



PDC Energy, Inc.
Fourth Quarter 2022 Groundwater Monitoring Summary

November 7, 2022

Former Eckhardt 43-34 Wellhead
NESE Section 34 T5N R64W
Remediation # 21647

This groundwater monitoring summary has been prepared by Tasman, Inc. for the former Eckhardt 43-34 wellhead.

Site History and Background

On March 11, 2022, a historic hydrocarbon release was discovered adjacent to the former wellhead during decommissioning activities. Following the discovery, mitigation activities were initiated and approximately 8 cubic yards of impacted material were removed from location. During excavation activities, groundwater was encountered within the excavation at approximately 6.5 feet below ground surface (bgs).

Monitoring Well Installation and Supplemental Site Investigation Activities

On October 10, 2022, five monitoring wells (BH01 – BH05) were installed to confirm the absence of dissolved-phase hydrocarbon impacts within and adjacent to the former excavation extent (Figure 1). Lithologic descriptions and volatile organic compound (VOC) concentrations were measured using a photoionization detector (PID) and recorded for each monitoring well. Additionally, five background soil borings (BKG02 – BKG06) were advanced in native soil surrounding the former wellhead to a depth of approximately 7 feet bgs (Figure 1). Twenty background samples were collected from the background soil borings at depths ranging from 2.5 to 7 feet bgs and were submitted to Summit Scientific Laboratory (Summit) for analysis of the Table 915-1 metals suite by EPA Method 6020B.

Background soil analytical results indicated that arsenic, barium, lead, and selenium concentrations were in exceedance of the applicable COGCC Table 915-1 regulatory standards in native soil on site. Soil boring locations are illustrated on Figure 1. Soil analytical results are summarized in Tables 1 and 2. GPS coordinates and field observed VOC concentrations are summarized in Table 3. The laboratory analytical report is included in Attachment A. Boring and well completion logs are included as Attachment B.

Groundwater Monitoring Activities

On October 21, 2022, groundwater monitoring was conducted at all five monitoring wells (BH01 – BH05). During initial gauging activities, monitoring well BH03 was found to be dry and subsequently, a sample was not collected. Four 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.

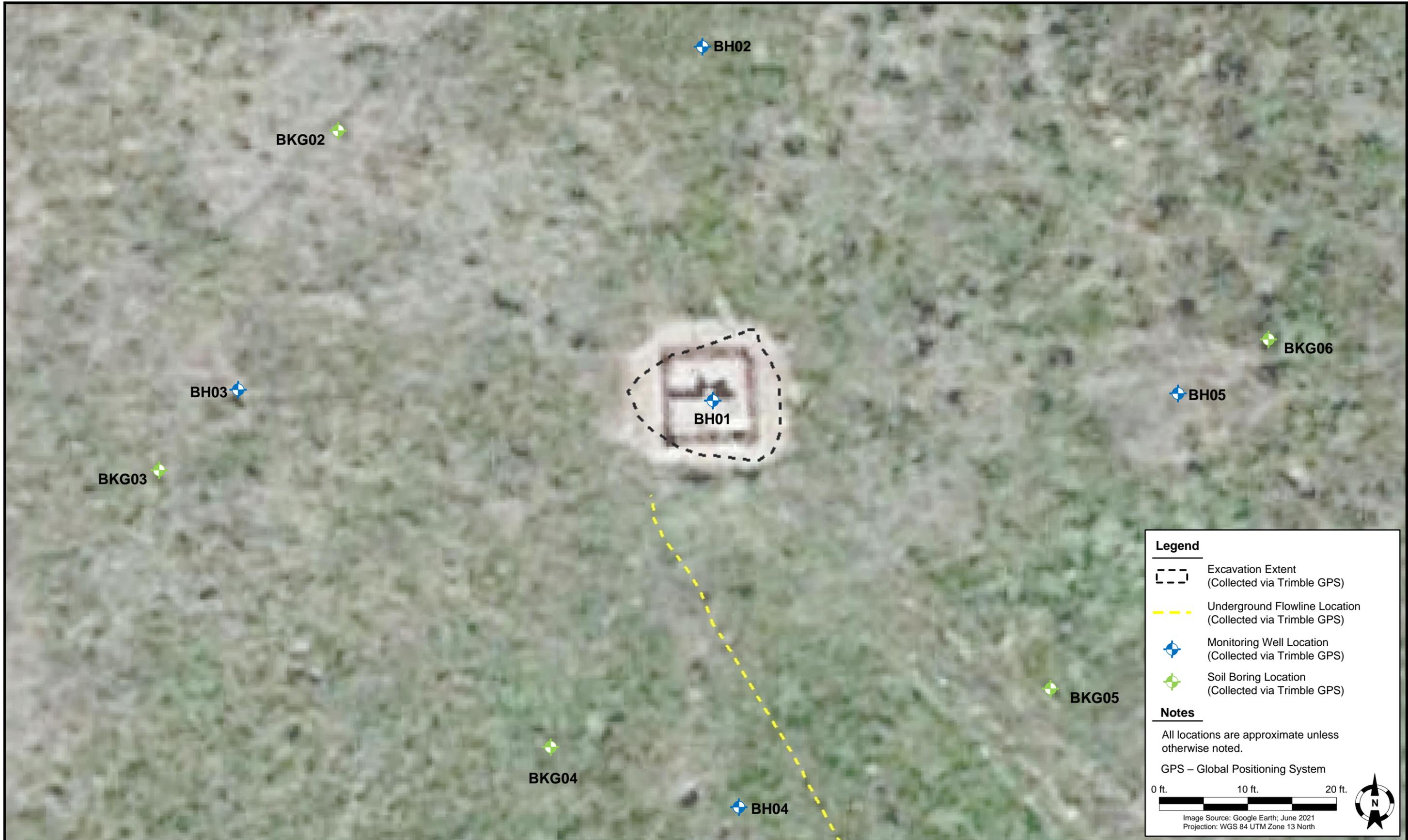
Fourth quarter 2022 analytical results indicated that organic compound concentrations were in compliance with the applicable COGCC Table 915-1 groundwater standards in all four sampled monitoring well locations. Additionally, inorganic parameters were in compliance with the applicable regulatory standards or within 1.25x the background concentration of the up-gradient monitoring well (BH04) in all four sampled 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 4 and 5. 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 background analytical results received for soil samples collected during monitoring well installation activities, further soil sampling is required to delineate arsenic exceedances recorded in soil samples collected from the final excavation extent. The proposed soil boring locations are illustrated on Figure 5.

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



DATE: October 27, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: J. Marcus

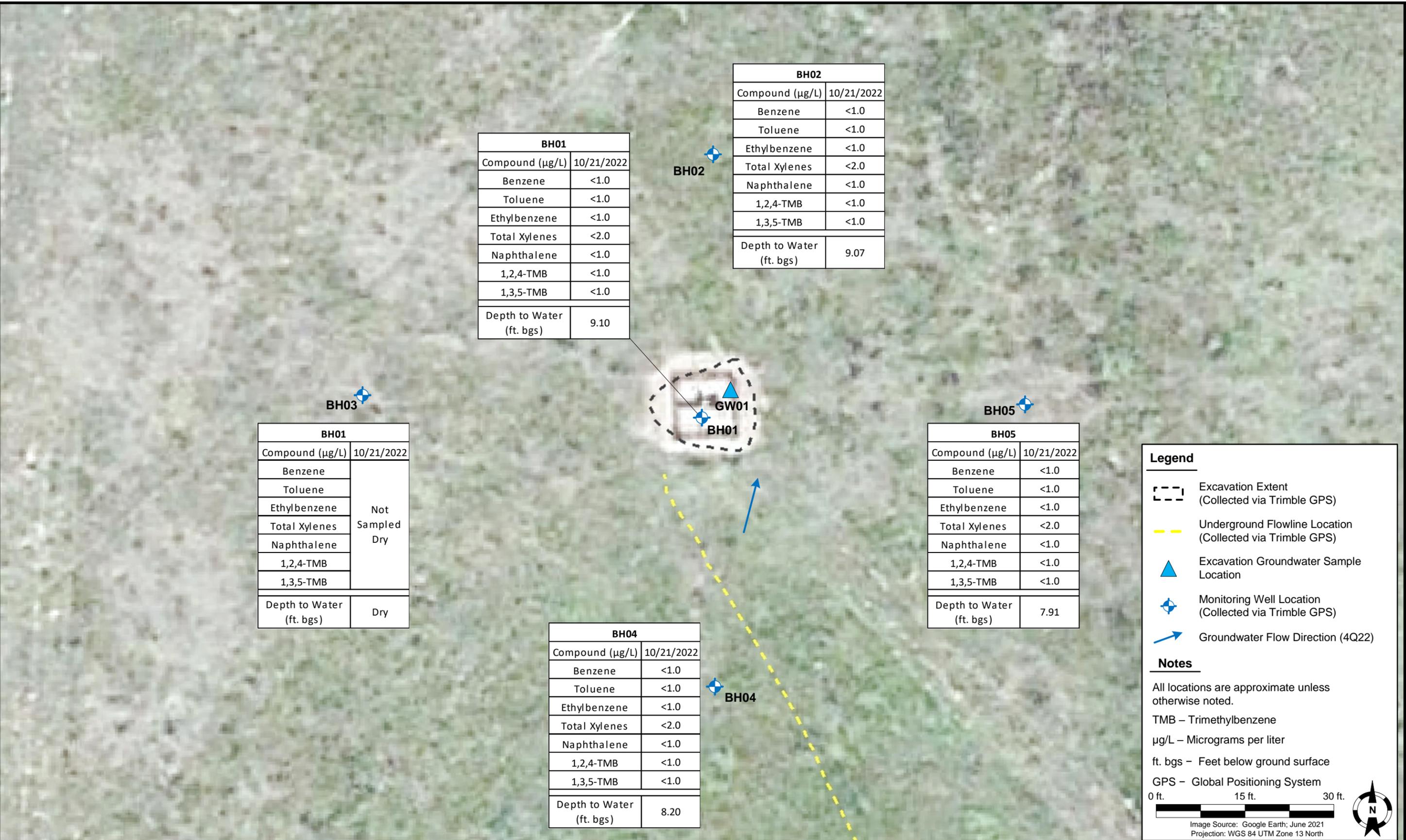


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Former Eckhardt 43-34 Wellhead
 NESE, Section 34, Township 5 North, Range 64 West
 Weld County, Colorado

