



**PDC Energy, Inc.**  
**Fourth Quarter 2022 Groundwater Monitoring Summary**

November 23, 2022

Fagerberg Pad  
SWSW Section 12 T6N R66W  
Remediation # 24464

This groundwater monitoring summary has been prepared by Tasman, Inc. for the Fagerberg Pad.

### **Site History and Background**

On April 6, 2022, approximately 2 barrels (bbls) of produced water were released from a nipple pin hole leak at the Fagerberg Pad. Following the discovery, mitigation activities were initiated and approximately 40 cubic yards of impacted material were removed from location. During excavation activities, groundwater was encountered within the excavation at approximately 7 feet below ground surface (bgs).

### **Monitoring Well Installation and Supplemental Site Investigation Activities**

On October 7, 2022, seven monitoring wells (BH01 – BH07) were installed to delineate dissolved-phase hydrocarbon impacts surrounding the former excavation extent (Figure 1). Lithologic descriptions and volatile organic compound (VOC) concentrations, measured using a photoionization detector (PID), were recorded for each borehole.

In addition, six background soil borings (BKG02 – BKG07) were advanced to a depth of approximately 6 inches bgs in native material surrounding the facility. Six samples were collected at a depth of approximately 0- 6 inches bgs and were submitted to Summit Scientific Laboratory (Summit) for analysis of electrical conductivity (EC).

Background analytical results indicated that EC concentrations were in compliance with the applicable COGCC Table 915-1 regulatory standards in native soil on site. The monitoring well and background soil boring locations are illustrated on Figure 1. Soil analytical results are summarized in Table 1. The GPS coordinates and field observed VOC concentrations are summarized in Table 2. The laboratory analytical report is included in Attachment A. The boring and well completion logs are included as Attachment B.

### **Groundwater Monitoring Activities**

On October 13, 2022, groundwater monitoring was conducted at all seven monitoring wells (BH01 – BH07). Seven groundwater samples were submitted to Summit for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260B, chloride and sulfate anions by EPA Method 300.0, and total dissolved solids (TDS) by Method SM 2540C.

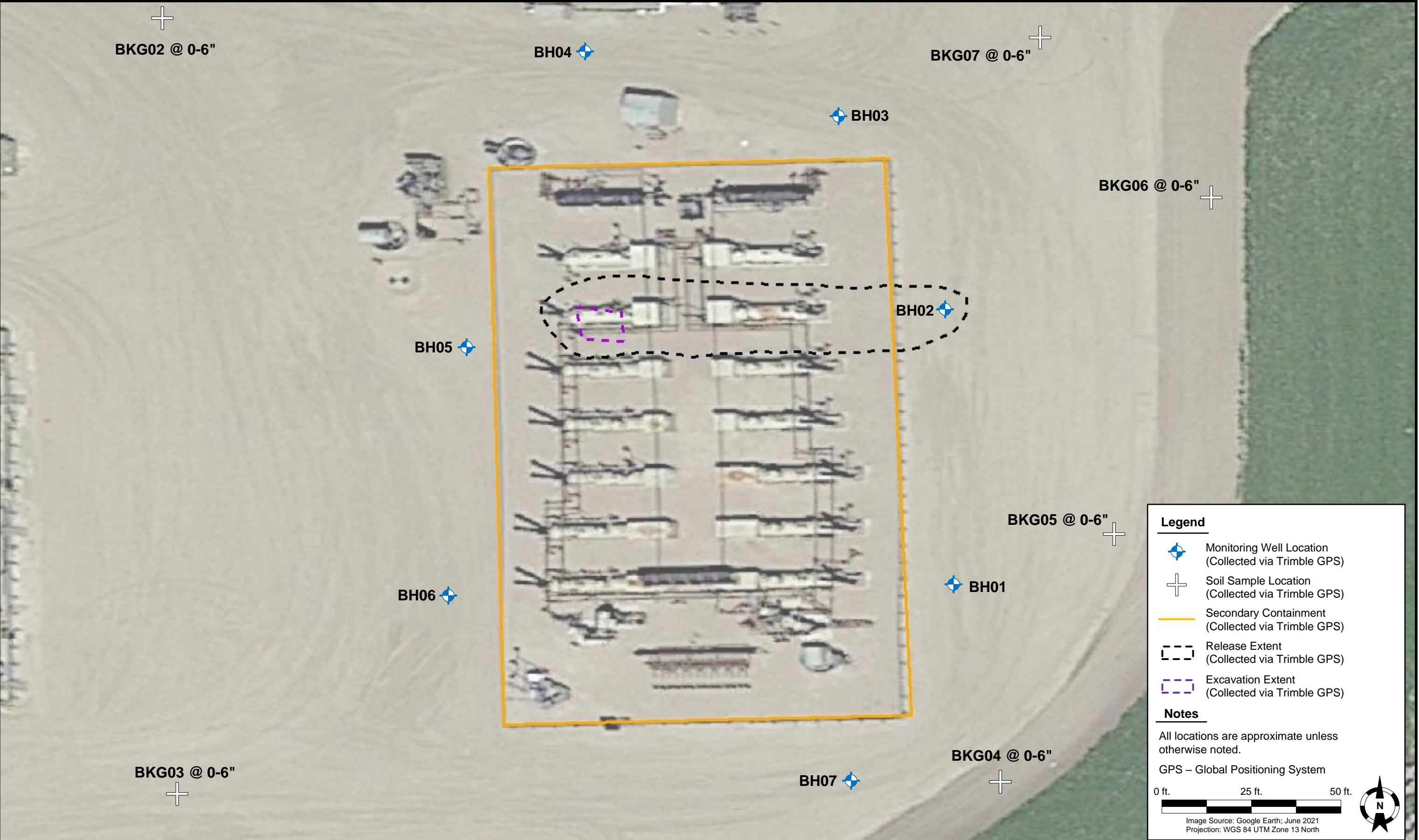
Fourth quarter 2022 analytical results indicated that organic compound concentrations were in compliance with the applicable COGCC Table 915-1 regulatory standards in all seven monitoring well locations. Additionally, inorganic parameters were in compliance with the applicable regulatory standards or within 1.25x the background concentrations of the up- and cross-gradient monitoring wells (BH05 and BH06) in all monitoring well locations. Sample locations and corresponding analytical results are illustrated on Figures 2 and 3. Groundwater elevation data is illustrated on Figure 4. Groundwater analytical results are summarized in Tables 3 and 4. The laboratory analytical report is included in Attachment A.

### **Current Remediation Activities and Path Forward**

Monitored natural attenuation (MNA) was selected as the remediation strategy for this site during the fourth quarter 2022 and will remain the selected remediation strategy through the first quarter 2023.

Additionally, based on analytical results received for samples collected during confirmation soil sampling activities in April 2022, further sampling is necessary to vertically and horizontally delineate EC exceedances recorded in soil samples SS07 and SS08, as well as, confirm the absence of hydrocarbon impacts in the vicinity of soil sample SS04. The proposed soil boring locations are illustrated on Figure 5.

First quarter 2023 groundwater sampling will be conducted in January 2023.



