u>8/11/21 1235</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>8/11/21 1235</u>	<b>Turn Around Time</b> (Check) <input type="checkbox"/> Same Day <input checked="" type="checkbox"/> 24 hours <input type="checkbox"/> 48 hours <b>Sample Integrity:</b> Temperature Upon Receipt: <u>6</u> Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Notes:</b>
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: <u>8/11/21 1810</u>	Received by: <u>Will Salin</u>	Date/Time: <u>8/11/21 1810</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		



# Sample Receipt Checklist

S2 Work Order

2108164

Client: PDC/TASMAN

Client Project ID:

JR #1

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

Airbill #:

Matrix (check all that apply):

☐ Air

☐ Soil/Solid

☒ Water

☐ Other:

(Describe)

Temp (°C)

6

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? 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.

Custodian Printed Name or Initials

Signature of Custodian

Date/Time

W67

Will Lakin

8/11/21



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

Project: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

**BH01**  
**2108164-01 (Water)**

**Summit Scientific**

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

Date Sampled: **08/11/21 09:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	150	1.0	ug/l	1	BEH0197	08/12/21	08/13/21	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	110	1.0	"	"	"	"	"	"	
Xylenes (total)	280	2.0	"	"	"	"	"	"	
Naphthalene	29	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	110	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	13	1.0	"	"	"	"	"	"	

Date Sampled: **08/11/21 09:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	82.7 %	23-173			"	"	"	"	
Surrogate: Toluene-d8	97.7 %	20-170			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	90.5 %	21-167			"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **08/11/21 09:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	109	12.0	mg/L	200	BEH0248	08/16/21	08/16/21	EPA 300.0	
Sulfate	1820	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **08/11/21 09:12**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	1990	10.0	mg/L	1	BEH0267	08/17/21	08/17/21	SM2540C	

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: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

**BH02**  
**2108164-02 (Water)**

**Summit Scientific**

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

Date Sampled: **08/11/21 09:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEH0197	08/12/21	08/13/21	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
<b>Naphthalene</b>	<b>3.5</b>	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **08/11/21 09:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		79.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.1 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **08/11/21 09:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Chloride</b>	<b>46.4</b>	12.0	mg/L	200	BEH0248	08/16/21	08/16/21	EPA 300.0	
<b>Sulfate</b>	<b>1110</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **08/11/21 09:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Total Dissolved Solids</b>	<b>1220</b>	10.0	mg/L	1	BEH0267	08/17/21	08/17/21	SM2540C	

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: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

**BH03**  
**2108164-03 (Water)**

**Summit Scientific**

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

Date Sampled: **08/11/21 08:58**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEH0197	08/12/21	08/13/21	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: **08/11/21 08:58**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		80.3 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.9 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **08/11/21 08:58**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>55.6</b>	12.0		mg/L	200	BEH0248	08/16/21	08/16/21	EPA 300.0	
Sulfate	<b>1850</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **08/11/21 08:58**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	<b>1920</b>	10.0		mg/L	1	BEH0267	08/17/21	08/17/21	SM2540C	

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: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

**BH04**  
**2108164-04 (Water)**

**Summit Scientific**

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

Date Sampled: **08/11/21 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEH0197	08/12/21	08/14/21	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: **08/11/21 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		77.6 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		94.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.4 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **08/11/21 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>68.6</b>	12.0		mg/L	200	BEH0248	08/16/21	08/16/21	EPA 300.0	
Sulfate	<b>2210</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **08/11/21 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	<b>2350</b>	10.0		mg/L	1	BEH0267	08/17/21	08/17/21	SM2540C	

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: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

## 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 BEH0197 - EPA 5030 Water MS

##### Blank (BEH0197-BLK1)

Prepared: 08/12/21 Analyzed: 08/13/21

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	"							
Surrogate: 1,2-Dichloroethane-d4	10.6		"	13.3		79.4	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	11.7		"	13.3		87.9	21-167			

