

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

July 26, 2021

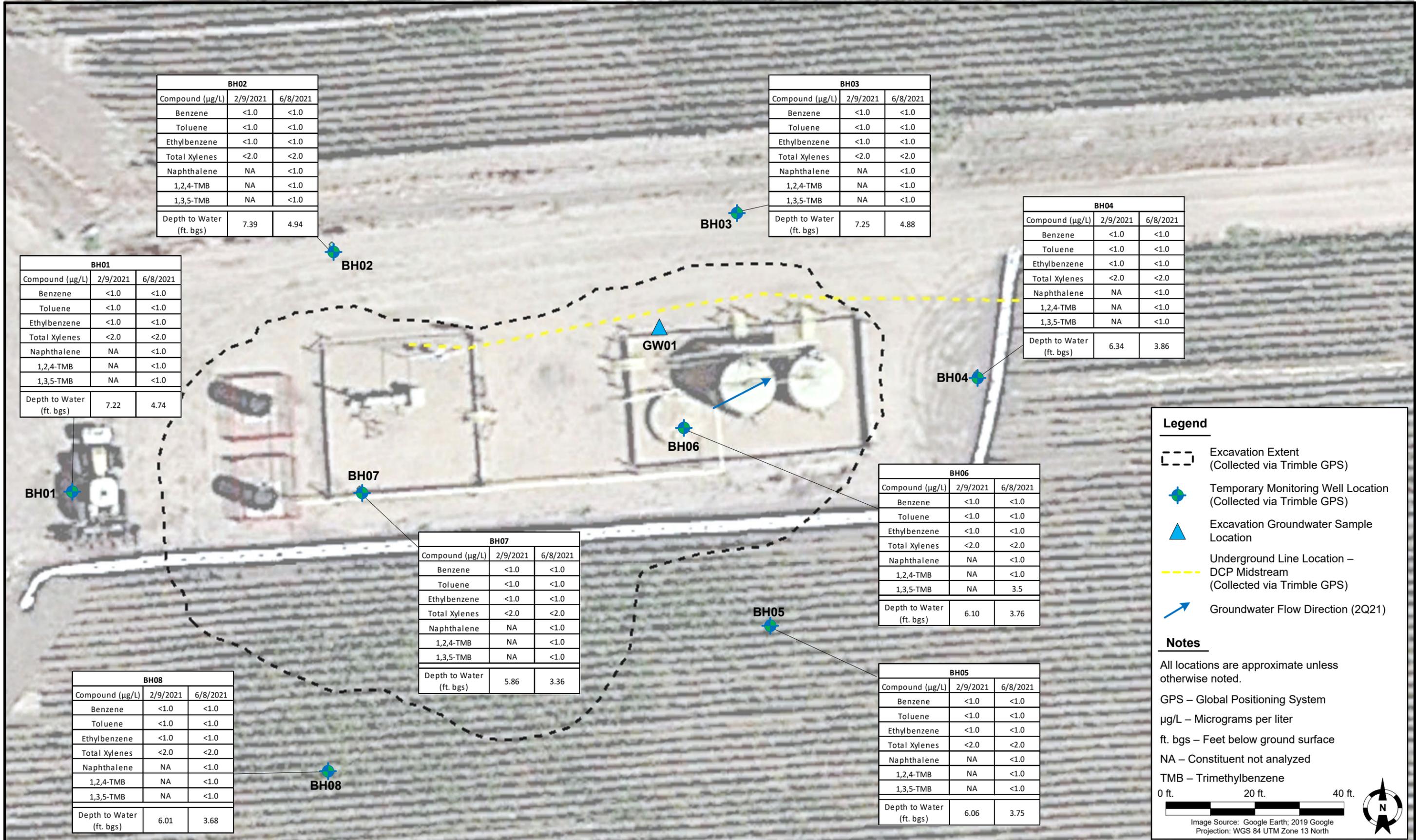
Former Plumb 2&3 Tank Battery  
SENE Section 7 T5N R64W  
Remediation # 15916

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the former Plumb 2&3 tank battery. Due to farming activities and landowner request, on June 8, 2021, eight temporary monitoring wells (BH01 – BH08) were installed using a hand auger. The wells were purged, sampled, and subsequently abandoned. A GPS point was collected from each temporary monitoring well location to ensure the groundwater sample locations remains consistent between quarters. Per the Condition of Approval (COA) issued by the COGCC, eight groundwater samples were submitted to Summit Scientific Laboratories for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260B. Additionally, three samples (BH03, BH06, and BH08) were submitted for analysis of total dissolved solids (TDS) by Method SM 2540C, chloride and sulfate anions by EPA Method 300.0.