DATE:	October 25, 2022
DESIGNED BY:	C. Hamlin
DRAWN BY:	J. Marcus

**TASMAN**

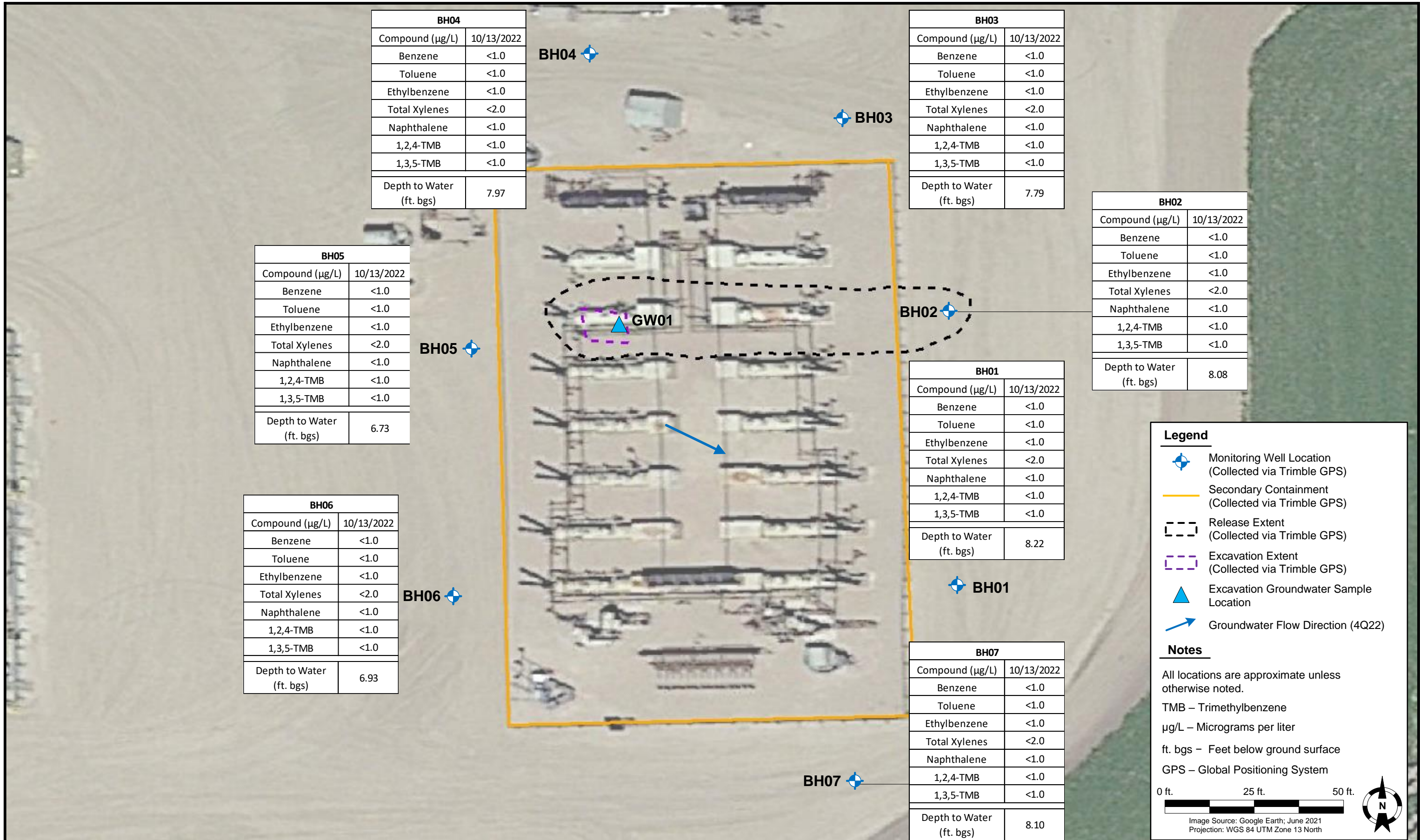
**Tasman, Inc.**  
6855 W. 119<sup>th</sup> Ave.  
Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**Fagerberg Pad**  
SWSW, Section 12, Township 6 North, Range 66 West  
Weld County, Colorado

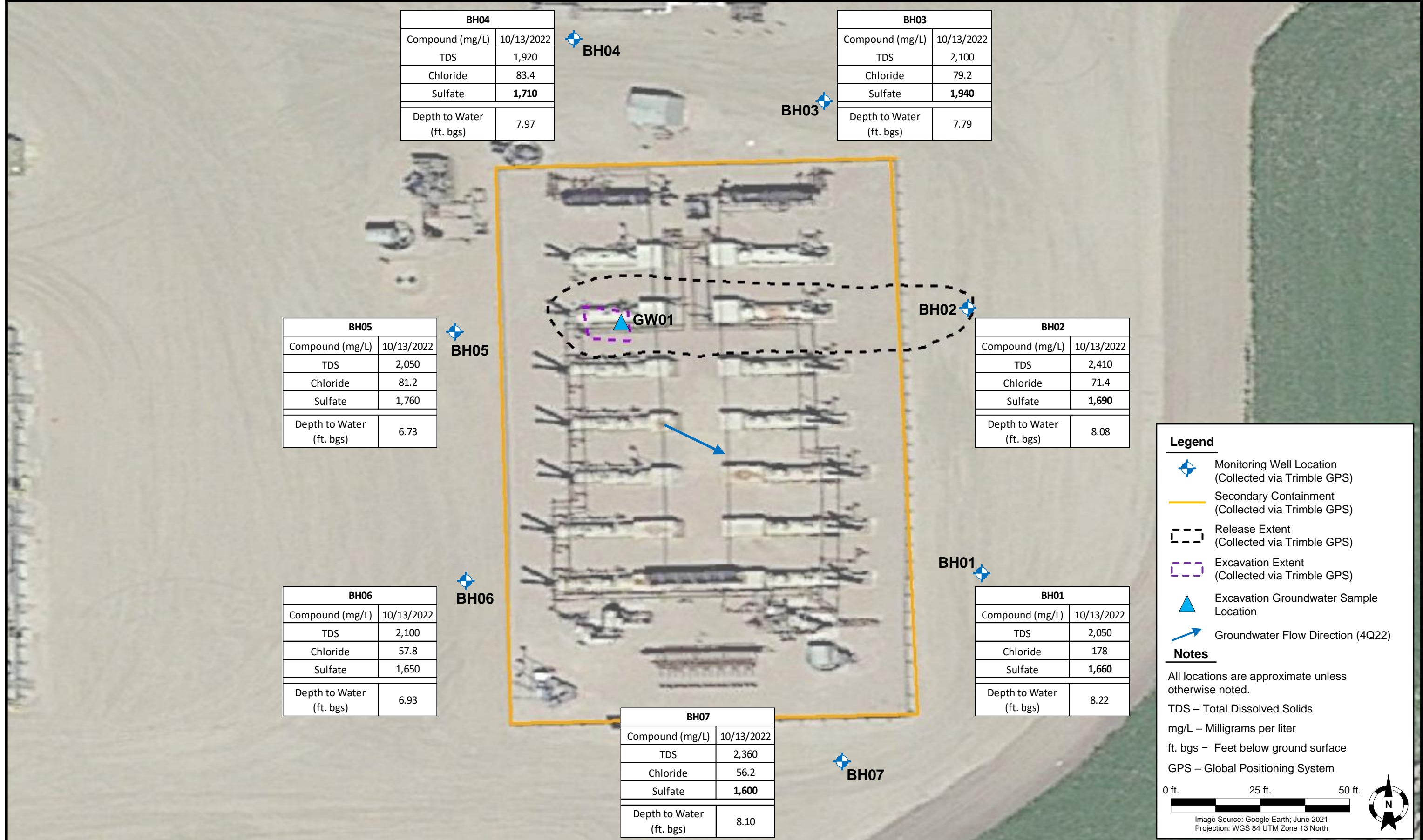
**MONITORING WELL  
AND SOIL BORING  
LOCATION MAP**