**MONITORING WELL
 AND SOIL BORING
 LOCATION MAP**

**FIGURE
 1**



DATE: November 7, 2022

DESIGNED BY: C. Hamlin

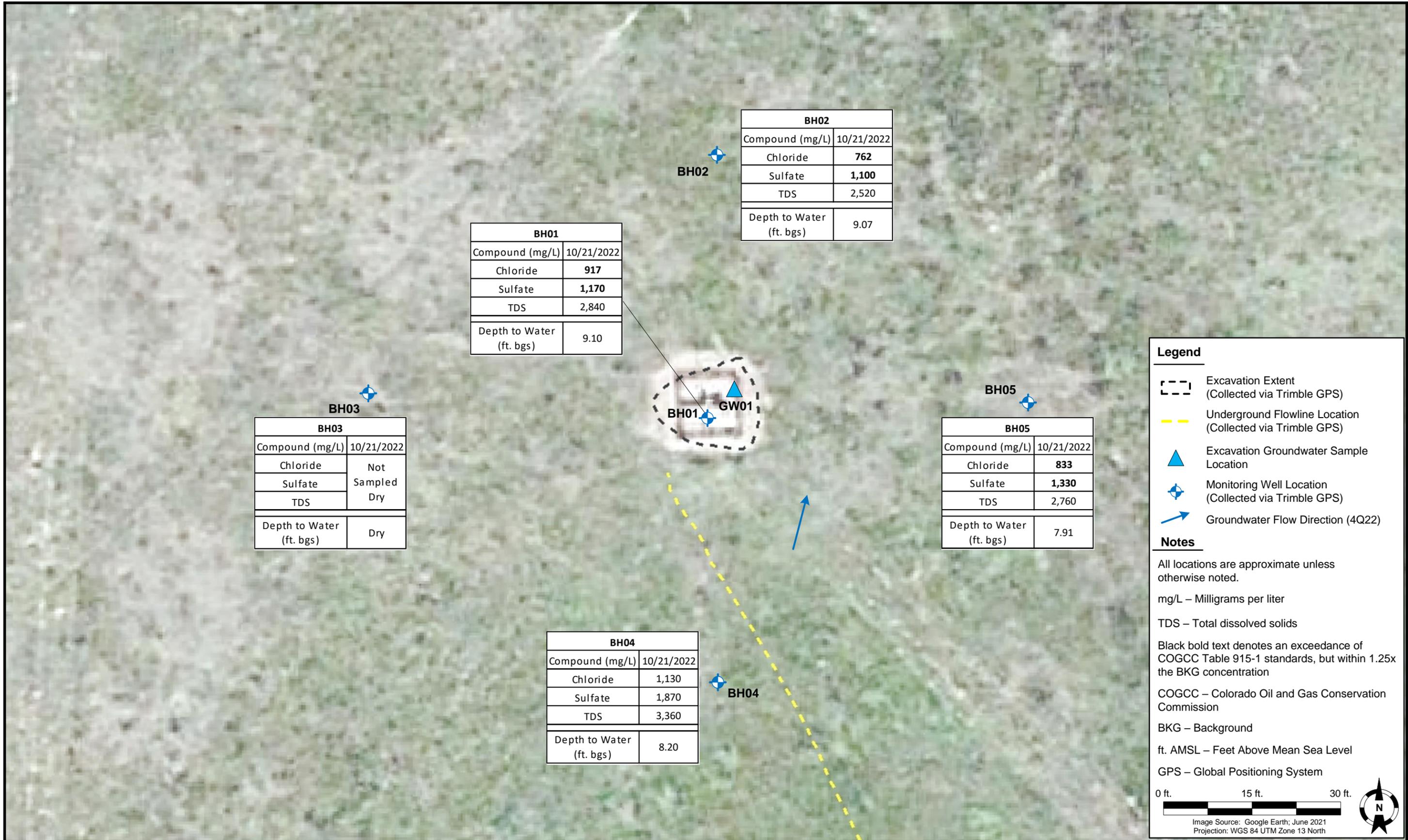
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GROUNDWATER
ANALYTICAL RESULTS
MAP

FIGURE
2



BH01	
Compound (mg/L)	10/21/2022
Chloride	917
Sulfate	1,170
TDS	2,840
Depth to Water (ft. bgs)	9.10

BH02	
Compound (mg/L)	10/21/2022
Chloride	762
Sulfate	1,100
TDS	2,520
Depth to Water (ft. bgs)	9.07

BH03	
Compound (mg/L)	10/21/2022
Chloride	Not Sampled
Sulfate	Not Sampled
TDS	Dry
Depth to Water (ft. bgs)	Dry

BH05	
Compound (mg/L)	10/21/2022
Chloride	833
Sulfate	1,330
TDS	2,760
Depth to Water (ft. bgs)	7.91

BH04	
Compound (mg/L)	10/21/2022
Chloride	1,130
Sulfate	1,870
TDS	3,360
Depth to Water (ft. bgs)	8.20

Legend

- Excavation Extent (Collected via Trimble GPS)
- Underground Flowline Location (Collected via Trimble GPS)
- Excavation Groundwater Sample Location
- Monitoring Well Location (Collected via Trimble GPS)
- Groundwater Flow Direction (4Q22)

Notes

All locations are approximate unless otherwise noted.

mg/L – Milligrams per liter

TDS – Total dissolved solids

Black bold text denotes an exceedance of COGCC Table 915-1 standards, but within 1.25x the BKG concentration

COGCC – Colorado Oil and Gas Conservation Commission

BKG – Background

ft. AMSL – Feet Above Mean Sea Level

GPS – Global Positioning System

0 ft. 15 ft. 30 ft.

Image Source: Google Earth; June 2021
Projection: WGS 84 UTM Zone 13 North

DATE: November 7, 2022

DESIGNED BY: C. Hamlin

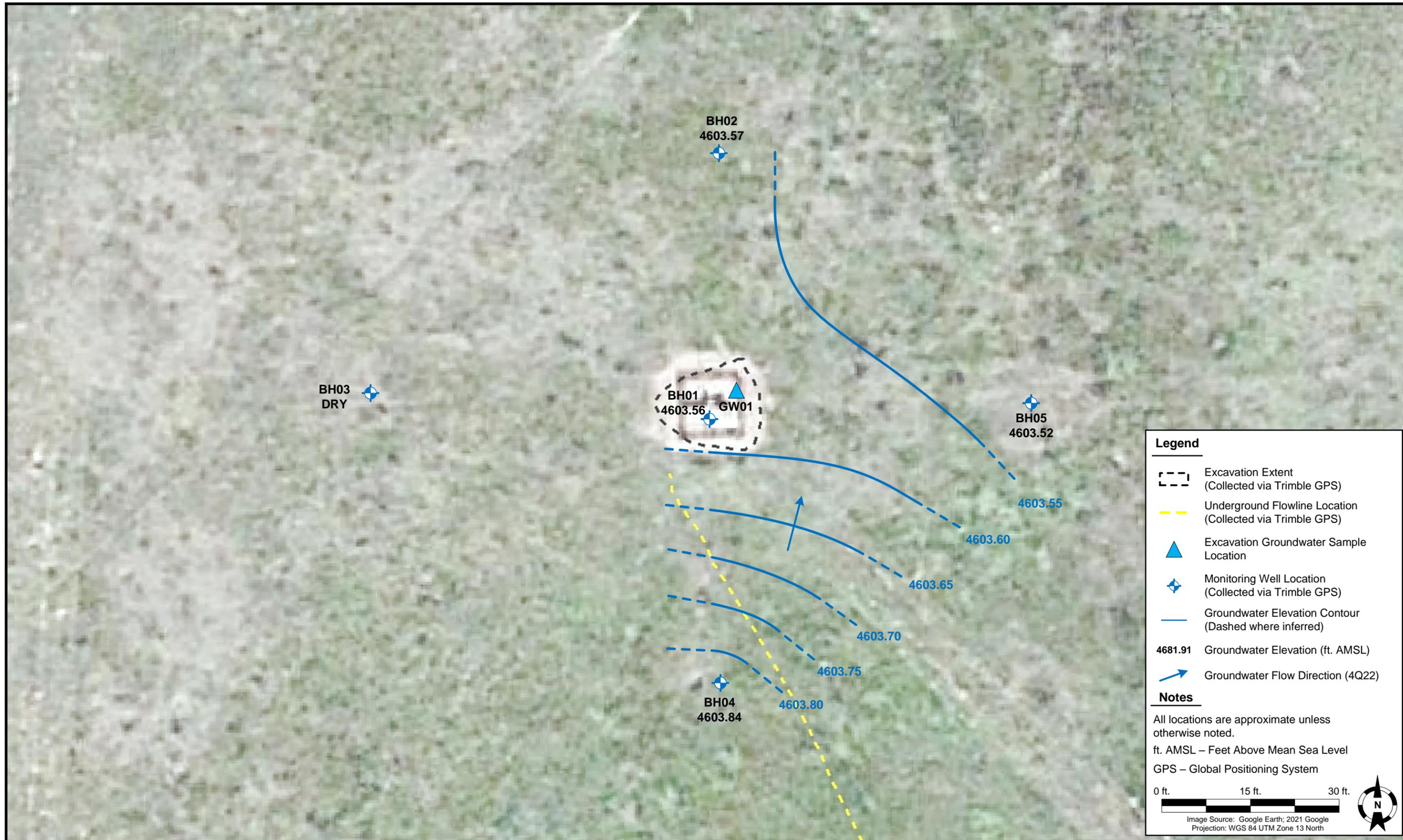
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GROUNDWATER ANALYTICAL RESULTS MAP (INORGANIC PARAMETERS)