Second quarter 2021 analytical results indicated that organic compound concentrations were below the applicable COGCC Table 915-1 groundwater standards in all eight monitoring well locations. In addition, inorganic compound concentrations were below the regulatory standards or within 1.25x the up-gradient monitoring well (BH08). Sample locations and corresponding analytical results are illustrated on Figure 1. Groundwater elevation data is illustrated on Figure 2. Historical groundwater analytical results under COGCC Table 910-1 regulatory standards are summarized in Table 1. Groundwater analytical results under Table 915-1 regulatory standards are summarized in Tables 2 and 3. The laboratory analytical report is included in Attachment A.

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the fourth quarter 2020 and will remain the selected remediation strategy through the third quarter 2021.

Third quarter 2021 groundwater sampling will be conducted in September 2021.



DATE: July 20, 2021

DESIGNED BY: C. Hamlin

DRAWN BY: J. Marcus

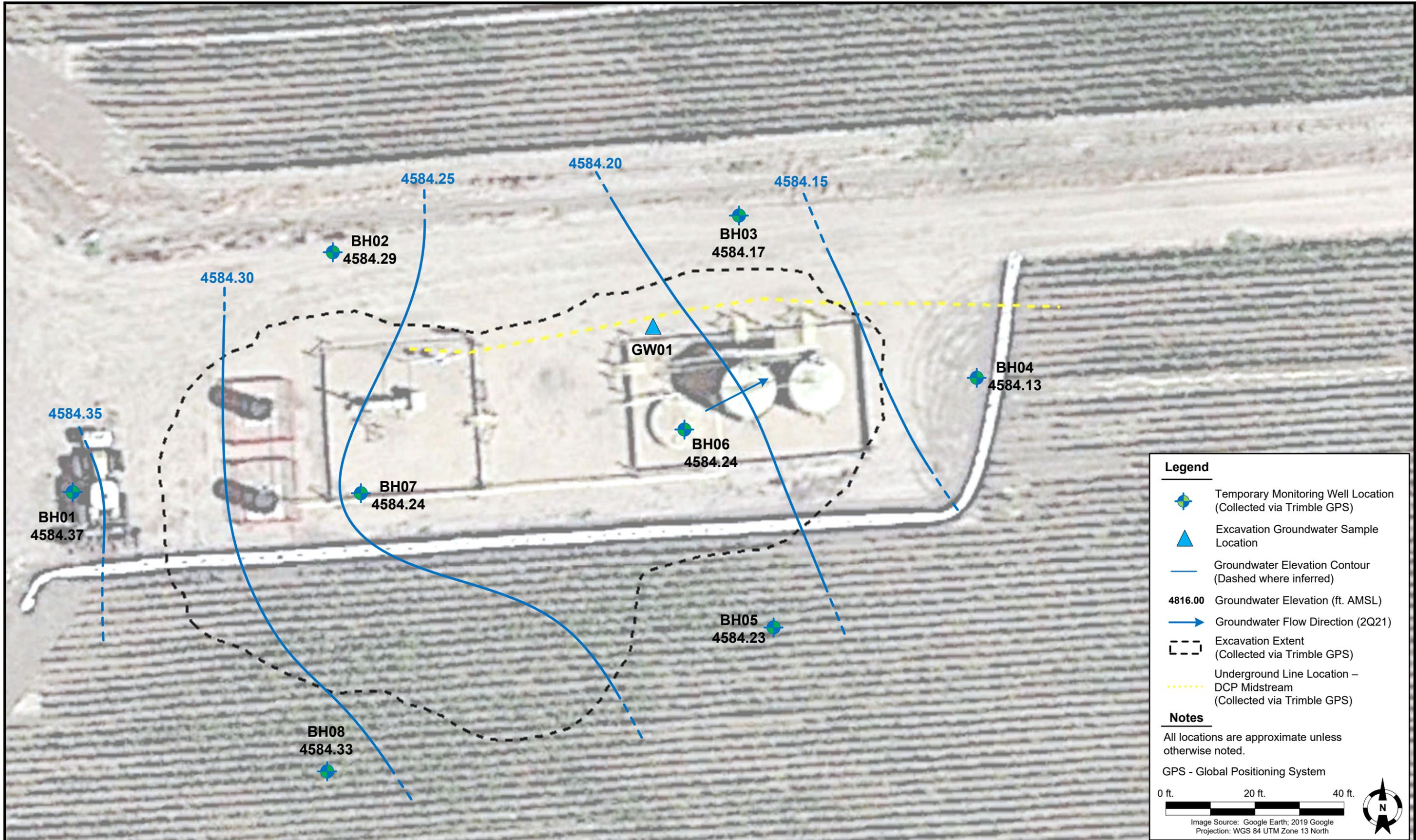
**TASMAN**  
**GEOSCIENCES**

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

**PDC Energy, Inc. – DJ Basin**  
**Former Plumb 2 & 3 Tank Battery**  
SENE, Section 7, Township 5 North, Range 64 West  
Weld County, Colorado

**GROUNDWATER**  
**ANALYTICAL RESULTS**  
**MAP**

**FIGURE**  
**1**



DATE: July 19, 2021

DESIGNED BY: C. Hamlin