**FIGURE  
1**









DATE: October 31, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: G. Semenza



**TASMAN**

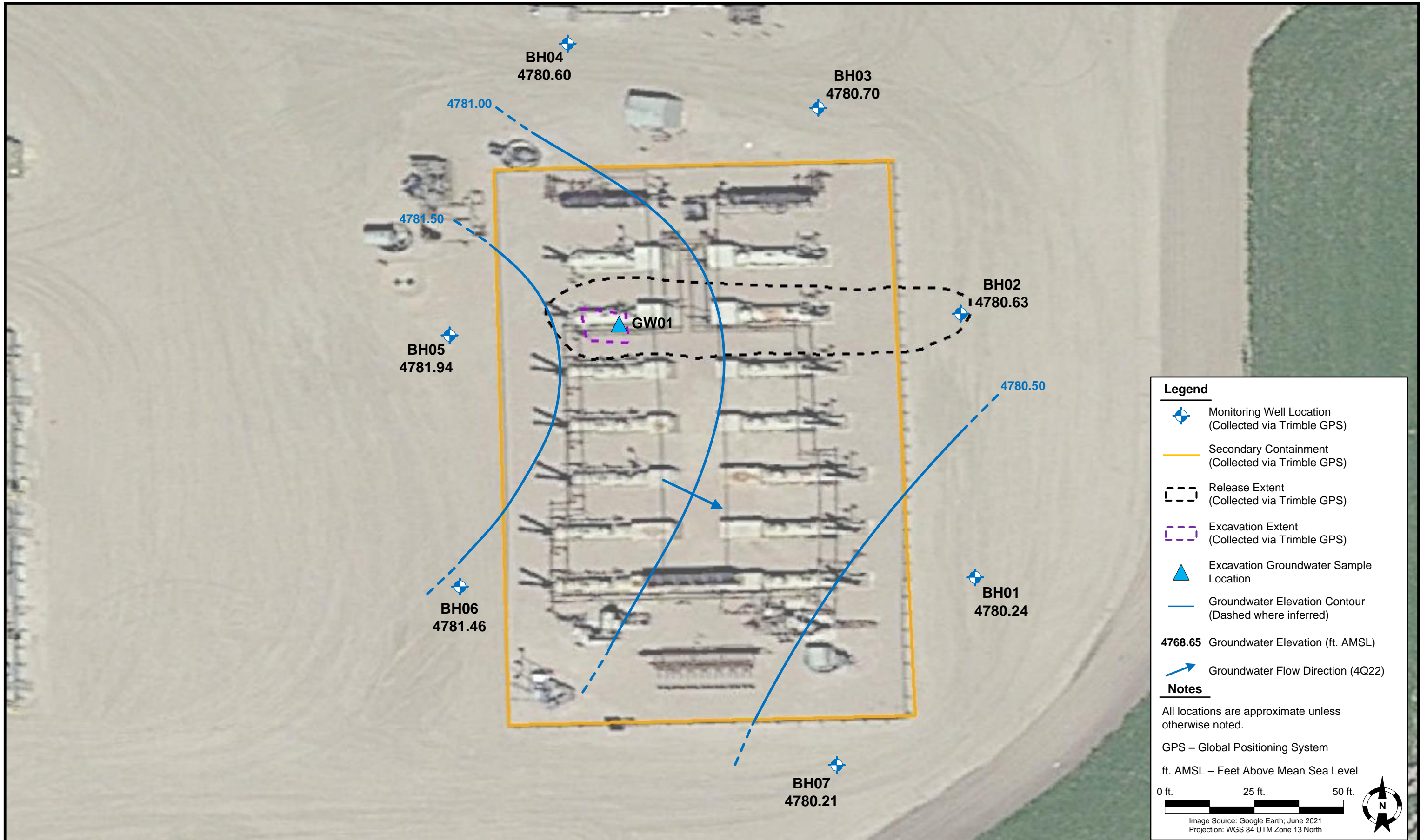
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Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**Fagerberg Pad**  
SWSW, Section 12, Township 6 North, Range 66 West  
Weld County, Colorado

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

**FIGURE**  
**3**





DATE:	October 31, 2022
DESIGNED BY:	C. Hamlin
DRAWN BY:	G. Semenza

**TASMAN**

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

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**Fagerberg Pad**  
SWSW, Section 12, Township 6 North, Range 66 West  
Weld County, Colorado

**GROUNDWATER  
ELEVATION CONTOUR  
MAP (10/13/2022)**

**FIGURE  
4**





DATE: October 25, 2022	 <b>Tasman, Inc.</b> 6855 W. 119 <sup>th</sup> Ave. Broomfield, CO 80020	PDC Energy, Inc. – DJ Basin Fagerberg Pad SWSW, Section 12, Township 6 North, Range 66 West Weld County, Colorado	PROPOSED SOIL BORING LOCATION MAP	FIGURE 5
DESIGNED BY: C. Hamlin				
DRAWN BY: J. Marcus				

