

Attachment A

Soil Documents



DATE:	January 18, 2022
DESIGNED BY:	C. Hamlin
DRAWN BY:	B. Goldade

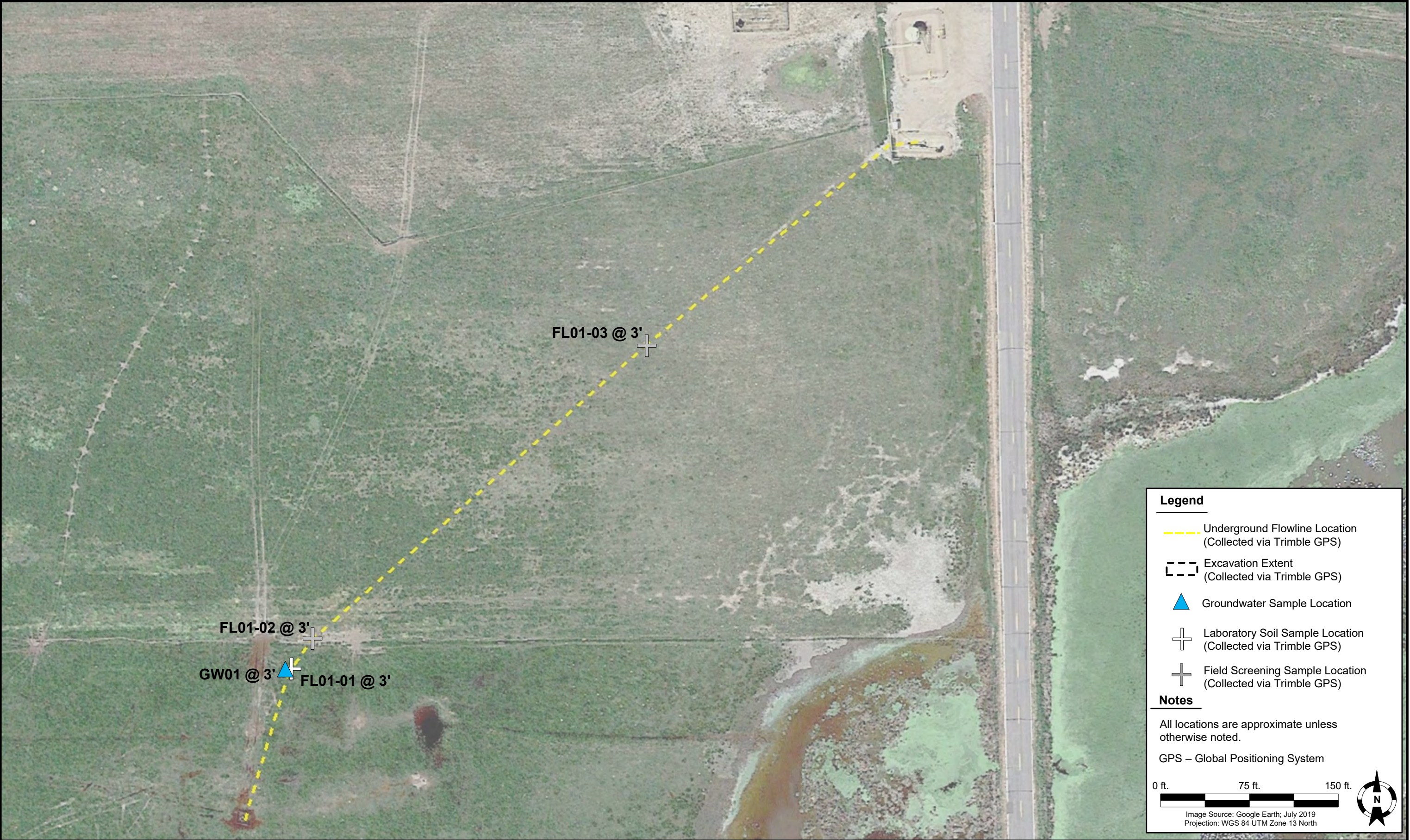
**TASMAN**


Tasman, Inc.
6855 W. 119th Ave.
Broomfield, CO 80020

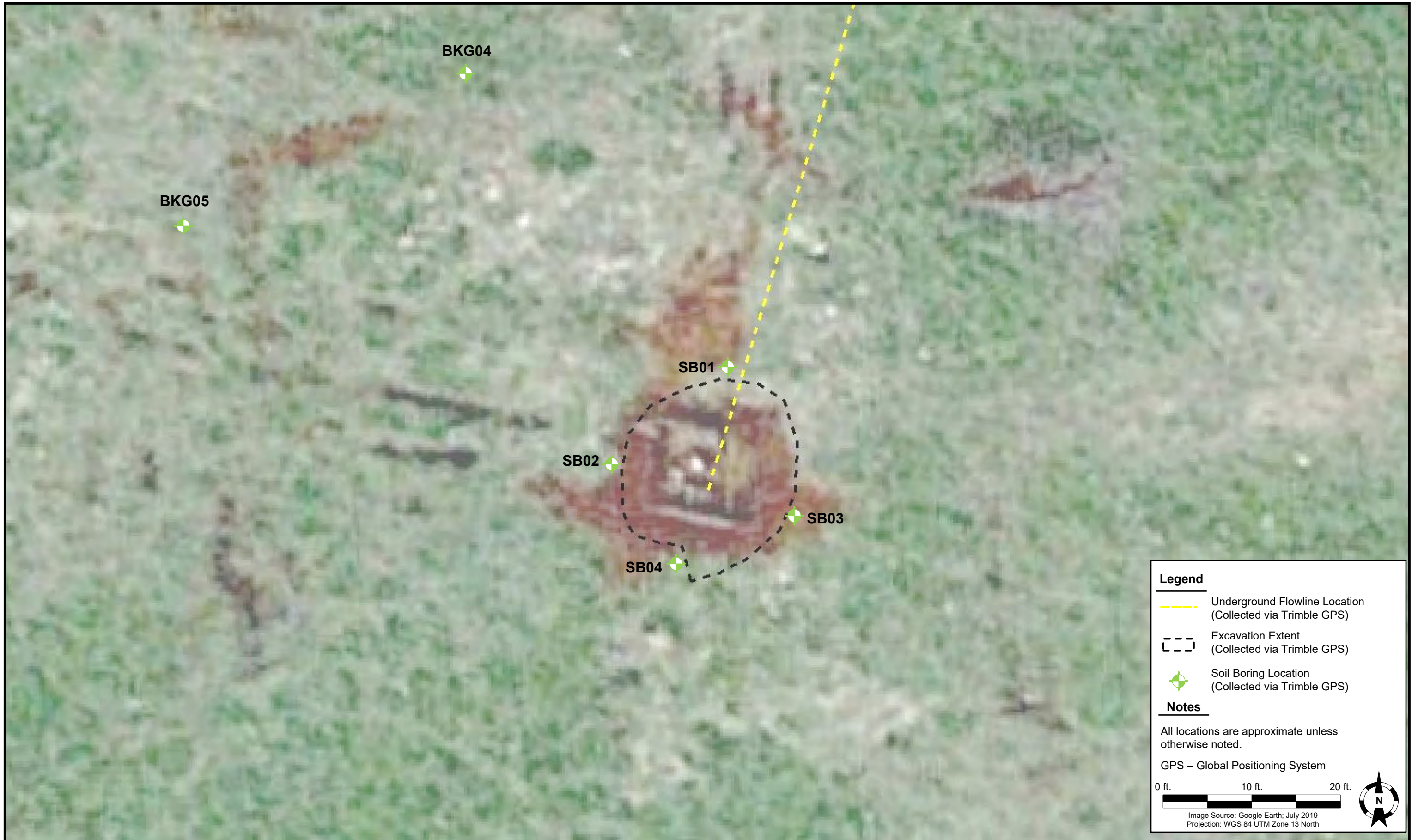
PDC Energy, Inc. – DJ Basin
Loloff 35-5 Wellhead
NENE, Section 35, Township 5 North, Range 64 West
Weld County, Colorado

EXCAVATION SITE MAP

FIGURE
1



DATE: October 14, 2021	 TASMAN Tasman, Inc. 6855 W. 119 th Ave. Broomfield, CO 80020	PDC Energy, Inc. – DJ Basin Loloff 35-5 Wellhead NENE, Section 35, Township 5 North, Range 64 West Weld County, Colorado	SOIL SAMPLE LOCATION MAP (FLOWLINE)	FIGURE 2
DESIGNED BY: C. Hamlin				
DRAWN BY: D. Brightwell				




DATE: November 16, 2022	 Tasman, Inc. 6855 W. 119 th Ave. Broomfield, CO 80020	PDC Energy, Inc. – DJ Basin Former Loloff 35-5 Wellhead NENE, Section 35, Township 5 North, Range 64 West Weld County, Colorado	SOIL BORING LOCATION MAP	FIGURE 3
DESIGNED BY: C. Hamlin				
DRAWN BY: S. Anderson				