FIGURE 3



DATE: November 21, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: L. Reed

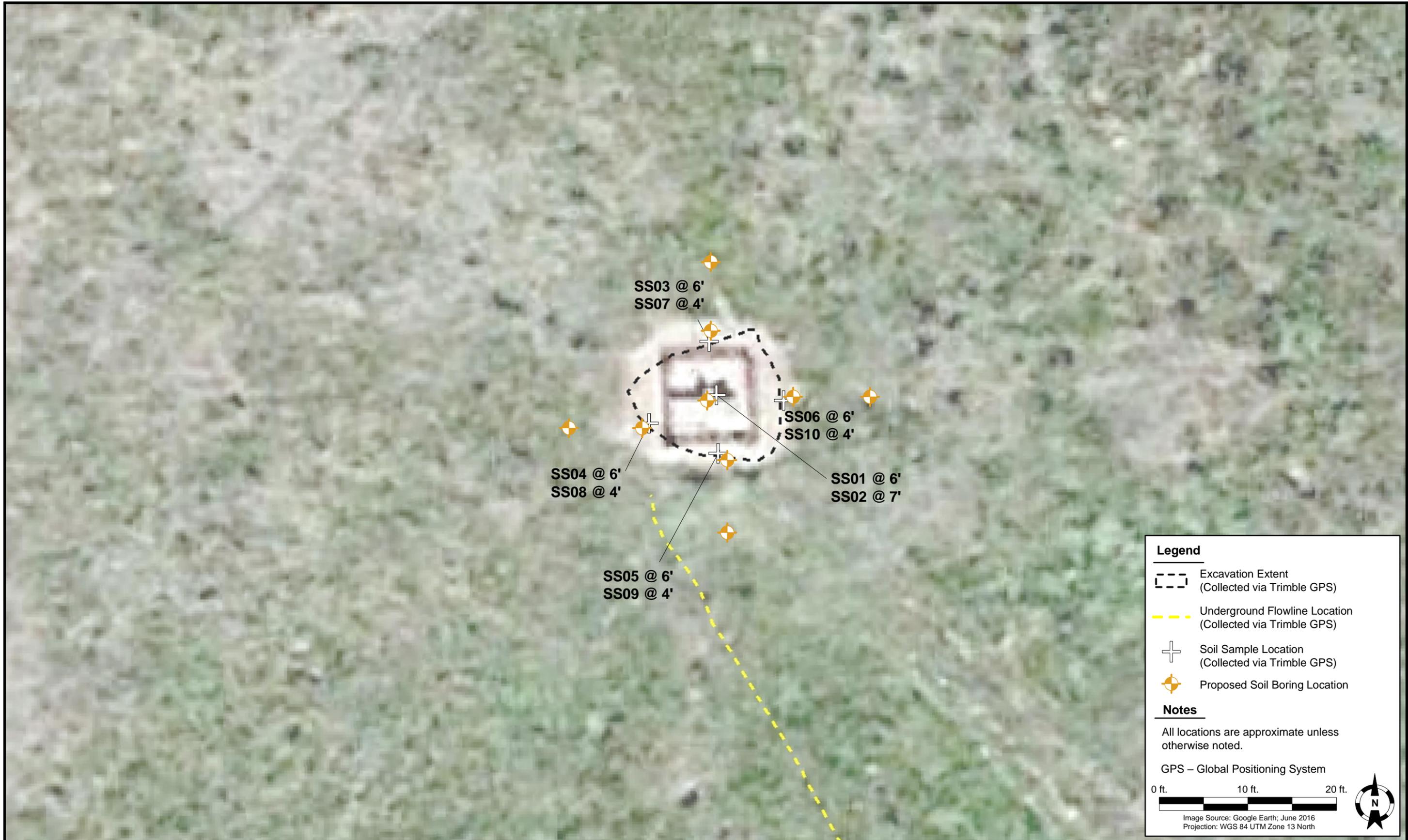


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**GROUNDWATER
 ELEVATION CONTOUR
 MAP (10/21/2022)**

**FIGURE
 4**



DATE: October 27, 2021

DESIGNED BY: C. Hamlin

DRAWN BY: J. Marcus



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Former Eckhardt 43-34 Wellhead
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**PROPOSED
SOIL BORING
LOCATION MAP**

**FIGURE
5**

**TABLE 1
FORMER ECKHARDT 43-34 WELLHEAD
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 ⁽⁴⁾ (mg/kg)	Arsenic ⁽⁵⁾ (mg/kg)	Lead ⁽⁶⁾ (mg/kg)
Residential SSL^(1,2)			1.2	490	5.8	58	30	27	2	500	0.68	400
Protection of Groundwater SSL^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	0.29	14
SS01 @ 6'	3/11/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	1.4	11.0	15.5
SS02 @ 7'	3/11/2022	7 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	10.5	15.2
SS03 @ 6'	3/11/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	10.6	12.0
SS04 @ 6'	3/11/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	9.83	15.4
SS05 @ 6'	3/11/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	8.71	13.7
SS06 @ 6'	3/11/2022	6 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	14.2	14.9
SS07 @ 4'	3/11/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	3.81	5.76
SS08 @ 4'	3/11/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	53	3.53	7.08
SS09 @ 4'	3/11/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	3.63	6.34
SS10 @ 4'	3/11/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	7.59	9.66
FLR01 @ 4'	3/11/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA
FL01-01 @ 4'	3/11/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA
FL01-02 @ 4'	3/11/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA
FL01-03 @ 4'	3/11/2022	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA
BKG01 @ 2.5'	3/11/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	3.61	7.84
BKG01 @ 4'	3/11/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	5.87	7.05
BKG01 @ 6'	3/11/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	4.73	6.36
BKG02 @ 2.5'	10/10/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	0.693	3.71
BKG02 @ 4'	10/10/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	0.470	3.30
BKG02 @ 6'	10/10/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	1.14	5.26
BKG02 @ 7'	10/10/2022	7 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	3.39	11.2
BKG03 @ 2.5'	10/10/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	0.787	4.70
BKG03 @ 4'	10/10/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	0.606	3.31
BKG03 @ 6'	10/10/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	1.84	9.28
BKG03 @ 7'	10/10/2022	7 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	3.44	14.2
BKG04 @ 2.5'	10/10/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	0.585	3.52
BKG04 @ 4'	10/10/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	0.795	3.77
BKG04 @ 6'	10/10/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	3.07	11.3
BKG04 @ 7'	10/10/2022	7 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	2.43	10.4
BKG05 @ 2.5'	10/10/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	0.572	3.47
BKG05 @ 4'	10/10/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	1.02	6.16
BKG05 @ 6'	10/10/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	2.50	12.1
BKG05 @ 7'	10/10/2022	7 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	2.76	11.1
BKG06 @ 2.5'	10/10/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	2.73	11.6
BKG06 @ 4'	10/10/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	1.89	7.78
BKG06 @ 6'	10/10/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	2.73	12.6
BKG06 @ 7'	10/10/2022	7 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	2.37	11.4

Notes:

- Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.
- Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.
- The highest arsenic concentration (SS07 - 3.81 mg/kg), aside from SS10 @ 4', recorded within the unsaturated interval (4 ft. bgs) is below background concentrations recorded in background soil boring BKG01 (4 ft. bgs).
- The highest lead concentration (SS04 - 15.4 mg/kg), recorded within the saturated interval (6 - 7 ft. bgs) is within 1.25x the background concentrations recorded in background soil boring BKG03 (7 ft. bgs) and BKG06 (6 ft. bgs).

COGCC = Colorado Oil and Gas Conservation Commission

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

TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics

TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics

TEPH-ORO = Total extractable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

ft. = Feet

 = Source material characterization sample

bgs = Below ground surface

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

BOLD = Analytical result is in exceedance of applicable standard.

NA = Constituent not analyzed

TABLE 2
FORMER ECKHARDT 43-34 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
METALS