TABLE 1  
FAGERBERG PAD  
SOIL ANALYTICAL RESULTS SUMMARY TABLE  
CONTAMINANTS OF CONCERN

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(4)</sup> (mg/kg)	Benz(a) (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Residential SSL <sup>(1,2)</sup>			1.2	490	5.8	58	30	27	2	500	1.1	110	240	180	18	24	-	-	-
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	0.011	9	8.9	1.3	0.006	0.019	-	-	-
Soil Suitability for Reclamation Standard <sup>(1)</sup>			-	-	-	-	-	-	-	-	-	-	-	-	-	-	<4	<6	2
SS01 @ 0-6"	4/7/2022	0-6 in. bgs	1.0	17	8.1	17	1.3	3.4	4.2	6,800	0.143	0.153	0.0304	0.0860	5.34	9.65	4.58	41.4	2.28
SS02 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	120	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	2.49	0.247	0.396
SS03 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	0.00520	<0.00500	<0.00500	<0.00500	3.85	0.523	0.877
SS04 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	87.68	<0.00500	0.00698	<0.00500	<0.00500	0.0283	0.0391	1.70	0.493	0.635
SS05 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	1.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0103	1.16	0.105	0.532
SS06 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	1.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00667	0.154	0.0781	0.368
SS07 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	0.80	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	4.51	0.184	0.561
SS08 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	0.69	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.276	0.0623	0.391
SS09 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	0.64	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	2.26	0.793	1.35
SS10 @ 0-6"	4/7/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	0.62	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	3.47	1.03	1.50
SS11 @ 2'	4/7/2022	2 ft. bgs	0.033	1.8	0.94	7.7	5.0	1.7	0.89	558	<0.00500	0.0211	0.00774	<0.00500	0.263	0.0714	1.40	0.351	0.422
SS12 @ 0-6"	4/8/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	4.11	0.130	0.629
SS13 @ 0-6"	4/8/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.394	0.0269	0.397
SS14 @ 0-6"	4/8/2022	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.475	0.0218	0.413
SS15 @ 4'	4/8/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	2.55	0.0627	0.601
SS16 @ 2'	4/14/2022	2 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	1.13	0.0932	0.378
SS17 @ 2'	4/14/2022	2 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.648	0.0648	0.320
SS18 @ 2'	4/14/2022	2 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.561	0.0501	0.317
SS19 @ 2'	4/14/2022	2 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.671	0.0681	0.346
SS20 @ 4'	4/14/2022	4 ft. bgs	<0.0020	0.0058	<0.0050	0.030	0.015	0.012	<0.0038	1.2	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.641	0.0428	0.514
SS23 @ 7'	4/15/2022	7 ft. bgs	<0.0020	0.0087	<0.0050	0.011	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	1.51	0.0623	0.372
SS24 @ 4'	4/18/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	2.03	0.0665	0.495
SS25 @ 7'	4/18/2022	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	1.35	0.0660	0.425
SS26 @ 4'	4/18/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	2.13	0.0497	0.611
SS27 @ 7'	4/18/2022	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	1.08	0.0731	0.429
SS28 @ 4'	4/18/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.826	0.0375	0.466
SS29 @ 7'	4/18/2022	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	1.03	0.0701	0.477
SS30 @ 4'	4/18/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	2.06	0.0421	0.522
SS31 @ 7'	4/18/2022	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	0.00614	<0.00500	<0.00500	<0.00500	<0.00500	3.76	0.181	0.465
BKG02 @ 0-6"	10/7/2022	0-6 in. bgs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.17	NA	NA
BKG03 @ 0-6"	10/7/2022	0-6 in. bgs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.78	NA	NA
BKG04 @ 0-6"	10/7/2022	0-6 in. bgs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.153	NA	NA
BKG05 @ 0-6"	10/7/2022	0-6 in. bgs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.110	NA	NA
BKG06 @ 0-6"	10/7/2022	0-6 in. bgs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.243	NA	NA
BKG07 @ 0-6"	10/7/2022	0-6 in. bgs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.361	NA	NA



TABLE 1  
FAGERBERG PAD  
SOIL ANALYTICAL RESULTS SUMMARY TABLE  
CONTAMINANTS OF CONCERN

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(4)</sup> (mg/kg)	Benz(a) (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Residential SSL <sup>(1,2)</sup>			1.2	490	5.8	58	30	27	2	500	1.1	110	240	180	18	24	-	-	-
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	0.011	9	8.9	1.3	0.006	0.019	-	-	-

**Notes:**  
1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.  
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.  
3. SSLs are applicable if a pathway for communication with groundwater is present.  
4. Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.  
COGCC = Colorado Oil and Gas Conservation Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics  
TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics  
TEPH-ORO = Total extactable petroleum hydrocarbons - oil range organics  
mg/kg = Milligrams per kilogram  
TMB = Trimethylbenzene  
Benz(a) = Benzanthracene  
M = Methylnaphthalene  
EC = Electrical conductivity  
SAR = Sodium adsorption ratio  
mmhos/cm = millimhos per centimeter  
NA = Constituent not analyzed  
= Source material characterization sample excavated and transported off-site for disposal  
= Sample material excavated and transported off-site for disposal  
ft. = Feet  
in. = Inches  
bgs = Below ground surface  
**BOLD** = Analytical result is in exceedance of applicable standard.

**TABLE 2**  
**FAGERBERG PAD**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
SS01 @ 0-6"	4/7/2022	0-6 in. bgs	40.502545	-104.733874	1.0	4,608
SS02 @ 0-6"	4/7/2022	0-6 in. bgs	40.502549	-104.733891	1.0	0.0
SS03 @ 0-6"	4/7/2022	0-6 in. bgs	40.502522	-104.733842	1.0	0.0
SS04 @ 0-6"	4/7/2022	0-6 in. bgs	40.502531	-104.733790	1.0	0.0
SS05 @ 0-6"	4/7/2022	0-6 in. bgs	40.502525	-104.733734	1.0	0.0
SS06 @ 0-6"	4/7/2022	0-6 in. bgs	40.502542	-104.733643	1.0	0.0
SS07 @ 0-6"	4/7/2022	0-6 in. bgs	40.502552	-104.733593	1.0	0.0
SS08 @ 0-6"	4/7/2022	0-6 in. bgs	40.502560	-104.733730	1.0	0.0
SS09 @ 0-6"	4/7/2022	0-6 in. bgs	40.502562	-104.733801	1.0	0.0
SS10 @ 0-6"	4/7/2022	0-6 in. bgs	40.502566	-104.733859	1.0	0.0
SS11 @ 2'	4/7/2022	2 ft. bgs	40.502545	-104.733874	1.0	1,750
SS12 @ 0-6"	4/8/2022	0-6 in. bgs	40.502550	-104.733544	1.0	0.0
SS13 @ 0-6"	4/8/2022	0-6 in. bgs	40.502578	-104.733452	1.0	0.0
SS14 @ 0-6"	4/8/2022	0-6 in. bgs	40.502509	-104.733454	1.0	0.0
SS15 @ 4'	4/8/2022	4 ft. bgs	NC	NC	NC	29.5
SS16 @ 2'	4/14/2022	2 ft. bgs	40.502533	-104.733825	1.0	9.6
SS17 @ 2'	4/14/2022	2 ft. bgs	40.502546	-104.733851	1.0	0.9
SS18 @ 2'	4/14/2022	2 ft. bgs	40.502533	-104.733873	1.0	1.0
SS19 @ 2'	4/14/2022	2 ft. bgs	40.502523	-104.733851	1.0	4.5
SS20 @ 4'	4/14/2022	4 ft. bgs	40.502537	-104.733840	1.0	3.3
SS21 @ 2.5'	4/14/2022	2.5 ft. bgs	40.502549	-104.733869	1.0	0.8
SS22 @ 2.5'	4/14/2022	2.5 ft. bgs	40.502525	-104.733867	1.0	0.4
BKG01 @ 2'	4/14/2022	2 ft. bgs	40.502530	-104.733422	1.1	0.3
BKG01 @ 2.5'	4/14/2022	2.5 ft. bgs	40.502530	-104.733422	1.1	0.4
BKG01 @ 4'	4/14/2022	4 ft. bgs	40.502530	-104.733422	1.1	0.2
SS23 @ 7'	4/15/2022	7 ft. bgs	NC	NC	NC	4.7
SS24 @ 4'	4/18/2022	4 ft. bgs	40.502505	-104.733792	1.2	2.2
SS25 @ 7'	4/18/2022	7 ft. bgs	40.502505	-104.733792	1.2	4.1
SS26 @ 4'	4/18/2022	4 ft. bgs	40.502527	-104.733859	1.0	1.8
SS27 @ 7'	4/18/2022	7 ft. bgs	40.502527	-104.733859	1.0	34.8
SS28 @ 4'	4/18/2022	4 ft. bgs	40.502540	-104.733873	1.1	6.1
SS29 @ 7'	4/18/2022	7 ft. bgs	40.502540	-104.733873	1.1	1.9
SS30 @ 4'	4/18/2022	4 ft. bgs	40.502548	-104.733855	1.2	3.7
SS31 @ 7'	4/18/2022	7 ft. bgs	40.502548	-104.733855	1.2	1.5
BKG02 @ 0-6"	10/7/2022	0-6 in. bgs	40.502771	-104.734186	NC	0.0
BKG03 @ 0-6"	10/7/2022	0-6 in. bgs	40.502373	-104.733460	NC	0.0
BKG04 @ 0-6"	10/7/2022	0-6 in. bgs	40.502175	-104.734177	NC	0.0
BKG05 @ 0-6"	10/7/2022	0-6 in. bgs	40.502185	-104.733547	NC	0.0
BKG06 @ 0-6"	10/7/2022	0-6 in. bgs	40.502634	-104.733386	NC	0.0
BKG07 @ 0-6"	10/7/2022	0-6 in. bgs	40.502756	-104.733516	NC	0.0