DRAWN BY: A. Dahl



**TASMAN**  
GEOSCIENCES

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

**PDC Energy, Inc. – DJ Basin**  
**Former Plumb 2 & 3 Tank Battery**  
SENE, Section 7, Township 5 North, Range 64 West  
Weld County, Colorado

**GROUNDWATER  
ELEVATION CONTOUR  
MAP (06/08/2021)**

**FIGURE  
2**

**TABLE 1**  
**FORMER PLUMB 2 & 3 TANK BATTERY**  
**HISTORICAL GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 910-1 Groundwater Standard (µg/L) <sup>(1)</sup>		5	560	700	1,400		
GW01	10/26/2020	<b>150</b>	<b>720</b>	20	290	~ 4.5'	NM
BH01	11/30/2020	<1.0	<1.0	<1.0	<2.0	6.42	4575.25
BH01	2/9/2021	<1.0	<1.0	<1.0	<2.0	7.22	4574.45
BH02	11/30/2020	<1.0	<1.0	<1.0	<2.0	6.61	4575.12
BH02	2/9/2021	<1.0	<1.0	<1.0	<2.0	7.39	4574.34
BH03	11/30/2020	<1.0	<1.0	<1.0	<2.0	6.47	4575.00
BH03	2/9/2021	<1.0	<1.0	<1.0	<2.0	7.25	4574.22
BH04	11/30/2020	<1.0	<1.0	<1.0	<2.0	5.54	4574.99
BH04	2/9/2021	<1.0	<1.0	<1.0	<2.0	6.34	4574.19
BH05	11/30/2020	<1.0	<1.0	<1.0	<2.0	5.26	4575.14
BH05	2/9/2021	<1.0	<1.0	<1.0	<2.0	6.06	4574.34
BH06	11/30/2020	<1.0	<1.0	<1.0	<2.0	5.53	4574.91
BH06	2/9/2021	<1.0	<1.0	<1.0	<2.0	6.10	4574.34
BH07	11/30/2020	<1.0	<1.0	<1.0	<2.0	5.29	4574.97
BH07	2/9/2021	<1.0	<1.0	<1.0	<2.0	5.86	4574.40
BH08	11/30/2020	<1.0	<1.0	<1.0	<2.0	5.21	4575.25
BH08	2/9/2021	<1.0	<1.0	<1.0	<2.0	6.01	4574.45

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
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.