Sample ID	Date Sampled	Depth	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ^(1,2)			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^(1,2,3)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
SS01 @ 6'	3/11/2022	6 ft. bgs	11.0	49.8	<0.247	<0.30 ⁽⁴⁾	13.4	15.5	15.2	1.13	0.0323	67.4
BKG01 @ 2.5'	3/11/2022	2.5 ft. bgs	3.61	70.0	0.302	<0.30 ⁽⁴⁾	10.9	7.84	9.94	1.18	0.0371	39.9
BKG01 @ 4'	3/11/2022	4 ft. bgs	5.87	148	<0.250	<0.30 ⁽⁴⁾	9.08	7.05	11.0	1.12	0.0341	38.0
BKG01 @ 6'	3/11/2022	6 ft. bgs	4.73	113	<0.237	<0.30 ⁽⁴⁾	7.28	6.36	8.70	0.944	0.0286	33.0
BKG02 @ 2.5'	10/10/2022	2.5 ft. bgs	0.693	39.0	<0.209	<0.30 ⁽⁴⁾	3.12	3.71	3.64	<0.271	0.0388	12.1
BKG02 @ 4'	10/10/2022	4 ft. bgs	0.470	45.0	<0.206	<0.30 ⁽⁴⁾	2.77	3.30	2.97	<0.268	0.0255	11.1
BKG02 @ 6'	10/10/2022	6 ft. bgs	1.14	40.8	<0.212	<0.30 ⁽⁴⁾	4.20	5.26	4.17	0.347	0.0246	16.6
BKG02 @ 7'	10/10/2022	7 ft. bgs	3.39	186	<0.238	<0.30 ⁽⁴⁾	10.0	11.2	8.75	0.316	0.0328	37.9
BKG03 @ 2.5'	10/10/2022	2.5 ft. bgs	0.787	41.1	<0.213	<0.30 ⁽⁴⁾	3.66	4.70	4.92	<0.277	0.0423	14.2
BKG03 @ 4'	10/10/2022	4 ft. bgs	0.606	37.7	<0.207	<0.30 ⁽⁴⁾	2.61	3.31	2.93	<0.269	0.0227	11.3
BKG03 @ 6'	10/10/2022	6 ft. bgs	1.84	63.5	0.237	<0.30 ⁽⁴⁾	6.58	9.28	7.02	<0.294	0.0335	25.8
BKG03 @ 7'	10/10/2022	7 ft. bgs	3.44	81.6	<0.239	<0.30 ⁽⁴⁾	8.83	14.2	9.94	<0.310	0.0386	37.6
BKG04 @ 2.5'	10/10/2022	2.5 ft. bgs	0.585	50.9	<0.211	<0.30 ⁽⁴⁾	3.33	3.52	3.56	<0.274	0.0346	12.8
BKG04 @ 4'	10/10/2022	4 ft. bgs	0.795	51.1	<0.238	<0.30 ⁽⁴⁾	3.71	3.77	3.77	<0.310	0.0243	13.3
BKG04 @ 6'	10/10/2022	6 ft. bgs	3.07	62.9	<0.241	<0.30 ⁽⁴⁾	8.11	11.3	8.40	<0.313	0.0299	32.8
BKG04 @ 7'	10/10/2022	7 ft. bgs	2.43	50.5	<0.239	<0.30 ⁽⁴⁾	7.38	10.4	7.70	<0.311	0.0287	30.8
BKG05 @ 2.5'	10/10/2022	2.5 ft. bgs	0.572	54.6	<0.215	<0.30 ⁽⁴⁾	3.09	3.47	3.11	<0.280	<0.0215	12.4
BKG05 @ 4'	10/10/2022	4 ft. bgs	1.02	57.1	<0.218	<0.30 ⁽⁴⁾	4.89	6.16	4.88	<0.283	0.0279	19.7
BKG05 @ 6'	10/10/2022	6 ft. bgs	2.50	50.5	0.276	<0.30 ⁽⁴⁾	8.02	12.1	9.10	0.334	0.0331	32.3
BKG05 @ 7'	10/10/2022	7 ft. bgs	2.76	60.7	<0.236	<0.30 ⁽⁴⁾	7.95	11.1	8.08	<0.307	0.0316	34.2
BKG06 @ 2.5'	10/10/2022	2.5 ft. bgs	2.73	44.7	<0.233	<0.30 ⁽⁴⁾	7.62	11.6	8.41	0.322	0.0317	35.6
BKG06 @ 4'	10/10/2022	4 ft. bgs	1.89	70.1	<0.232	<0.30 ⁽⁴⁾	5.40	7.78	6.37	<0.301	0.0315	25.1
BKG06 @ 6'	10/10/2022	6 ft. bgs	2.73	50.9	<0.248	<0.30 ⁽⁴⁾	7.57	12.6	9.10	<0.322	0.0307	36.8
BKG06 @ 7'	10/10/2022	7 ft. bgs	2.37	64.7	<0.244	<0.30 ⁽⁴⁾	7.28	11.4	8.66	<0.317	0.0351	34.2

Notes:

- Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
 - Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
 - SSLs are applicable if a pathway for communication with groundwater is present.
 - Compound falls within COGCC Table 915-1 Footnote 9.
- COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
mg/kg = Milligrams per kilogram
= Source material characterization sample
ft. = Feet
bgs = Below ground surface
BOLD = Analytical result is in exceedance of applicable standard.
BOLD = Analytical result is in exceedance of applicable standard, but within 1.25x background concentration.

**TABLE 3
FORMER ECKHARDT 43-34 WELLHEAD
(WELLHEAD RELEASE)
FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
			Latitude	Longitude		
SS01 @ 6'	3/11/2022	6 ft. bgs	40.354041	-104.528642	1.1	57.8
SS02 @ 7'	3/11/2022	7 ft. bgs	40.354041	-104.528642	1.1	0.6
SS03 @ 6'	3/11/2022	6 ft. bgs	40.354053	-104.528645	1.3	0.0
SS04 @ 6'	3/11/2022	6 ft. bgs	40.354034	-104.528655	1.1	0.0
SS05 @ 6'	3/11/2022	6 ft. bgs	40.354026	-104.528650	1.2	0.0
SS06 @ 6'	3/11/2022	6 ft. bgs	40.354034	-104.528635	1.2	0.0
SS07 @ 4'	3/11/2022	4 ft. bgs	40.354053	-104.528645	1.3	0.0
SS08 @ 4'	3/11/2022	4 ft. bgs	40.354034	-104.528655	1.1	0.0
SS09 @ 4'	3/11/2022	4 ft. bgs	40.354026	-104.528650	1.2	0.0
SS10 @ 4'	3/11/2022	4 ft. bgs	40.354034	-104.528635	1.2	0.0
SS11 @ 2.5'	3/11/2022	2.5 ft. bgs	40.354053	-104.528645	1.3	0.0
WHS01-N @ 0-6"	3/11/2022	0-6 in. bgs	40.354066	-104.528660	1.0	0.0
WHS01-W @ 0-6"	3/11/2022	0-6 in. bgs	40.354003	-104.528717	0.9	0.0
WHS01-S @ 0-6"	3/11/2022	0-6 in. bgs	40.353979	-104.528639	1.1	0.0
WHS01-E @ 0-6"	3/11/2022	0-6 in. bgs	40.354054	-104.528595	0.9	0.0
FLR01 @ 4'	3/11/2022	4 ft. bgs	40.354028	-104.528662	1.0	0.0
FL01-01 @ 4'	3/11/2022	4 ft. bgs	40.352483	-104.527661	1.1	0.0
FL01-02 @ 4'	3/11/2022	4 ft. bgs	40.352416	-104.527603	0.9	0.0
FL01-03 @ 4'	3/11/2022	4 ft. bgs	40.352297	-104.527532	0.9	0.0
BKG01	3/11/2022	6 ft. bgs	40.354093	-104.528570	1.1	0.0
BKG02	10/10/2022	7 ft. bgs	40.354127	-104.528799	NC	0.4
BKG03	10/10/2022	7 ft. bgs	40.354017	-104.528876	NC	0.1
BKG04	10/10/2022	7 ft. bgs	40.353927	-104.528716	NC	0.1
BKG05	10/10/2022	7 ft. bgs	40.353946	-104.528501	NC	0.1
BKG05	10/10/2022	7 ft. bgs	40.354056	-104.528407	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 4
FORMER ECKHARDT 43-34 WELLHEAD
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 ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-	-
GW01	3/11/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	~6.5	NA
BH01	10/21/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	9.10	4603.56
BH02	10/21/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	9.07	4603.57
BH03	10/21/2022	Dry - Not Sampled							Dry	Dry
BH04	10/21/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	8.20	4603.84
BH05	10/21/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	7.91	4603.52

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
NA = Not applicable

**TABLE 5
FORMER ECKHARDT 43-34 WELLHEAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC PARAMETERS**

Sample ID	Date Sampled	TDS (unit)	Chloride (mg/L)	Sulfate Ion (mg/L)	Depth to Water ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (mg/L) <small>(1)</small>		<1.25 x BCKG	250 or <1.25 x BCKG	250 or <1.25 x BCKG	-	-
BH01	10/21/2022	2,840	917	1,170	9.10	4603.56
BH02	10/21/2022	2,520	762	1,100	9.07	4603.57
BH03	10/21/2022	Not Sampled - Dry			Dry	Dry
BH04	10/21/2022	3,360	1,130	1,870	8.20	4603.84
BH05	10/21/2022	2,760	833	1,330	7.91	4603.52

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

 = Up-gradient well location used for background concentration.

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

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 19, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Eckhardt 43-34 Wellhead

Work Order #2210141

Enclosed are the results of analyses for samples received by Summit Scientific on 10/10/22 17:11. 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: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG02@2.5'	2210141-01	Soil	10/10/22 10:20	10/10/22 17:11
BKG02@4'	2210141-02	Soil	10/10/22 10:23	10/10/22 17:11
BKG02@6'	2210141-03	Soil	10/10/22 10:26	10/10/22 17:11
BKG02@7'	2210141-04	Soil	10/10/22 10:29	10/10/22 17:11
BKG03@2.5'	2210141-05	Soil	10/10/22 12:49	10/10/22 17:11
BKG03@4'	2210141-06	Soil	10/10/22 12:51	10/10/22 17:11
BKG03@6'	2210141-07	Soil	10/10/22 12:54	10/10/22 17:11
BKG03@7'	2210141-08	Soil	10/10/22 12:57	10/10/22 17:11
BKG04@2.5'	2210141-09	Soil	10/10/22 13:14	10/10/22 17:11
BKG04@4'	2210141-10	Soil	10/10/22 13:16	10/10/22 17:11
BKG04@6'	2210141-11	Soil	10/10/22 13:19	10/10/22 17:11
BKG04@7'	2210141-12	Soil	10/10/22 13:21	10/10/22 17:11
BKG05@2.5'	2210141-13	Soil	10/10/22 13:40	10/10/22 17:11
BKG05@4'	2210141-14	Soil	10/10/22 13:42	10/10/22 17:11
BKG05@6'	2210141-15	Soil	10/10/22 13:45	10/10/22 17:11
BKG05@7'	2210141-16	Soil	10/10/22 13:48	10/10/22 17:11
BKG06@2.5'	2210141-17	Soil	10/10/22 14:06	10/10/22 17:11
BKG06@4'	2210141-18	Soil	10/10/22 14:09	10/10/22 17:11
BKG06@6'	2210141-19	Soil	10/10/22 14:11	10/10/22 17:11
BKG06@7'	2210141-20	Soil	10/10/22 14:15	10/10/22 17:11