**Notes:**

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

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

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

  = Source material characterization sample



**TABLE 3**  
**FAGERBERG PAD**  
**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>	-	-
GW01	4/15/2022	<b>120</b>	<b>690</b>	84	700	23	<b>150</b>	56	~8	NA
BH01	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.22	4780.24
BH02	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.08	4780.63
BH03	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.79	4780.70
BH04	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.97	4780.60
BH05	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.73	4781.94
BH06	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.93	4781.46
BH07	10/13/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.10	4780.21

**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.  
ft. = Feet  
AMSL = Above Mean Sea Level  
NA = Not applicable  
**BOLD** = Analytical result in exceedance of applicable standard.

**TABLE 4**  
**FAGERBERG PAD**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Depth to Water <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
<b>COGCC Table 915-1 Groundwater Standard (mg/L)</b> <sup>(1)</sup>		<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	10/13/2022	2,050	178	<b>1,660</b>	8.22	4780.24
BH02	10/13/2022	2,410	71.4	<b>1,690</b>	8.08	4780.63
BH03	10/13/2022	2,100	79.2	<b>1,940</b>	7.79	4780.70
BH04	10/13/2022	1,920	83.4	<b>1,710</b>	7.97	4780.60
BH05	10/13/2022	2,050	81.2	1,760	6.73	4781.94
BH06	10/13/2022	2,100	57.8	1,650	6.93	4781.46
BH07	10/13/2022	2,360	56.2	<b>1,600</b>	8.10	4780.21

**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.

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.

ft. = Feet

AMSL = Above Mean Sea Level

**BOLD** = Analytical result in exceedance of applicable standard, but within 1.25x BCKG concentrations.

  = Up-gradient well locations used for background concentration.



## Attachment A

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 17, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Fagerberg Pad

Work Order #2210121

Enclosed are the results of analyses for samples received by Summit Scientific on 10/07/22 15:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mikayla Axtell For Paul Shrewsbury  
President





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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG02@0-6"	2210121-01	Soil	10/07/22 14:30	10/07/22 15:50
BKG03@0-6"	2210121-02	Soil	10/07/22 14:32	10/07/22 15:50
BKG04@0-6"	2210121-03	Soil	10/07/22 14:34	10/07/22 15:50
BKG05@0-6"	2210121-04	Soil	10/07/22 14:36	10/07/22 15:50
BKG06@0-6"	2210121-05	Soil	10/07/22 14:38	10/07/22 15:50
BKG07@0-6"	2210121-06	Soil	10/07/22 14:40	10/07/22 15:50

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.*

## 52

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 1

Project Manager: Mark Longhurst

---

E-Mail: [mark.longhurst@PDCE.com](mailto:mark.longhurst@PDCE.com)


Phone: 303-487-1228

Project Name: Fogherberg Pad

Sampler Name: David Vigil

Project Number:

Sample Description					Preservative				Matrix			Analysis Requested							Special Instructions		
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	TMBs (1,2,4) & (1,3,5)	PAH - 915	Metals - 915		
1	BK60200-6"	10/7/22	1430	1			X			X					X						pH, EC, SAR by saturated paste
2	BK60300-6"		1432				X			X					X						
3	BK60400-6"		1434				X			X					X						
4	BK60500-6"		1436				X			X					X						
5	BK60600-6"		1438				X			X					X						
6	BK60700-6"		1440				X			X					X						
7																					
8																					
9																					
10																					

Relinquished by: 

Date/Time: 10/7/22 1550

Received by: Tasman's Lock Box

Date/Time: 10/7/22 1550

Turn Around Time

Same Day \_\_\_\_\_ 72 hours \_\_\_\_\_

24 hours \_\_\_\_\_ Standard ☒

48 hours \_\_\_\_\_

Sample Integrity:

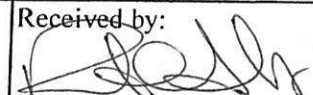
Temperature Upon Receipt: 7.3

Samples Intact: ☒ Yes ☐ No

Notes:

Relinquished by: Tasman's Lock Box

Date/Time: 10/7/22 1550

Received by: 

Date/Time: 10/7/22 1550

Relinquished by:

Date/Time:

Received by:

Date/Time:



S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2210121Client: Prof. Frisman Client Project ID: Fagerberg PadShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐
☐ ☐ ☐ ☐ ☐
Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐

Temp (°C)

73

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>none</u>
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<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"/>	
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"/>	
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"/>	
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"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

10-7-22  
 Date/Time
19:30



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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

**BKG02@0-6"**  
**2210121-01 (Soil)**

**Summit Scientific**

**Saturation Paste by the Western Region Soil, Plant and Water Reference Methods 2013**

Date Sampled: **10/07/22 14:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.17	0.0100	mmhos/cm	1	BFJ0290	10/12/22	10/12/22	EPA 120.1	

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: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

**BKG03@0-6"**  
**2210121-02 (Soil)**

**Summit Scientific**

**Saturation Paste by the Western Region Soil, Plant and Water Reference Methods 2013**

Date Sampled: **10/07/22 14:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	2.78	0.0100		mmhos/cm	1	BFJ0290	10/12/22	10/12/22	EPA 120.1	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

**BKG04@0-6"**  
**2210121-03 (Soil)**

**Summit Scientific**

**Saturation Paste by the Western Region Soil, Plant and Water Reference Methods 2013**

Date Sampled: **10/07/22 14:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	<b>0.153</b>	0.0100		mmhos/cm	1	BFJ0290	10/12/22	10/12/22	EPA 120.1	

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: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

**BKG05@0-6"**  
**2210121-04 (Soil)**

**Summit Scientific**

**Saturation Paste by the Western Region Soil, Plant and Water Reference Methods 2013**

Date Sampled: **10/07/22 14:36**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	<b>0.110</b>	0.0100		mmhos/cm	1	BFJ0290	10/12/22	10/12/22	EPA 120.1	

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: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

**BKG06@0-6"**  
**2210121-05 (Soil)**

**Summit Scientific**

**Saturation Paste by the Western Region Soil, Plant and Water Reference Methods 2013**

Date Sampled: **10/07/22 14:38**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	<b>0.243</b>	0.0100		mmhos/cm	1	BFJ0290	10/12/22	10/12/22	EPA 120.1	