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

**BOLD** = Analytical result is in exceedance of COGCC groundwater standards.

**TABLE 2**  
**FORMER PLUMB 2 & 3 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>	-	-
BH01	6/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.74	4584.37
BH02	6/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.94	4584.29
BH03	6/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.88	4584.17
BH04	6/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.86	4584.13
BH05	6/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.75	4584.23
BH06	6/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	3.5	3.76	4584.24
BH07	6/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.36	4584.24
BH08	6/8/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.68	4584.33

**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  
**BOLD** = Analytical result is in exceedance of applicable standard.  
NA = Not applicable

**TABLE 3**  
**FORMER PLUMB 2 & 3 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
COGCC Table 915-1 Groundwater Standard (mg/L) <sup>(1)</sup>		<1.25 x BCKG	250 or <1.25 x BCKG	250 or <1.25 x BCKG
BH03	6/8/2021	746	75.6	<0.300
BH06	6/8/2021	772	72.0	<0.300
BH08	6/8/2021	737	66.8	0.351

**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.

## Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 18, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Plumb 2&3

Work Order #2106172

Enclosed are the results of analyses for samples received by Summit Scientific on 06/08/21 18:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large, stylized 'M' and 'P'.

Muri Premer For Paul Shrewsbury  
President



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

Project: Plumb 2&3  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/18/21 17:31

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2106172-01	Water	06/08/21 14:05	06/08/21 18:40
BH02	2106172-02	Water	06/08/21 14:04	06/08/21 18:40
BH03	2106172-03	Water	06/08/21 14:13	06/08/21 18:40
BH04	2106172-04	Water	06/08/21 14:07	06/08/21 18:40
BH05	2106172-05	Water	06/08/21 14:20	06/08/21 18:40
BH06	2106172-06	Water	06/08/21 14:24	06/08/21 18:40
BH07	2106172-07	Water	06/08/21 14:22	06/08/21 18:40
BH08	2106172-08	Water	06/08/21 14:37	06/08/21 18:40

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

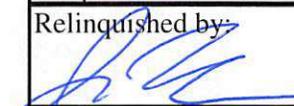
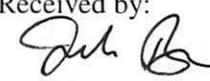
2106172

S<sub>2</sub>

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: PLUMB 2+3  
Sampler Name: J. MARCUS Project Number: 1/9

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	TDS	Chloride		Sulfate	
1	BH01	6/8/21	1405	3	X				X				X		X						pH, EC, SAR by saturated paste Polys - No HCl	
2	BH02		1404	3	X				X				X		X							
3	BH03		1413	4	X				X				X		X		X	X	X			
4	BH04		1407	3	X				X				X		X							
5	BH05		1420	3	X				X				X		X							
6	BH06		1424	4	X				X				X		X		X	X	X			
7	BH07		1422	3	X				X				X		X							
8	BH08		1437	4	X				X				X		X		X	X	X			
9																						
10																						

Relinquished by:  Date/Time: 6/8/21 1630	Received by: Tasman's Lock Box Date/Time: 6/8/21 1630	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 4 Samples Intact: <input checked="" type="checkbox"/> Yes No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box Date/Time: 6/8/21 1840	Received by:  Date/Time: 6/8/21 1840		
Relinquished by:	Received by:		

2106172

Sample Receipt Checklist

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

Client: PDC / Tasman Client Project ID: Plumb 2+3

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
-----------	---

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 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

[Signature]  
Signature of Custodian

6/8/21  
Date/Time



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

Project: Plumb 2&3  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/18/21 17:31

**BH01**  
**2106172-01 (Water)**

**Summit Scientific**

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

Date Sampled: **06/08/21 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEF0359	06/16/21	06/17/21	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: **06/08/21 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		88.8 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		137 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		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: Plumb 2&3  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/18/21 17:31

**BH02**  
**2106172-02 (Water)**

**Summit Scientific**

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

Date Sampled: **06/08/21 14:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEF0359	06/16/21	06/17/21	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: **06/08/21 14:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		96.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		130 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	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: Plumb 2&3  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/18/21 17:31