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

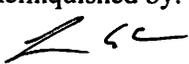
S₂

2210141.1

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

Client: PDC / Tasman	Project Manager: Mark Longhurst
Address: 6855 W 119th Ave	E-Mail: mark.longhurst@PDCE.com
City/State/Zip: Broomfield/ CO/ 80020	
Phone: 303-487-1228	Project Name: Eckhardt 43-34 wellhead
Sampler Name: Sam Anderson	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	PAHs		Metals
1	BK602e 2.5'	10/10/22	1026	1			X			X										pH, EC, SAR by saturated paste
2	BK602e 4'		1023																	
3	BK602e 6'		1026																	
4	BK602e 7'		1029																	
5	BK603e 2.5'		1249																	
6	BK603e 4'		1251																	
7	BK603e 6'		1254																	
8	BK603e 7'		1257																	
9	BK604e 2.5'		1314																	
10	BK604e 4'		1316																	

Relinquished by: 	Date/Time: 10/10/22 1515	Received by: Tasman's Lock Box	Date/Time: 10/10/22 1515	Turn Around Time (Check)	Notes:
				Same Day <input type="checkbox"/>	72 hours <input type="checkbox"/>
				24 hours <input type="checkbox"/>	Standard <input checked="" type="checkbox"/>
				48 hours <input type="checkbox"/>	
				Sample Integrity:	
				Temperature Upon Receipt: 79	
				Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

Summit Scientific

S₂

2210141.2

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: Exhardt 43-34 wellhead
Sampler Name: Sam Anderson 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	PAHs	Metals	
1	BK604e6'	10/10/22	1319	1			X			X										pH, EC, SAR by saturated paste
2	BK604e7'		1321																	
3	BK605e2.5'		1340																	
4	BK605e4'		1342																	
5	BK605e6'		1345																	
6	BK605e7'		1348																	
7	BK606e2.5'		1406																	
8	BK606e4'		1409																	
9	BK606e6'		1411																	
10	BK606e7'		1415																	

Relinquished by: 	Date/Time: 10/10/22 1555	Received by: Tasman's Lock Box	Date/Time: 10/10/22 1515	Turn Around Time (Check)	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 10/10/22 1711	Received by: 	Date/Time: 10/10/22 1711	Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____	Sample Integrity: 7d Temperature Upon Receipt: 7d Samples Intact: (Yes) No
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

2/2

Sample Receipt Checklist

S2 Work Order# 2201415

Client: Pac/Tasman Client Project ID: Eckhardt 4334 wellhead

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

Matrix (Check all that apply) Air Soil/Solid Water Other

Temp (°C) Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ 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"/>	
If custody seals are present, are they intact? ⁽¹⁾	<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 ²⁺), Hexavalent Chromium (Cr ⁶⁺ , 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? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<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)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ 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):

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


Custodian Printed Name

10-10-22 19:15
Date/Time



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG02@2.5'
2210141-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 10:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.693	0.209	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	39.0	0.417	"	"	"	"	"	"	
Cadmium	ND	0.209	"	"	"	"	"	"	
Copper	3.12	0.417	"	"	"	"	"	"	
Lead	3.71	0.209	"	"	"	"	"	"	
Nickel	3.64	0.417	"	"	"	"	"	"	
Selenium	ND	0.271	"	"	"	"	"	"	
Silver	0.0388	0.0209	"	"	"	"	"	"	
Zinc	12.1	0.417	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 10:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 10:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	95.8		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/19/22 16:26

BKG02@4'
2210141-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 10:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.470	0.206	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	45.0	0.412	"	"	"	"	"	"	
Cadmium	ND	0.206	"	"	"	"	"	"	
Copper	2.77	0.412	"	"	"	"	"	"	
Lead	3.30	0.206	"	"	"	"	"	"	
Nickel	2.97	0.412	"	"	"	"	"	"	
Selenium	ND	0.268	"	"	"	"	"	"	
Silver	0.0255	0.0206	"	"	"	"	"	"	
Zinc	11.1	0.412	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 10:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 10:23**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	97.1		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG02@6'
2210141-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 10:26**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.14	0.212	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	40.8	0.424	"	"	"	"	"	"	
Cadmium	ND	0.212	"	"	"	"	"	"	
Copper	4.20	0.424	"	"	"	"	"	"	
Lead	5.26	0.212	"	"	"	"	"	"	
Nickel	4.17	0.424	"	"	"	"	"	"	
Selenium	0.347	0.276	"	"	"	"	"	"	
Silver	0.0246	0.0212	"	"	"	"	"	"	
Zinc	16.6	0.424	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 10:26**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 10:26**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	94.2		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG02@7'
2210141-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 10:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.39	0.238	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	186	0.475	"	"	"	"	"	"	
Cadmium	ND	0.238	"	"	"	"	"	"	
Copper	10.0	0.475	"	"	"	"	"	"	
Lead	11.2	0.238	"	"	"	"	"	"	
Nickel	8.75	0.475	"	"	"	"	"	"	
Selenium	0.316	0.309	"	"	"	"	"	"	
Silver	0.0328	0.0238	"	"	"	"	"	"	
Zinc	37.9	0.475	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 10:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 10:29**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.2		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG03@2.5'
2210141-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 12:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.787	0.213	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	41.1	0.427	"	"	"	"	"	"	
Cadmium	ND	0.213	"	"	"	"	"	"	
Copper	3.66	0.427	"	"	"	"	"	"	
Lead	4.70	0.213	"	"	"	"	"	"	
Nickel	4.92	0.427	"	"	"	"	"	"	
Selenium	ND	0.277	"	"	"	"	"	"	
Silver	0.0423	0.0213	"	"	"	"	"	"	
Zinc	14.2	0.427	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 12:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 12:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	93.7		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG03@4'
2210141-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 12:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.606	0.207	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	37.7	0.413	"	"	"	"	"	"	
Cadmium	ND	0.207	"	"	"	"	"	"	
Copper	2.61	0.413	"	"	"	"	"	"	
Lead	3.31	0.207	"	"	"	"	"	"	
Nickel	2.93	0.413	"	"	"	"	"	"	
Selenium	ND	0.269	"	"	"	"	"	"	
Silver	0.0227	0.0207	"	"	"	"	"	"	
Zinc	11.3	0.413	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 12:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 12:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	96.8		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG03@6'
2210141-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 12:54**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.84	0.226	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	63.5	0.452	"	"	"	"	"	"	
Cadmium	0.237	0.226	"	"	"	"	"	"	
Copper	6.58	0.452	"	"	"	"	"	"	
Lead	9.28	0.226	"	"	"	"	"	"	
Nickel	7.02	0.452	"	"	"	"	"	"	
Selenium	ND	0.294	"	"	"	"	"	"	
Silver	0.0335	0.0226	"	"	"	"	"	"	
Zinc	25.8	0.452	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 12:54**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 12:54**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.4		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG03@7'
2210141-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 12:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.44	0.239	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	81.6	0.477	"	"	"	"	"	"	
Cadmium	ND	0.239	"	"	"	"	"	"	
Copper	8.83	0.477	"	"	"	"	"	"	
Lead	14.2	0.239	"	"	"	"	"	"	
Nickel	9.94	0.477	"	"	"	"	"	"	
Selenium	ND	0.310	"	"	"	"	"	"	
Silver	0.0386	0.0239	"	"	"	"	"	"	
Zinc	37.6	0.477	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 12:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 12:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.8		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG04@2.5'
2210141-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 13:14**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.585	0.211	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	50.9	0.422	"	"	"	"	"	"	
Cadmium	ND	0.211	"	"	"	"	"	"	
Copper	3.33	0.422	"	"	"	"	"	"	
Lead	3.52	0.211	"	"	"	"	"	"	
Nickel	3.56	0.422	"	"	"	"	"	"	
Selenium	ND	0.274	"	"	"	"	"	"	
Silver	0.0346	0.0211	"	"	"	"	"	"	
Zinc	12.8	0.422	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 13:14**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 13:14**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	94.7		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG04@4'
2210141-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 13:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.795	0.238	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	51.1	0.477	"	"	"	"	"	"	
Cadmium	ND	0.238	"	"	"	"	"	"	
Copper	3.71	0.477	"	"	"	"	"	"	
Lead	3.77	0.238	"	"	"	"	"	"	
Nickel	3.77	0.477	"	"	"	"	"	"	
Selenium	ND	0.310	"	"	"	"	"	"	
Silver	0.0243	0.0238	"	"	"	"	"	"	
Zinc	13.3	0.477	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 13:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 13:16**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.9		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG04@6'
2210141-11 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 13:19**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.07	0.241	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	62.9	0.482	"	"	"	"	"	"	
Cadmium	ND	0.241	"	"	"	"	"	"	
Copper	8.11	0.482	"	"	"	"	"	"	
Lead	11.3	0.241	"	"	"	"	"	"	
Nickel	8.40	0.482	"	"	"	"	"	"	
Selenium	ND	0.313	"	"	"	"	"	"	
Silver	0.0299	0.0241	"	"	"	"	"	"	
Zinc	32.8	0.482	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 13:19**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 13:19**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.0		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG04@7'
2210141-12 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 13:21**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.43	0.239	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	50.5	0.478	"	"	"	"	"	"	
Cadmium	ND	0.239	"	"	"	"	"	"	
Copper	7.38	0.478	"	"	"	"	"	"	
Lead	10.4	0.239	"	"	"	"	"	"	
Nickel	7.70	0.478	"	"	"	"	"	"	
Selenium	ND	0.311	"	"	"	"	"	"	
Silver	0.0287	0.0239	"	"	"	"	"	"	
Zinc	30.8	0.478	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 13:21**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 13:21**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.6		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG05@2.5'
2210141-13 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.572	0.215	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	54.6	0.430	"	"	"	"	"	"	
Cadmium	ND	0.215	"	"	"	"	"	"	
Copper	3.09	0.430	"	"	"	"	"	"	
Lead	3.47	0.215	"	"	"	"	"	"	
Nickel	3.11	0.430	"	"	"	"	"	"	
Selenium	ND	0.280	"	"	"	"	"	"	
Silver	ND	0.0215	"	"	"	"	"	"	
Zinc	12.4	0.430	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 13:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	92.9		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG05@4'
2210141-14 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 13:42**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.02	0.218	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	57.1	0.435	"	"	"	"	"	"	
Cadmium	ND	0.218	"	"	"	"	"	"	
Copper	4.89	0.435	"	"	"	"	"	"	
Lead	6.16	0.218	"	"	"	"	"	"	
Nickel	4.88	0.435	"	"	"	"	"	"	
Selenium	ND	0.283	"	"	"	"	"	"	
Silver	0.0279	0.0218	"	"	"	"	"	"	
Zinc	19.7	0.435	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 13:42**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 13:42**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	91.9		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG05@6'
2210141-15 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 13:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.50	0.236	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	50.5	0.473	"	"	"	"	"	"	"
Cadmium	0.276	0.236	"	"	"	"	"	"	"
Copper	8.02	0.473	"	"	"	"	"	"	"
Lead	12.1	0.236	"	"	"	"	"	"	"
Nickel	9.10	0.473	"	"	"	"	"	"	"
Selenium	0.334	0.307	"	"	"	"	"	"	"
Silver	0.0331	0.0236	"	"	"	"	"	"	"
Zinc	32.3	0.473	"	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 13:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 13:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.6		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG05@7'
2210141-16 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 13:48**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.76	0.236	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	60.7	0.472	"	"	"	"	"	"	
Cadmium	ND	0.236	"	"	"	"	"	"	
Copper	7.95	0.472	"	"	"	"	"	"	
Lead	11.1	0.236	"	"	"	"	"	"	
Nickel	8.08	0.472	"	"	"	"	"	"	
Selenium	ND	0.307	"	"	"	"	"	"	
Silver	0.0316	0.0236	"	"	"	"	"	"	
Zinc	34.2	0.472	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 13:48**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 13:48**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.7		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG06@2.5'
2210141-17 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 14:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.73	0.233	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	44.7	0.466	"	"	"	"	"	"	
Cadmium	ND	0.233	"	"	"	"	"	"	
Copper	7.62	0.466	"	"	"	"	"	"	
Lead	11.6	0.233	"	"	"	"	"	"	
Nickel	8.41	0.466	"	"	"	"	"	"	
Selenium	0.322	0.303	"	"	"	"	"	"	
Silver	0.0317	0.0233	"	"	"	"	"	"	
Zinc	35.6	0.466	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 14:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 14:06**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	85.9		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/19/22 16:26