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: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

**BKG07@0-6"**  
**2210121-06 (Soil)**

**Summit Scientific**

**Saturation Paste by the Western Region Soil, Plant and Water Reference Methods 2013**

Date Sampled: **10/07/22 14:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	<b>0.361</b>	0.0100		mmhos/cm	1	BFJ0290	10/12/22	10/12/22	EPA 120.1	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

**Saturation Paste by the Western Region Soil, Plant and Water Reference Methods 2013 - Quality Control**

**Summit Scientific**

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

**Batch BFJ0290 - General Preparation**

**Blank (BFJ0290-BLK1)**

Prepared & Analyzed: 10/12/22

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BFJ0290-BS1)**

Prepared & Analyzed: 10/12/22

Specific Conductance (EC) 0.146 0.0100 mmhos/cm 0.150 97.1 95-105

**Duplicate (BFJ0290-DUP1)**

**Source: 2209520-19**

Prepared & Analyzed: 10/12/22

Specific Conductance (EC) 0.856 0.0100 mmhos/cm 0.886 3.44 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: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/17/22 15:04

### Notes and Definitions

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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 21, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Fagerberg Pad

Work Order #2210222

Enclosed are the results of analyses for samples received by Summit Scientific on 10/13/22 17:47. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mikayla Axtell".

Mikayla Axtell For Paul Shrewsbury  
President



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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2210222-01	Water	10/13/22 12:02	10/13/22 17:47
BH02	2210222-02	Water	10/13/22 12:18	10/13/22 17:47
BH03	2210222-03	Water	10/13/22 10:18	10/13/22 17:47
BH04	2210222-04	Water	10/13/22 11:25	10/13/22 17:47
BH05	2210222-05	Water	10/13/22 11:35	10/13/22 17:47
BH06	2210222-06	Water	10/13/22 10:00	10/13/22 17:47
BH07	2210222-07	Water	10/13/22 11:52	10/13/22 17:47

Summit Scientific

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



# Summit Scientific

S<sub>2</sub>

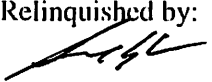
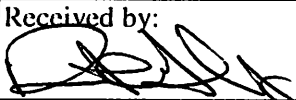
2210222

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

Page 1 of 1

Client: PDC / Tasman Project Manager: Mark Longhurst  
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com  
City/State/Zip: Broomfield/ CO/ 80020  
Phone: 303-487-1228 Project Name: Fagerberg Pad  
Sampler Name: S. Anderson, M. Connolly Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	Cl	TDS	SO4	
1	BH01	10/13/22	1202	4	3				X				X		X			X	X	X	pH, EC, SAR by saturated paste
2	BH02	↓	1218	↓	↓				↓				↓		↓		↓	↓	↓		
3	BH03	↓	1018	↓	↓				↓				↓		↓		↓	↓	↓		
4	BH04	↓	1125	↓	↓				↓				↓		↓		↓	↓	↓		
5	BH05	↓	1135	↓	↓				↓				↓		↓		↓	↓	↓		
6	BH06	↓	1000	↓	↓				↓				↓		↓		↓	↓	↓		
7	BH07	↓	1152	↓	↓				↓				↓		↓		↓	↓	↓		
8																					
9																					
10																					

Relinquished by:  1354 Date/Time: 10/13/22	Received by: Tasman's Lock Box 1354 Date/Time: 10/13/22	<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: 6.8 Samples Intact: <input checked="" type="checkbox"/> Yes No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box Date/Time: 10/13/22 1747	Received by:  Date/Time: 10/13/22 1747		
Relinquished by: Date/Time:	Received by: Date/Time:		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2210222

Client: Profosman

Client Project ID:

Fagerberg Pad

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

Airbill #:

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

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☒

Other

☐

Temp (°C)

6.8

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<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"/>	
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"/>	
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"/>	
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"/>	
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, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MCJ
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

Date/Time

10.13.22 24:00



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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**BH01**  
**2210222-01 (Water)**

**Summit Scientific**

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

Date Sampled: **10/13/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BFJ0408	10/17/22	10/18/22	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: **10/13/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		99.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **10/13/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chloride	<b>178</b>	12.0	mg/L	200	BFJ0511	10/20/22	10/21/22	EPA 300.0	
Sulfate	<b>1660</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/13/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Total Dissolved Solids	<b>2050</b>	10.0	mg/L	1	BFJ0421	10/17/22	10/18/22	SM2540C	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**BH02**  
**2210222-02 (Water)**

**Summit Scientific**

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

Date Sampled: **10/13/22 12:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFJ0408	10/17/22	10/18/22	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: **10/13/22 12:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **10/13/22 12:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>71.4</b>	12.0	mg/L	200	BFJ0511	10/20/22	10/21/22	EPA 300.0	
Sulfate	<b>1690</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/13/22 12:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>2410</b>	10.0	mg/L	1	BFJ0421	10/17/22	10/18/22	SM2540C	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**BH03**  
**2210222-03 (Water)**

**Summit Scientific**

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

Date Sampled: **10/13/22 10:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFJ0408	10/17/22	10/18/22	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: **10/13/22 10:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **10/13/22 10:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>79.2</b>	12.0	mg/L	200	BFJ0511	10/20/22	10/21/22	EPA 300.0	
Sulfate	<b>1940</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/13/22 10:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>2100</b>	10.0	mg/L	1	BFJ0420	10/17/22	10/18/22	SM2540C	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**BH04**  
**2210222-04 (Water)**

**Summit Scientific**

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

Date Sampled: **10/13/22 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFJ0408	10/17/22	10/19/22	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: **10/13/22 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **10/13/22 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>83.4</b>	12.0	mg/L	200	BFJ0511	10/20/22	10/21/22	EPA 300.0	
Sulfate	<b>1710</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/13/22 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>1920</b>	10.0	mg/L	1	BFJ0421	10/17/22	10/18/22	SM2540C	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**BH05**  
**2210222-05 (Water)**

**Summit Scientific**

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

Date Sampled: **10/13/22 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFJ0408	10/17/22	10/19/22	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: **10/13/22 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		97.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **10/13/22 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>81.2</b>	12.0	mg/L	200	BFJ0511	10/20/22	10/21/22	EPA 300.0	
Sulfate	<b>1760</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/13/22 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>2050</b>	10.0	mg/L	1	BFJ0421	10/17/22	10/18/22	SM2540C	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**BH06**  
**2210222-06 (Water)**

**Summit Scientific**

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

Date Sampled: **10/13/22 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BFJ0408	10/17/22	10/19/22	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: **10/13/22 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **10/13/22 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	<b>57.8</b>	12.0	mg/L	200	BFJ0511	10/20/22	10/21/22	EPA 300.0	
Sulfate	<b>1650</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/13/22 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	<b>2100</b>	10.0	mg/L	1	BFJ0420	10/17/22	10/18/22	SM2540C	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**BH07**  
**2210222-07 (Water)**

**Summit Scientific**

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

Date Sampled: **10/13/22 11:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFJ0408	10/17/22	10/19/22	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: **10/13/22 11:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		99.8 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %		21-167		"	"	"	"	