TABLE 1
FORMER LOLOFF 35-5 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)	pH (units)	SAR (units)	Arsenic ⁽⁵⁾ (mg/kg)	Lead (mg/kg)
Residential SSL ^(1,2)			1.2	490	5.8	58	30	27	2	500	-	-	0.68	400
Soil Suitability for Reclamation Standard ⁽¹⁾			-	-	-	-	-	-	-	-	6-8.3	<6	-	-
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
FL01-01 @ 3'	10/14/2021	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA	NA	NA
SS01 @ 2'	10/14/2021	2 ft. bgs	0.28	<0.0050	4.8	47	15	10	0.10	4,180	8.33	9.10	2.48	130
SS02 @ 5'	10/14/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	8.44	3.69	0.790	2.83
SS03 @ 4'	10/14/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	8.50	4.43	0.833	3.16
SS04 @ 2.5'	10/14/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	8.57	6.16	1.64	3.10
SS05 @ 4'	10/14/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	8.42	4.80	1.31	2.63
SS06 @ 2.5'	10/14/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	8.41	5.52	2.72	4.15
SS07 @ 4'	10/14/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	8.40	6.86	2.79	4.19
SS08 @ 2.5'	10/14/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	8.29	6.38	1.80	4.74
SS09 @ 4'	10/14/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	420	8.63	6.78	0.787	3.03
SS10 @ 2.5'	10/14/2021	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	7.85	6.79	2.25	34.3
BH01 @ 11'	6/9/2022	11 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.08	NA	NA	NA
BH02 @ 2.5'	3/23/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.95	4.83	1.72	5.02
BH02 @ 4'	3/23/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.06	5.11	1.21	3.90
BH03 @ 2.5'	3/23/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.97	3.66	1.06	4.93
BH03 @ 4'	3/23/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.99	4.25	1.53	4.17
BH04 @ 2.5'	3/23/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.92	3.76	2.17	6.99
BH04 @ 4'	3/23/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.12	5.55	1.53	3.36
BH05 @ 2.5'	3/23/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.92	3.52	4.03	8.48
BH05 @ 4'	3/23/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.11	4.52	1.13	3.56
SB01 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.46	NA	NA
SB01 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.46	NA	NA
SB02 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.55	NA	NA	NA
SB02 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.31	NA	NA	NA
SB03 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.40	4.09	0.670	NA
SB03 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.25	4.73	0.552	NA
SB04 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.45	NA	NA	NA
SB04 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.59	NA	NA	NA
BKG01 @ 2.5'	10/15/2021	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.14	5.58	1.82	5.31
BKG01 @ 4'	10/15/2021	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.05	4.61	0.640	2.69
BKG01 @ 5'	10/15/2021	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.03	4.06	0.975	3.26
BKG02 @ 2.5'	11/30/2021	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.11	4.56	1.16	3.95
BKG02 @ 4'	11/30/2021	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.86	4.83	0.939	3.26
BKG02 @ 5'	11/30/2021	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.97	4.59	1.38	4.04
BKG03 @ 2.5'	11/30/2021	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.28	2.90	1.81	4.91
BKG03 @ 4'	11/30/2021	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.97	3.45	1.65	2.98
BKG03 @ 5'	11/30/2021	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.99	4.83	0.997	3.01
BKG04 @ 2.5'	11/2/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.77	4.16	1.03	9.09
BKG04 @ 4'	11/2/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.33	5.20	1.23	4.40
BKG04 @ 5'	11/2/2022	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.64	4.37	0.446	3.47
BKG04 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.55	3.83	0.692	2.65
BKG04 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.58	3.48	0.597	3.33
BKG05 @ 2.5'	11/2/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.34	3.59	0.916	7.19
BKG05 @ 4'	11/2/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.47	6.36	0.679	3.90
BKG05 @ 5'	11/2/2022	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.57	3.76	0.691	3.07
BKG05 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.30	3.79	0.774	3.56
BKG05 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.54	3.10	0.627	3.03

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 (SS10 - 2.25 mg/kg) recorded within the unsaturated interval (2.5 ft. bgs), aside from SS06 and BH05 is within 1.25x background concentrations recorded in background soil borings BKG01 and BKG03 (2.5 ft. bgs) The highest arsenic concentration (BH04 and BH05 - 1.53 mg/kg) recorded within the saturated interval (4 ft. bgs), aside from SS07, is below the background concentration recorded in background soil boring BKG03 (4 ft. bgs) and within 1.25x the background concentration recorded in background soil boring BKG02 (5 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 extactable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

TMB = Trimethylbenzene

SAR = Sodium adsorption ratio

= Source material characterization sample

NA = Constituent not analyzed

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 below or within 1.25x background concentration.