BKG06@4'
2210141-18 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 14:09**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.89	0.232	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	70.1	0.463	"	"	"	"	"	"	
Cadmium	ND	0.232	"	"	"	"	"	"	
Copper	5.40	0.463	"	"	"	"	"	"	
Lead	7.78	0.232	"	"	"	"	"	"	
Nickel	6.37	0.463	"	"	"	"	"	"	
Selenium	ND	0.301	"	"	"	"	"	"	
Silver	0.0315	0.0232	"	"	"	"	"	"	
Zinc	25.1	0.463	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 14:09**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 14:09**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	86.3		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG06@6'
2210141-19 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 14:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.73	0.248	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	50.9	0.495	"	"	"	"	"	"	
Cadmium	ND	0.248	"	"	"	"	"	"	
Copper	7.57	0.495	"	"	"	"	"	"	
Lead	12.6	0.248	"	"	"	"	"	"	
Nickel	9.10	0.495	"	"	"	"	"	"	
Selenium	ND	0.322	"	"	"	"	"	"	
Silver	0.0307	0.0248	"	"	"	"	"	"	
Zinc	36.8	0.495	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 14:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 14:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	80.8		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

BKG06@7'
2210141-20 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/10/22 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.37	0.244	mg/kg dry	1	BFJ0322	10/13/22	10/13/22	EPA 6020B	
Barium	64.7	0.488	"	"	"	"	"	"	
Cadmium	ND	0.244	"	"	"	"	"	"	
Copper	7.28	0.488	"	"	"	"	"	"	
Lead	11.4	0.244	"	"	"	"	"	"	
Nickel	8.66	0.488	"	"	"	"	"	"	
Selenium	ND	0.317	"	"	"	"	"	"	
Silver	0.0351	0.0244	"	"	"	"	"	"	
Zinc	34.2	0.488	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/10/22 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BFJ0418	10/17/22	10/19/22	EPA 7196A	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/10/22 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	82.0		%	1	BFJ0326	10/13/22	10/14/22	Calculation	

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

Total Metals by EPA 6020B - Quality Control

Summit Scientific

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

Batch BFJ0322 - EPA 3050B

Blank (BFJ0322-BLK1)

Prepared & Analyzed: 10/13/22

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

LCS (BFJ0322-BS1)

Prepared & Analyzed: 10/13/22

Arsenic	40.6	0.200	mg/kg wet	40.0	101	80-120
Barium	37.9	0.400	"	40.0	94.7	80-120
Cadmium	1.91	0.200	"	2.00	95.3	80-120
Copper	42.9	0.400	"	40.0	107	80-120
Lead	18.7	0.200	"	20.0	93.7	80-120
Nickel	40.7	0.400	"	40.0	102	80-120
Selenium	4.35	0.260	"	4.00	109	80-120
Silver	1.95	0.0200	"	2.00	97.7	80-120
Zinc	41.2	0.400	"	40.0	103	80-120

Duplicate (BFJ0322-DUP1)

Source: 2210141-01

Prepared & Analyzed: 10/13/22

Arsenic	0.686	0.209	mg/kg dry	0.693	1.03	20
Barium	38.8	0.417	"	39.0	0.445	20
Cadmium	0.0918	0.209	"	0.0927	0.905	20
Copper	3.14	0.417	"	3.12	0.719	20
Lead	3.74	0.209	"	3.71	0.886	20
Nickel	3.60	0.417	"	3.64	1.06	20
Selenium	ND	0.271	"	ND		20
Silver	0.0384	0.0209	"	0.0388	1.08	20
Zinc	12.1	0.417	"	12.1	0.166	20

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/19/22 16:26

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BFJ0322 - EPA 3050B

Matrix Spike (BFJ0322-MS1)	Source: 2210141-01			Prepared & Analyzed: 10/13/22								
Arsenic	15.2	0.209	mg/kg dry	41.7	0.693	34.6	75-125					QM-05
Barium	71.1	0.417	"	41.7	39.0	76.8	75-125					
Cadmium	1.86	0.209	"	2.09	0.0927	84.6	75-125					
Copper	34.5	0.417	"	41.7	3.12	75.3	75-125					
Lead	21.2	0.209	"	20.9	3.71	83.9	75-125					
Nickel	33.7	0.417	"	41.7	3.64	72.1	75-125					QM-05
Selenium	4.65	0.271	"	4.17	ND	111	75-125					
Silver	1.81	0.0209	"	2.09	0.0388	84.9	75-125					
Zinc	42.5	0.417	"	41.7	12.1	72.9	75-125					QM-05

Matrix Spike Dup (BFJ0322-MSD1)	Source: 2210141-01			Prepared & Analyzed: 10/13/22								
Arsenic	15.1	0.209	mg/kg dry	41.7	0.693	34.6	75-125	0.251	25			QM-05
Barium	72.3	0.417	"	41.7	39.0	79.7	75-125	1.73	25			
Cadmium	1.91	0.209	"	2.09	0.0927	87.1	75-125	2.75	25			
Copper	34.5	0.417	"	41.7	3.12	75.1	75-125	0.218	25			
Lead	22.0	0.209	"	20.9	3.71	87.5	75-125	3.39	25			
Nickel	33.5	0.417	"	41.7	3.64	71.6	75-125	0.555	25			QM-05
Selenium	4.09	0.271	"	4.17	ND	98.0	75-125	12.7	25			
Silver	1.85	0.0209	"	2.09	0.0388	86.8	75-125	2.12	25			
Zinc	42.3	0.417	"	41.7	12.1	72.4	75-125	0.554	25			QM-05

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/19/22 16:26

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BFJ0418 - 3060A Mod

Blank (BFJ0418-BLK1)

Prepared: 10/17/22 Analyzed: 10/19/22

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BFJ0418-BS1)

Prepared: 10/17/22 Analyzed: 10/19/22

Chromium, Hexavalent 24.1 0.30 mg/kg wet 25.0 96.4 80-120

Duplicate (BFJ0418-DUP1)

Source: 2210141-01

Prepared: 10/17/22 Analyzed: 10/19/22

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BFJ0418-MS1)

Source: 2210141-01

Prepared: 10/17/22 Analyzed: 10/19/22

Chromium, Hexavalent 33.0 0.30 mg/kg dry 26.1 ND 127 75-125 QM-05

Matrix Spike Dup (BFJ0418-MSD1)

Source: 2210141-01

Prepared: 10/17/22 Analyzed: 10/19/22

Chromium, Hexavalent 37.3 0.30 mg/kg dry 26.1 ND 143 75-125 12.0 20 QM-05

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/19/22 16:26

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

Summit Scientific

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

Batch BFJ0326 - General Preparation

Duplicate (BFJ0326-DUP1)	Source: 2210141-01		Prepared: 10/13/22 Analyzed: 10/14/22	
% Solids	95.9	%	95.8	0.0567 20

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/19/22 16:26

Notes and Definitions

- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
- 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 31, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Eckhardt 43-34 Wellhead

Work Order #2210400

Enclosed are the results of analyses for samples received by Summit Scientific on 10/21/22 17:15. 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: Eckhardt 43-34 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
10/31/22 12:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2210400-01	Water	10/21/22 14:22	10/21/22 17:15
BH02	2210400-02	Water	10/21/22 14:25	10/21/22 17:15
BH04	2210400-03	Water	10/21/22 14:27	10/21/22 17:15
BH05	2210400-04	Water	10/21/22 14:30	10/21/22 17:15

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.