**Anions by EPA Method 300.0**

Date Sampled: **10/13/22 11:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	<b>56.2</b>	12.0		mg/L	200	BFJ0511	10/20/22	10/21/22	EPA 300.0	
Sulfate	<b>1600</b>	60.0		"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Date Sampled: **10/13/22 11:52**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	<b>2360</b>	10.0		mg/L	1	BFJ0421	10/17/22	10/18/22	SM2540C	

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

## 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 BFJ0408 - EPA 5030 Water MS

##### Blank (BFJ0408-BLK1)

Prepared: 10/17/22 Analyzed: 10/18/22

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	13.3		"	13.3		99.7	23-173			
Surrogate: Toluene-d8	13.9		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	21-167			

##### LCS (BFJ0408-BS1)

Prepared: 10/17/22 Analyzed: 10/18/22

Benzene	30.1	1.0	ug/l	33.3		90.3	51-132			
Toluene	33.7	1.0	"	33.3		101	51-138			
Ethylbenzene	44.6	1.0	"	33.3		134	58-146			
m,p-Xylene	89.7	2.0	"	66.7		135	57-144			
o-Xylene	42.0	1.0	"	33.3		126	53-146			
Naphthalene	26.3	1.0	"	33.3		79.0	70-130			
1,2,4-Trimethylbenzene	42.3	1.0	"	33.3		127	70-130			
1,3,5-Trimethylbenzene	39.9	1.0	"	33.3		120	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.3		100	23-173			
Surrogate: Toluene-d8	13.8		"	13.3		103	20-170			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.9	21-167			

##### Matrix Spike (BFJ0408-MS1)

Source: 2210213-01

Prepared: 10/17/22 Analyzed: 10/18/22

Benzene	30.7	1.0	ug/l	33.3	ND	92.2	34-141			
Toluene	34.2	1.0	"	33.3	ND	103	27-151			
Ethylbenzene	44.4	1.0	"	33.3	ND	133	29-160			
m,p-Xylene	91.7	2.0	"	66.7	ND	138	20-166			
o-Xylene	41.5	1.0	"	33.3	ND	124	33-159			
Naphthalene	32.3	1.0	"	33.3	ND	97.0	70-130			
1,2,4-Trimethylbenzene	33.7	1.0	"	33.3	ND	101	70-130			
1,3,5-Trimethylbenzene	35.4	1.0	"	33.3	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		100	23-173			
Surrogate: Toluene-d8	13.7		"	13.3		103	20-170			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		100	21-167			

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**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 BFJ0408 - EPA 5030 Water MS**

Matrix Spike Dup (BFJ0408-MSD1)	Source: 2210213-01			Prepared: 10/17/22 Analyzed: 10/18/22						
Benzene	29.3	1.0	ug/l	33.3	ND	88.0	34-141	4.73	30	
Toluene	32.9	1.0	"	33.3	ND	98.7	27-151	3.93	30	
Ethylbenzene	43.7	1.0	"	33.3	ND	131	29-160	1.72	30	
m,p-Xylene	88.6	2.0	"	66.7	ND	133	20-166	3.43	30	
o-Xylene	41.1	1.0	"	33.3	ND	123	33-159	0.871	30	
Naphthalene	34.5	1.0	"	33.3	ND	103	70-130	6.41	30	
1,2,4-Trimethylbenzene	33.6	1.0	"	33.3	ND	101	70-130	0.327	30	
1,3,5-Trimethylbenzene	35.4	1.0	"	33.3	ND	106	70-130	0.254	30	
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		100	23-173			
Surrogate: Toluene-d8	13.8		"	13.3		103	20-170			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.8	21-167			

Summit Scientific

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

Project: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

**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 BFJ0511 - General Preparation**

**Blank (BFJ0511-BLK1)**

Prepared & Analyzed: 10/20/22

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

**LCS (BFJ0511-BS1)**

Prepared & Analyzed: 10/20/22

Chloride	3.13	0.0600	mg/L	3.00	104	90-110
Sulfate	15.6	0.300	"	15.0	104	90-110

**Duplicate (BFJ0511-DUP1)**

Source: 2210213-01

Prepared: 10/20/22 Analyzed: 10/21/22

Chloride	165	12.0	mg/L	194	16.4	20
Sulfate	343	60.0	"	395	14.1	20

**Matrix Spike (BFJ0511-MS1)**

Source: 2210213-01

Prepared: 10/20/22 Analyzed: 10/21/22

Chloride	817	12.0	mg/L	600	194	104	80-120
Sulfate	3470	60.0	"	3000	395	102	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: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

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

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

**Batch BFJ0420 - General Preparation**

**Blank (BFJ0420-BLK1)**

Prepared: 10/17/22 Analyzed: 10/18/22

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BFJ0420-DUP1)**

**Source: 2210221-01**

Prepared: 10/17/22 Analyzed: 10/18/22

Total Dissolved Solids 2580 10.0 mg/L 2550 1.29 20

**Batch BFJ0421 - General Preparation**

**Blank (BFJ0421-BLK1)**

Prepared: 10/17/22 Analyzed: 10/18/22

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BFJ0421-DUP1)**

**Source: 2210222-01**

Prepared: 10/17/22 Analyzed: 10/18/22

Total Dissolved Solids 2080 10.0 mg/L 2050 1.69 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: Fagerberg Pad  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
10/21/22 14:59

### 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

## Attachment B



## Borehole Logging Form

BOREHOLE ID: <u>BH01</u>		SITE NAME: <u>Fagerberg Pad</u>		CLIENT NAME: <u>PDC ENERGY</u>				
Date Completed: <u>10/7/2022</u>		Location: <u>SE of Excavation</u>						
Drilling Company: <u>Tasman</u>		Surface Completion: <u>Flush Mount</u>		DTW: <u>7'</u>	TD: <u>12'</u>			
Type of Drill: <u>Direct Push</u>		Geologist: <u>David Vigil</u>		Project Manager: <u>B. Nelson</u>				
Bit Size: <u>3"</u>		Logging Method:						
Well Const. Material: Diameter: <u>1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>								
Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description	
1		HA	100%	0.0		CL	Brown, clay, medium plasticity, dry, no odor	
2				0.0				
3				0.0				
4				0.0				
5				0.0				
6				0.0				
7		DP		0.0			CH	Tan, clay, high plasticity, moist, no odor
8				0.0			SM	Tan, silty sand, fine grained, poorly graded, saturated, no odor
9				0.0				
10				0.1				
11				0.0				
12				0.0				
13						CL	Tan, clay, low plasticity, dry, no odor, iron oxide staining	
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								





## Borehole Logging Form

BOREHOLE ID: <u>BH02</u>		SITE NAME: <u>Fagerberg Pad</u>		CLIENT NAME: <u>PDC ENERGY</u>				
Date Completed: <u>10/7/2022</u>		Location: <u>E of excavation</u>						
Drilling Company: <u>Tasman</u>		Surface Completion: <u>Flush Mount</u>		DTW: <u>7'</u>	TD: <u>12'</u>			
Type of Drill: <u>Direct Push</u>		Geologist: <u>David Vigil</u>		Project Manager: <u>B. Nelson</u>				
Bit Size: <u>3"</u>		Logging Method:						
Well Const. Material: Diameter: <u>1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>								
Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description	
1		HA	100%	0.0		CL	0-6": Brown, clay, medium plasticity, dry, no odor	
2				0.0				
3				0.0				
4				0.0				
5				0.0				
6				0.0				
7		DP	100%	0.0			CH	6-7": Tan, sandy clay, high plasticity, moist, no odor
8				0.0			SM	7-12": Tan, silty sand, fine grained, poorly graded, saturated, no odor
9				0.0				
10				0.0				
11				0.0				
12				0.0				
13						CL	12": Light brown, clay, low plasticity, dry, no odor	
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