**BH03**  
**2106172-03 (Water)**

**Summit Scientific**

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

Date Sampled: **06/08/21 14:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEF0359	06/16/21	06/17/21	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: **06/08/21 14:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		88.4 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		131 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **06/08/21 14:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	75.6	12.0		mg/L	200	BEF0294	06/14/21	06/15/21	EPA 300.0	
Sulfate	ND	0.300		"	1	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **06/08/21 14:13**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	746	10.0		mg/L	1	BEF0272	06/11/21	06/11/21	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: Plumb 2&3  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/18/21 17:31

**BH04**  
**2106172-04 (Water)**

**Summit Scientific**

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

Date Sampled: **06/08/21 14:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEF0359	06/16/21	06/17/21	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: **06/08/21 14:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		78.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		140 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	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: Plumb 2&3

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/18/21 17:31

**BH05**  
**2106172-05 (Water)**

**Summit Scientific**

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

Date Sampled: **06/08/21 14:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEF0359	06/16/21	06/17/21	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: **06/08/21 14:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		80.0 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		147 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %		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: Plumb 2&3

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
06/18/21 17:31

**BH06**  
**2106172-06 (Water)**

**Summit Scientific**

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

Date Sampled: **06/08/21 14:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEF0359	06/16/21	06/17/21	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		"	"	"	"	"	"	
<b>1,3,5-Trimethylbenzene</b>	<b>3.5</b>	1.0		"	"	"	"	"	"	

Date Sampled: **06/08/21 14:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		112 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **06/08/21 14:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Chloride</b>	<b>72.0</b>	12.0		mg/L	200	BEF0294	06/14/21	06/15/21	EPA 300.0	
Sulfate	ND	0.300		"	1	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **06/08/21 14:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>772</b>	10.0		mg/L	1	BEF0272	06/11/21	06/11/21	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: Plumb 2&3  
 Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/18/21 17:31

**BH07**  
**2106172-07 (Water)**

**Summit Scientific**

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

Date Sampled: **06/08/21 14:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEF0359	06/16/21	06/17/21	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: **06/08/21 14:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		81.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		143 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %	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: Plumb 2&3

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
06/18/21 17:31

**BH08**  
**2106172-08 (Water)**

**Summit Scientific**

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

Date Sampled: **06/08/21 14:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BEF0359	06/16/21	06/17/21	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: **06/08/21 14:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		88.8 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		135 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **06/08/21 14:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>66.8</b>	12.0		mg/L	200	BEF0294	06/14/21	06/15/21	EPA 300.0	
Sulfate	<b>0.351</b>	0.300		"	1	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **06/08/21 14:37**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>737</b>	10.0		mg/L	1	BEF0272	06/11/21	06/11/21	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: Plumb 2&3

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/18/21 17:31

### 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 BEF0359 - EPA 5030 Water MS

##### Blank (BEF0359-BLK1)

Prepared: 06/16/21 Analyzed: 06/17/21

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	9.61		"	13.3		72.1		23-173			
Surrogate: Toluene-d8	10.2		"	13.3		76.7		20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		97.0		21-167			

##### LCS (BEF0359-BS1)

Prepared: 06/16/21 Analyzed: 06/17/21

Benzene	23.6	1.0	ug/l	33.3		71.0		51-132			
Toluene	25.5	1.0	"	33.3		76.6		51-138			
Ethylbenzene	35.1	1.0	"	33.3		105		58-146			
m,p-Xylene	70.2	2.0	"	66.7		105		57-144			
o-Xylene	34.0	1.0	"	33.3		102		53-146			
Naphthalene	36.7	1.0	"	33.3		110		70-130			
1,2,4-Trimethylbenzene	34.5	1.0	"	33.3		103		70-130			
1,3,5-Trimethylbenzene	34.5	1.0	"	33.3		103		70-130			
Surrogate: 1,2-Dichloroethane-d4	9.39		"	13.3		70.4		23-173			
Surrogate: Toluene-d8	10.3		"	13.3		77.6		20-170			
Surrogate: 4-Bromofluorobenzene	11.3		"	13.3		84.8		21-167			