S₂

S2 Work Order# 2210400

Sample Receipt Checklist

Client: Pactasman Client Project ID: Eckhardt 43-34 wellhead

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

Matrix (Check all that apply) Air Soil/Solid Water Other

Temp (°C) 12.6 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ 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>on ICE</u>
If custody seals are present, are they intact? ⁽¹⁾	<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 ²⁺), Hexavalent Chromium (Cr ⁶⁺ , 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? ⁽¹⁾	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<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) ? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ 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):

2

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

[Signature]
Custodian Printed Name

10-21-22
Date/Time



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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/31/22 12:07

BH01
2210400-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/22 14:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFJ0690	10/25/22	10/26/22	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: **10/21/22 14:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		84.2 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.2 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **10/21/22 14:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	917	12.0		mg/L	200	BFJ0770	10/27/22	10/27/22	EPA 300.0	
Sulfate	1170	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **10/21/22 14:22**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2840	10.0		mg/L	1	BFJ0671	10/25/22	10/25/22	SM2540C	

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/31/22 12:07

BH02
2210400-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/22 14:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFJ0690	10/25/22	10/26/22	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: **10/21/22 14:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		83.3 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		81.3 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **10/21/22 14:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	762	12.0		mg/L	200	BFJ0770	10/27/22	10/27/22	EPA 300.0	
Sulfate	1100	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **10/21/22 14:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2520	10.0		mg/L	1	BFJ0671	10/25/22	10/25/22	SM2540C	

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/31/22 12:07

BH04
2210400-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFJ0690	10/25/22	10/26/22	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: **10/21/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		80.3 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.9 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		85.2 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **10/21/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	1130	12.0		mg/L	200	BFJ0770	10/27/22	10/27/22	EPA 300.0	
Sulfate	1870	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **10/21/22 14:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	3360	10.0		mg/L	1	BFJ0671	10/25/22	10/25/22	SM2540C	

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/31/22 12:07

BH05
2210400-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/21/22 14:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFJ0690	10/25/22	10/26/22	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: **10/21/22 14:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		86.8 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		85.7 %		21-167		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **10/21/22 14:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	833	12.0		mg/L	200	BFJ0770	10/27/22	10/27/22	EPA 300.0	
Sulfate	1330	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **10/21/22 14:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	2760	10.0		mg/L	1	BFJ0671	10/25/22	10/25/22	SM2540C	

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/31/22 12:07

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BFJ0690 - EPA 5030 Water MS

Blank (BFJ0690-BLK1)

Prepared: 10/25/22 Analyzed: 10/26/22

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	13.0		"	13.3		97.7	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	21-167			

LCS (BFJ0690-BS1)

Prepared: 10/25/22 Analyzed: 10/26/22

Benzene	44.6	1.0	ug/l	50.0		89.2	51-132			
Toluene	56.8	1.0	"	50.0		114	51-138			
Ethylbenzene	52.9	1.0	"	50.0		106	58-146			
m,p-Xylene	106	2.0	"	100		106	57-144			
o-Xylene	50.9	1.0	"	50.0		102	53-146			
Naphthalene	51.2	1.0	"	50.0		102	70-130			
1,2,4-Trimethylbenzene	52.4	1.0	"	50.0		105	70-130			
1,3,5-Trimethylbenzene	52.8	1.0	"	50.0		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.8		"	13.3		111	23-173			
Surrogate: Toluene-d8	18.8		"	13.3		141	20-170			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		100	21-167			

Matrix Spike (BFJ0690-MS1)

Source: 2210354-01

Prepared: 10/25/22 Analyzed: 10/26/22

Benzene	44.7	1.0	ug/l	50.0	ND	89.5	34-141			
Toluene	53.0	1.0	"	50.0	ND	106	27-151			
Ethylbenzene	54.5	1.0	"	50.0	ND	109	29-160			
m,p-Xylene	110	2.0	"	100	ND	110	20-166			
o-Xylene	52.1	1.0	"	50.0	ND	104	33-159			
Naphthalene	48.3	1.0	"	50.0	ND	96.6	70-130			
1,2,4-Trimethylbenzene	56.8	1.0	"	50.0	ND	114	70-130			
1,3,5-Trimethylbenzene	56.8	1.0	"	50.0	ND	114	70-130			
Surrogate: 1,2-Dichloroethane-d4	11.4		"	13.3		85.5	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3		97.1	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: Eckhardt 43-34 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/31/22 12:07

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BFJ0690 - EPA 5030 Water MS

Matrix Spike Dup (BFJ0690-MSD1)

Source: 2210354-01

Prepared: 10/25/22 Analyzed: 10/26/22

Benzene	43.5	1.0	ug/l	50.0	ND	87.1	34-141	2.72	30	
Toluene	57.4	1.0	"	50.0	ND	115	27-151	8.08	30	
Ethylbenzene	57.3	1.0	"	50.0	ND	115	29-160	5.08	30	
m,p-Xylene	115	2.0	"	100	ND	115	20-166	4.55	30	
o-Xylene	53.7	1.0	"	50.0	ND	107	33-159	3.02	30	
Naphthalene	51.9	1.0	"	50.0	ND	104	70-130	7.28	30	
1,2,4-Trimethylbenzene	57.0	1.0	"	50.0	ND	114	70-130	0.316	30	
1,3,5-Trimethylbenzene	57.2	1.0	"	50.0	ND	114	70-130	0.684	30	
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		100	23-173			
Surrogate: Toluene-d8	14.2		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.9	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: Eckhardt 43-34 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/31/22 12:07

Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

Batch BFJ0770 - General Preparation

Blank (BFJ0770-BLK1)

Prepared & Analyzed: 10/27/22

Chloride	ND	0.0600	mg/L							
Sulfate	ND	0.300	"							

LCS (BFJ0770-BS1)

Prepared & Analyzed: 10/27/22

Chloride	3.08	0.0600	mg/L	3.00	103	90-110				
Sulfate	15.1	0.300	"	15.0	101	90-110				

Duplicate (BFJ0770-DUP1)

Source: 2210400-01

Prepared & Analyzed: 10/27/22

Chloride	910	12.0	mg/L		917		0.767	20		
Sulfate	1200	60.0	"		1170		2.85	20		

Matrix Spike (BFJ0770-MS1)

Source: 2210400-01

Prepared & Analyzed: 10/27/22

Chloride	1450	12.0	mg/L	600	917	88.5	80-120			
Sulfate	4060	60.0	"	3000	1170	96.4	80-120			

Summit Scientific

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

Project: Eckhardt 43-34 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 10/31/22 12:07

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 BFJ0671 - General Preparation

Blank (BFJ0671-BLK1)

Prepared & Analyzed: 10/25/22

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BFJ0671-DUP1)

Source: 2210400-01

Prepared & Analyzed: 10/25/22

Total Dissolved Solids 2890 10.0 mg/L 2840 2.02 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: Eckhardt 43-34 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/31/22 12:07

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: BH01	SITE NAME: Eckhardt 43-34 WH	CLIENT NAME: PDC ENERGY
Date Completed: 10/10/22	Location: Source	
Drilling Company: Tasman	Surface Completion: Flush Mount	DTW: 8' TD: 11'
Type of Drill: Direct Push	Geologist: Sam Anderson	Project Manager: B.Nelson
Bit Size: 2 3/8"	Logging Method:	
Well Const. Material: Diameter: 1" Screen: Sch 40 PVC Slotted 0.010 Riser: Sch 40 PVC Blank		

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description	
1				0.0		SC	0-3' = brown, clayey sand; well sorted, fine grain moist, no HC odor	
2				0.0				
3				0.0				
4				100%	0.1		SC	3-6' = Brown, clayey sand, moderate sorting, fine to coarse grain, moist, no odor/staining.
5				0.0				
6				0.1				
7				0.2			CL	6-8' = brown, sandy clay, moderate plasticity, fine - medium grain, moderate sorting, moist, no odor/staining.
8				100%	0.2			
9				DPT	0.1		CH	8-11' = Brown tan, clay, high plasticity, saturated, no odor or staining.
10				100%	0.1			
11				0.0				
12							well constructed with 10 ft. screen, sand to 1 ft. bys. Hydrated bentonite to surface.	
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								



Borehole Logging Form

BOREHOLE ID: BH02	SITE NAME: Eckhardt 43-34 WH	CLIENT NAME: PDC ENERGY
Date Completed: 10/10/20	Location: North of Soule	
Drilling Company: Tasman	Surface Completion: Flush Mount	DTW: 8' TD: 11'
Type of Drill: Direct Push	Geologist: Sam Anderson	Project Manager: B.Nelson
Bit Size: 2 3/8"	Logging Method:	