**TASMAN****Borehole Logging Form**BOREHOLE ID: BH03SITE NAME: Fagerberg PadCLIENT NAME: PDC ENERGYDate Completed: 10/7/2022Location: NE of excavationDrilling Company: TasmanSurface Completion: Flush MountDTW: 4' TD: 12'Type of Drill: Direct PushGeologist: David VigilProject Manager: B. NelsonBit Size: 3"

Logging Method:

Well Const. Material: Diameter: 1" Screen: Sch 40 PVC Slotted 0.010Riser: Sch 40 PVC Blank

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1	0-2'	HA	100%	0.0		CL	0-4': Brown clay, medium plasticity, dry, no odor
2	2-3'			0.0			
3	3-4'			0.0			
4	4-5'			0.0			
5	5-6'			0.0		SM	4-10': Tan, silty sand, fine grained, poorly graded, saturated, no odor
6	6-7'			0.0			
7	7-8'	DP	90%	0.0			
8	8-9'			0.0			
9	9-10'			0.2			
10	10-11'			0.2			
11	11-12'			0.1			
12	12-13'			0.0		CL	11-12': Light brown clay, low plasticity, dry, no odor
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



**TASMAN****Borehole Logging Form**

BOREHOLE ID: <u>BH04</u>		SITE NAME: <u>Fagerberg Pad</u>		CLIENT NAME: <u>PDC ENERGY</u>			
Date Completed: <u>10/7/2022</u>		Location: <u>NW of excavation</u>					
Drilling Company: <u>Tasman</u>		Surface Completion: <u>Flush Mount</u>		DTW: <u>4'</u>	TD: <u>12'</u>		
Type of Drill: <u>Direct Push</u>		Geologist: <u>David Vigil</u>		Project Manager: <u>B. Nelson</u>			
Bit Size: <u>3"</u>		Logging Method:					
Well Const. Material: <u>Diameter: 1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>							
Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1		<u>HA</u>	<u>100%</u>	<u>0.0</u>		<u>CL</u>	<u>0-4': Brown, clay, medium plasticity, dry, no odor</u>
2				<u>0.0</u>			
3				<u>0.0</u>			
4				<u>0.0</u>			
5				<u>0.0</u>			<u>SM</u>
6				<u>0.0</u>			<u>4-10': Tan, silty sand, fine grained, poorly graded, saturated, no odor</u>
7		<u>DP</u>	<u>100%</u>	<u>0.0</u>			
8				<u>0.0</u>			
9				<u>0.0</u>			
10				<u>0.0</u>			
11				<u>0.0</u>			<u>CL</u>
12				<u>0.0</u>			<u>10-12': light brown, clay, low plasticity, dry, no odor, iron oxide staining</u>
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

**TASMAN****Borehole Logging Form**

BOREHOLE ID: <u>BH05</u>		SITE NAME: <u>Fagerberg Pad</u>		CLIENT NAME: <u>PDC ENERGY</u>			
Date Completed: <u>10/7/2022</u>		Location: <u>Wdf excavation</u>					
Drilling Company: <u>Tasman</u>		Surface Completion: <u>Flush Mount</u>		DTW: <u>6'</u>	TD: <u>12'</u>		
Type of Drill: <u>Direct Push</u>		Geologist: <u>David Vigil</u>		Project Manager: <u>B. Nelson</u>			
Bit Size: <u>3"</u>		Logging Method:					
Well Const. Material: Diameter: <u>1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>							
Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1		NA	100%	0.2		CL	0-4': Brown, clay, medium plasticity, dry, no odor
2				0.4			
3				0.1			
4				0.0			
5				0.0			4-6': As above, moist
6				0.0			
7		DP	100%	0.0		SM	6-11': Tan, silty sand, fine grained, poorly graded, saturated, no odor
8				80%	0.0		
9					0.0		
10					0.0		
11					0.0		
12					0.0		CL
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							





## Borehole Logging Form

BOREHOLE ID: <u>BH06</u>		SITE NAME: <u>Fagerberg Pad</u>		CLIENT NAME: <u>PDC ENERGY</u>				
Date Completed: <u>10/7/2022</u>		Location: <u>SW of excavation</u>						
Drilling Company: <u>Tasman</u>		Surface Completion: <u>Flush Mount</u>		DTW: <u>4.1'</u>	TD: <u>12'</u>			
Type of Drill: <u>Direct Push</u>		Geologist: <u>David Vigil</u>		Project Manager: <u>B. Nelson</u>				
Bit Size: <u>3"</u>		Logging Method:						
Well Const. Material: <u>Diameter: 1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>								
Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description	
1		HA	100%	0.0		CL	0-4': Brown, clay, medium plasticity, dry, no odor	
2				0.0				
3				0.0				
4				0.0				
5			DP	100%	0.0		SM	4-11': Tan, silty sand, fine grained, poorly graded, saturated, no odor
6		0.0						
7		0.0						
8		0.0						
9				0.0				
10				0.0				
11				0.0				
12				0.0			CL	11-12': Tan, clay, low plasticity, dry, no odor, iron oxide staining
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								



**TASMAN****Borehole Logging Form**

BOREHOLE ID: <u>BH07</u>		SITE NAME: <u>Fagerberg Pad</u>		CLIENT NAME: <u>PDC ENERGY</u>			
Date Completed: <u>10/7/2022</u>		Location: <u>S of excavation</u>					
Drilling Company: <u>Tasman</u>		Surface Completion: <u>Flush Mount</u>		DTW: <u>5'</u>	TD: <u>12'</u>		
Type of Drill: <u>Direct Push</u>		Geologist: <u>David Vigil</u>		Project Manager: <u>B. Nelson</u>			
Bit Size: <u>3"</u>		Logging Method:					
Well Const. Material: Diameter: <u>1"</u> Screen: <u>Sch 40 PVC Slotted 0.010</u> Riser: <u>Sch 40 PVC Blank</u>							
Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1		<u>HA</u>	<u>100%</u>	<u>0.0</u>		<u>CL</u>	<u>0-4': Brown, clay, medium plasticity, dry, no odor</u>
2				<u>0.0</u>			
3				<u>0.0</u>			
4				<u>0.0</u>			
5				<u>0.0</u>			<u>4-5': As above, moist</u>
6				<u>0.0</u>		<u>SM</u>	<u>5-7': Brown to tan, silty sand, fine grained, poorly graded, saturated no odor</u>
7		<u>DP</u>	<u>100%</u>	<u>0.0</u>			
8				<u>0.0</u>			<u>7-8': As above, iron oxide staining</u>
9				<u>90%</u>	<u>0.0</u>		
10					<u>0.0</u>		
11					<u>0.0</u>		
12					<u>0.0</u>		<u>CL</u>
13							<u>11-12': Light brown, clay, low plasticity, dry, no odor</u>
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							