##### LCS (BEH0197-BS1)

Prepared: 08/12/21 Analyzed: 08/13/21

Benzene	35.1	1.0	ug/l	41.7		84.3	51-132			
Toluene	40.0	1.0	"	41.7		95.9	51-138			
Ethylbenzene	44.9	1.0	"	41.7		108	58-146			
m,p-Xylene	91.9	2.0	"	83.3		110	57-144			
o-Xylene	45.7	1.0	"	41.7		110	53-146			
Naphthalene	53.9	1.0	"	41.7		129	70-130			
1,2,4-Trimethylbenzene	40.2	1.0	"	41.7		96.5	70-130			
1,3,5-Trimethylbenzene	49.4	1.0	"	41.7		119	70-130			
Surrogate: 1,2-Dichloroethane-d4	10.6		"	13.3		79.7	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	20-170			
Surrogate: 4-Bromofluorobenzene	11.9		"	13.3		89.4	21-167			

##### Matrix Spike (BEH0197-MS1)

Source: 2108164-02

Prepared: 08/12/21 Analyzed: 08/13/21

Benzene	35.8	1.0	ug/l	41.7	ND	86.0	34-141			
Toluene	39.7	1.0	"	41.7	ND	95.3	27-151			
Ethylbenzene	45.0	1.0	"	41.7	ND	108	29-160			
m,p-Xylene	93.6	2.0	"	83.3	ND	112	20-166			
o-Xylene	46.5	1.0	"	41.7	ND	112	33-159			
Naphthalene	42.0	1.0	"	41.7	3.53	92.3	70-130			
1,2,4-Trimethylbenzene	40.3	1.0	"	41.7	ND	96.8	70-130			
1,3,5-Trimethylbenzene	49.4	1.0	"	41.7	ND	118	70-130			
Surrogate: 1,2-Dichloroethane-d4	11.0		"	13.3		82.2	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.7	20-170			
Surrogate: 4-Bromofluorobenzene	11.9		"	13.3		89.1	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: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

**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 BEH0197 - EPA 5030 Water MS**

Matrix Spike Dup (BEH0197-MSD1)	Source: 2108164-02			Prepared: 08/12/21 Analyzed: 08/13/21						
Benzene	35.9	1.0	ug/l	41.7	ND	86.1	34-141	0.112	30	
Toluene	39.7	1.0	"	41.7	ND	95.3	27-151	0.0504	30	
Ethylbenzene	44.2	1.0	"	41.7	ND	106	29-160	1.75	30	
m,p-Xylene	92.0	2.0	"	83.3	ND	110	20-166	1.79	30	
o-Xylene	45.9	1.0	"	41.7	ND	110	33-159	1.36	30	
Naphthalene	44.1	1.0	"	41.7	3.53	97.4	70-130	4.95	30	
1,2,4-Trimethylbenzene	40.3	1.0	"	41.7	ND	96.7	70-130	0.0993	30	
1,3,5-Trimethylbenzene	49.2	1.0	"	41.7	ND	118	70-130	0.345	30	
Surrogate: 1,2-Dichloroethane-d4	11.6		"	13.3		86.7	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.7	20-170			
Surrogate: 4-Bromofluorobenzene	12.1		"	13.3		90.8	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: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

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

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

**Batch BEH0248 - General Preparation**

**Blank (BEH0248-BLK1)**

Prepared & Analyzed: 08/16/21

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

**LCS (BEH0248-BS1)**

Prepared & Analyzed: 08/16/21

Chloride	3.06	0.0600	mg/L	3.00	102	90-110
Sulfate	16.0	0.300	"	15.0	107	90-110

**Duplicate (BEH0248-DUP1)**

Source: 2108130-01

Prepared & Analyzed: 08/16/21

Chloride	305	12.0	mg/L	308	1.05	20
Sulfate	1920	60.0	"	1850	3.58	20

**Matrix Spike (BEH0248-MS1)**

Source: 2108130-01

Prepared & Analyzed: 08/16/21

Chloride	814	12.0	mg/L	600	308	84.3	80-120
Sulfate	5300	60.0	"	3000	1850	115	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: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

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

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

**Batch BEH0267 - General Preparation**

**Blank (BEH0267-BLK1)**

Prepared & Analyzed: 08/17/21

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BEH0267-DUP1)**

**Source: 2108164-01**

Prepared & Analyzed: 08/17/21

Total Dissolved Solids 2000 10.0 mg/L 1990 0.601 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: JR #1  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/17/21 17:01

### 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