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1		↑	↑	0.1		SC	0-3' = brown, clayey sand, well sorted, fine grain, moist, no odor/staining
2		↑	↑	0.2			
3		NA	100%	0.2			
4		↑	↑	0.2		CL	3-5' = Tan, sandy clay, well sorted, fine grain, moderate elasticity, moist, no odor/staining
5		↑	↑	0.1			
6		↓	↓	0.0		CL	5-6' = Brown, clay, moderate elasticity, moist, no HC odor/stain.
7		↑	↑	0.3		CL	6-11' = Brown/Tan, clay, high elasticity, moist, no odor/staining, saturated at 8'
8		↓	↓	100%	0.4		
9		↑	↑	0.2			
10		DPT	100%	0.2			
11		↓	↓	0.0			11' = same as above, refusal.
12							
13							
14						Well constructed with IDH screen, sand to 1ft above, hydraulic backwash to surface.	
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



TASMAN

Borehole Logging Form

BOREHOLE ID: BH03 SITE NAME: Eckhardt 43-34 WH CLIENT NAME: PDC ENERGY

Date Completed: 10/10/20 Location: West of Source

Drilling Company: Tasman Surface Completion: Flush mount DTW: 8' TD: 9.5'

Type of Drill: DPT / HA Geologist: San Andreson Project Manager: B.Nelson

Bit Size: 2 3/8" Logging Method:

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description	
1	[Blank]	↑	↑	0.3		SC	0-6' = brown, sandy clay, moderate plasticity, fine grains, moist, no odor or staining.	
2				0.2				
3		HA		100%	0.0			
4					0.0			
5					0.1			
6			✗	✗	0.1			5' = Same as above, tan color drags
7				100%	0.2		CL	6-9.5 = brown/tan, clay, high plasticity, moist, no odor/staining. Screened at 8'
8		DPT		✗	0.0			
9				50%	0.0			
10			↓	↓				9.5' = (refill) - Same as above.
11								
12							Wells constructed with 10 FT screen, sand to 1 ft bgs. Hydrated bentonite to ground surface.	
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								



TASMAN

Borehole Logging Form

BOREHOLE ID: BH04	SITE NAME: ELKHART 43-34 W 14	CLIENT NAME: PDC ENERGY
Date Completed: 10/10/22	Location: South of Source	
Drilling Company: Tasman	Surface Completion: Flush Mount	DTW: 9' TD: 11'
Type of Drill: Direct Push	Geologist: Sam Anderson	Project Manager: B.Nelson
Bit Size: 2 3/8"	Logging Method:	

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1		↑	↑	0.1		SC	0-2' = brown, clayey sand, poorly sorted, fine-medium grain, moist, no HC odor/staining
2				0.3			
3		HA	100%	0.0		CL	2-6' = tan, sandy clay, moderate plasticity, well-sorted, fine grain, moist, no HC odor/staining
4				0.2			
5				0.2			
6		↓	↓	0.1			
7		↑	↑	0.3		SC	6-7' = brown, clayey sand, well sorted, fine grain, moist, no odor/staining
8			100%	0.3		CH	7-11' = brown/tan, clay, high plasticity, moist, no odor/staining. Saturated at 8'
9				0.1			
10		DPT	100%	0.0			
11		↓	↓	0.0			11' = same as above, refer to log.
12							
13							Wells constructed with 10 feet of screen sand to 1 ft bgs. Hydrated bentonite to surface.
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



TASMAN

Borehole Logging Form

BOREHOLE ID: BH05	SITE NAME: Eckhardt 43-34 WH	CLIENT NAME: PDC ENERGY
Date Completed: 10/10/20	Location: East of Socolle	
Drilling Company: Tasman	Surface Completion: Flush Mount	DTW: 8' TD: 11'
Type of Drill: Direct Push	Geologist: Sam Anderson	Project Manager: B. Nelson
Bit Size: 2 3/8"	Logging Method:	

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description	
1		↑	↑	0.2		SC	0-4' = Brown, clayey sand, well sorted, fine grain, moist, no HC odor/staining	
2				0.1				
3		HA	100%	0.2				
4				0.2				
5				0.0			CL	4-5' = Brown, sandy clay, well sorted, fine grain, moderate plasticity, moist, no HC odor
6				0.0			CL	5-6' = Brown, clay, moderate plasticity, moist, no odor/staining
7				0.1			CL	6-10' = Brown/gray, clay, moderate plasticity, moist, no HC odor. Organic staining. Saturated off.
8				0.3				
9				0.0				
10				0.1				
11				0.1			CH	10-11' = Tan/brown, clay, high plasticity, saturated, no odor. Refusal.
12								
13								
14							Wells completed with 10 ft screen, sand 1 ft above with hydraulic fracture to surface.	
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								



TASMAN

Borehole Logging Form

BOREHOLE ID: BK602	SITE NAME: Edhardt 43-34 WH	CLIENT NAME: PDC ENERGY
Date Completed: 10/10/22	Location: NW of Soupp	
Drilling Company: Tasman	Surface Completion: NA	DTW: NA TD: 7'
Type of Drill: KANDAMBER	Geologist: Sam Anderson	Project Manager: B. Nelson
Bit Size: 2 3/8"	Logging Method:	

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description		
1	X	↑	↑	0.2		SC	0-4' = Tan/brown, clayey sand, well sorted Fine grain, moist, no odor.		
2				0.4	BK602C2.5				
3					1020				
4				NA	100%	0.3	BK602C4'		
5						0.2	1023	CL	4-6' = Tan, sandy clay, well sorted, moderate plasticity, moist, no odor.
6						0.3	BK602C6'		
7					↓	↓	0.3	BK602C7'	CL
8							*Gumbo/ker not encountered		
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									



TASMAN

Borehole Logging Form

BOREHOLE ID: BK603	SITE NAME: Eckhardt 43-34 WH	CLIENT NAME: PDC ENERGY
Date Completed: 10/30/77	Location: SW of source	
Drilling Company: Tasman	Surface Completion: NA	DTW: NA TD: 7'
Type of Drill: Hand Auger	Geologist: Sam Anderson	Project Manager: B. Nelson
Bit Size: 2 3/8"	Logging Method:	

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description	
1	↑ NA ↓	↑ 100% ↓	↑ 100% ↓	0.2		SP	0-1' = Tan/brown, sand, well sorted, fine grain, dry, no HC odor.	
2				0.0	BK603 2.5'	SC	1-5' = Brown, clayey sand, well sorted, fine grain, moist, no odor.	
3					1249			
4					0.0	BK603 4'		
5					0.1	1251		
6					0.0	BK603 6'	CL	5-6' = Tan, sandy clay, well sorted, moderate plasticity, moist, no odor.
7					0.1	BK603 7'	CL	6-7' = Tan/Brown, clay, moderate elasticity, moist, no odor/staining.
8	X						↳ Sandstone not encountered	
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								



TASMAN

Borehole Logging Form

BOREHOLE ID: BK604	SITE NAME: Fckhndt 4g-34 wit	CLIENT NAME: PDC ENERGY
Date Completed: 10/6/22	Location: South of well	
Drilling Company: Tasman	Surface Completion: NA	DTW: NA TD: 7'
Type of Drill: Hand Auger	Geologist: Sam Anderson	Project Manager: B.Nelson
Bit Size: 2 3/8"	Logging Method:	

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description		
1	NA	↑	100%	0.2		SP	0-1': Brown, sand, well sorted, fine grain, dry, no H ₂ O odor/staining.		
2				0.1	BK604 2.5'	SC	1-5': Brown clayey sand, well sorted, fine grain, moist, no H ₂ O odor.		
3				1314					
4				0.1	BK604 4'				
5				1316					
6				0.1	BK604 6'			CL	5-7': Tan/brown, clay, moderate plasticity, moist, no H ₂ O odor or staining.
7				0.2	1319				
		0.0			BK604 7'				
8	X						*Groundwater not encountered		
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									



Borehole Logging Form

BOREHOLE ID: BK605	SITE NAME: Eckhardt 49-34 WH	CLIENT NAME: PDC ENERGY
Date Completed: 10/10/22	Location: SW of Exowatten	
Drilling Company: Tasman	Surface Completion: NA	DTW: NA TD: 7'
Type of Drill: Hand Auger	Geologist: Sam Anderson	Project Manager: B. Nelson
Bit Size: 2 3/8"	Logging Method:	

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description			
1	HA	↑	↑	0.0		SP	0-1' = Brown, sand, well sorted, fine grain, dry, no H ₂ O odor/staining			
2				0.1	BK605E2.5' 1340	SC	1-4' = Brown, clayey sand, well sorted, fine grain, moist, no odor or staining			
3										
4							0.0	BK605E4' 1342	CL	4-5' = Tan, sandy clay, well sorted, moderate plasticity, moist, organic odor/staining.
5							0.1	BK605E6' 1346	CL	5-7' = Brown/tan, clay, moderate plasticity, moist, no H ₂ O odor.
6							0.1	BK605E7' 1348		
7							0.0	BK605E7' 1348		
8	X						* GW not encountered			
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										



Borehole Logging Form

BOREHOLE ID: BK606	SITE NAME: Eckhardt 43-34 WH	CLIENT NAME: PDC ENERGY
Date Completed: 10/10/22	Location: East of Source	
Drilling Company: Tasman	Surface: NA	DTW: NA TD: 7'
Type of Drill: Hand Auger	Geologist: Sam Anderson	Project Manager: B. Nelson
Bit Size: 2 3/8"	Logging Method:	

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

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description		
1	X	↑	↑	0.2		SP	0-1' = Brown, Sand, well sorted, fine grain, clay, no odor or staining		
2							SC	1-3' = Brown/Tan, clayey sand, well sorted, fine grain, moist, no H2O odor	
3						0.0	BK606 2.5' 1406		
4				1A	100%	0.1	BK606 4' 1409	CL	3-7' = Tan/Brown, clay, moderate plasticity, moist, no odor or staining.
5						0.1			
6						0.0	BK606 6' 1411		
7					↓	↓	0.0	BK606 7' 1415	
8							#Groundwater not encountered		
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									