##### Matrix Spike (BEF0359-MS1)

Source: 2106170-01

Prepared: 06/16/21 Analyzed: 06/17/21

Benzene	23.2	1.0	ug/l	33.3	ND	69.5		34-141			
Toluene	23.6	1.0	"	33.3	ND	70.7		27-151			
Ethylbenzene	35.2	1.0	"	33.3	ND	105		29-160			
m,p-Xylene	70.1	2.0	"	66.7	ND	105		20-166			
o-Xylene	34.0	1.0	"	33.3	ND	102		33-159			
Naphthalene	46.0	1.0	"	33.3	6.89	117		70-130			
1,2,4-Trimethylbenzene	34.6	1.0	"	33.3	ND	104		70-130			
1,3,5-Trimethylbenzene	34.2	1.0	"	33.3	ND	103		70-130			
Surrogate: 1,2-Dichloroethane-d4	9.62		"	13.3		72.2		23-173			
Surrogate: Toluene-d8	10.5		"	13.3		78.8		20-170			
Surrogate: 4-Bromofluorobenzene	11.5		"	13.3		86.1		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: Plumb 2&3

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/18/21 17:31

**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 BEF0359 - EPA 5030 Water MS**

Matrix Spike Dup (BEF0359-MSD1)	Source: 2106170-01			Prepared: 06/16/21 Analyzed: 06/17/21					
Benzene	22.4	1.0	ug/l	33.3	ND	67.3	34-141	3.20	30
Toluene	22.6	1.0	"	33.3	ND	67.8	27-151	4.07	30
Ethylbenzene	34.6	1.0	"	33.3	ND	104	29-160	1.72	30
m,p-Xylene	68.9	2.0	"	66.7	ND	103	20-166	1.81	30
o-Xylene	33.2	1.0	"	33.3	ND	99.7	33-159	2.11	30
Naphthalene	48.3	1.0	"	33.3	6.89	124	70-130	4.73	30
1,2,4-Trimethylbenzene	33.6	1.0	"	33.3	ND	101	70-130	2.84	30
1,3,5-Trimethylbenzene	33.6	1.0	"	33.3	ND	101	70-130	1.74	30
Surrogate: 1,2-Dichloroethane-d4	9.56		"	13.3		71.7	23-173		
Surrogate: Toluene-d8	10.5		"	13.3		79.0	20-170		
Surrogate: 4-Bromofluorobenzene	11.4		"	13.3		85.8	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: Plumb 2&3

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 06/18/21 17:31

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

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

**Batch BEF0294 - General Preparation**

**Blank (BEF0294-BLK1)**

Prepared & Analyzed: 06/14/21

Chloride	ND	0.0600	mg/L						
Sulfate	ND	0.300	"						

**LCS (BEF0294-BS1)**

Prepared & Analyzed: 06/14/21

Chloride	2.96	0.0600	mg/L	3.00	98.7	90-110		
Sulfate	14.5	0.300	"	15.0	96.4	90-110		

**Duplicate (BEF0294-DUP1)**

Source: 2106257-01

Prepared & Analyzed: 06/14/21

Chloride	23.6	12.0	mg/L		23.4		0.851	20
Sulfate	586	60.0	"		603		2.72	20

**Matrix Spike (BEF0294-MS1)**

Source: 2106257-01

Prepared & Analyzed: 06/14/21

Chloride	587	12.0	mg/L	600	23.4	93.9	80-120	
Sulfate	3380	60.0	"	3000	603	92.5	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: Plumb 2&3

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 06/18/21 17:31

**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 BEF0272 - General Preparation**

**Blank (BEF0272-BLK1)**

Prepared & Analyzed: 06/11/21

Total Dissolved Solids      ND      10.0      mg/L

**Duplicate (BEF0272-DUP1)**

Source: 2106147-01

Prepared & Analyzed: 06/11/21

Total Dissolved Solids      429      10.0      mg/L      426      0.725      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: Plumb 2&3  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
06/18/21 17:31

### 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