TABLE 2
FORMER LOLOFF 35-5 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Soil Suitability for Reclamation Standard ⁽¹⁾			6-8.3	<4	<6	2
SS01 @ 2'	10/15/2021	2 ft. bgs	8.33	2.54	9.10	0.707
BKG01 @ 2.5'	10/15/2021	2.5 ft. bgs	8.14	NA	5.58	NA
BKG01 @ 4'	10/15/2021	4 ft. bgs	8.05	NA	4.61	NA
BKG01 @ 5'	10/15/2021	5 ft. bgs	8.03	NA	4.06	NA
BKG02 @ 2.5'	11/30/2021	2.5 ft. bgs	8.11	NA	4.56	NA
BKG02 @ 4'	11/30/2021	4 ft. bgs	7.86	NA	4.83	NA
BKG02 @ 5'	11/30/2021	5 ft. bgs	7.97	NA	4.59	NA
BKG03 @ 2.5'	11/30/2021	2.5 ft. bgs	8.28	NA	2.90	NA
BKG03 @ 4'	11/30/2021	4 ft. bgs	7.97	NA	3.45	NA
BKG03 @ 5'	11/30/2021	5 ft. bgs	7.99	NA	4.83	NA

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

NA = Constituent not analyzed

ft. = Feet

bgs = Below ground surface

 = Source material characterization sample

BOLD = Analytical result is in exceedance of applicable standard.

TABLE 3
FORMER LOLOFF 35-5 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
SS01 @ 2'	10/14/2021	2 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

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
COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
PAHs = Polycyclic aromatic hydrocarbons
Benz(a) = Benzanthracene
Benzo(a) = Benzopyrene
Benzo(b) = Benzofluoranthene
Benzo(k) = Benzofluoranthene
A,H = Dibenzoanthracene
1,2,3-CD = Indenopyrene
M = Methylnaphthalene
mg/kg = Milligrams per kilogram
= Source material characterization sample
ft. = Feet
bgs = Below ground surface

TABLE 4
FORMER LOLOFF 35-5 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 @ 2'	10/15/2021	2 ft. bgs	2.48	51.8	0.266	<0.30	19.6	130	4.73	0.610	0.164	97.4
BKG01 @ 2.5'	10/15/2021	2.5 ft. bgs	1.82	94.7	<0.236	<0.30	5.91	5.31	7.71	0.833	0.0485	23.2
BKG01 @ 4'	10/15/2021	4 ft. bgs	0.640	27.9	<0.237	<0.30	2.32	2.69	2.50	0.457	<0.0237	11.1
BKG01 @ 5'	10/15/2021	5 ft. bgs	0.975	33.8	<0.235	<0.30	2.98	3.26	3.03	0.613	<0.0235	13.1
BKG02 @ 2.5'	11/30/2021	2.5 ft. bgs	1.16	NA	NA	NA	NA	3.95	NA	NA	NA	NA
BKG02 @ 4'	11/30/2021	4 ft. bgs	0.939	NA	NA	NA	NA	3.26	NA	NA	NA	NA
BKG02 @ 5'	11/30/2021	5 ft. bgs	1.38	NA	NA	NA	NA	4.04	NA	NA	NA	NA
BKG03 @ 2.5'	11/30/2021	2.5 ft. bgs	1.81	NA	NA	NA	NA	4.91	NA	NA	NA	NA
BKG03 @ 4'	11/30/2021	4 ft. bgs	1.65	NA	NA	NA	NA	2.98	NA	NA	NA	NA
BKG03 @ 5'	11/30/2021	5 ft. bgs	0.997	NA	NA	NA	NA	3.01	NA	NA	NA	NA

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.
- Background soil sample submitted as representative native material for this location and the adjacent Greenberg Federal 4-23 Tank Battery.

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

NA = Constituent not analyzed

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 5
FORMER LOLOFF 35-5 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	10/14/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3	NA
GW02	10/14/2021	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3	NA

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 6
FORMER LOLOFF 35-5 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
FL01-01 @ 3'	10/14/2021	3 ft. bgs	40.361485	-104.509586	1.2	0.2
FL01-02 @ 3'	10/14/2021	3 ft. bgs	40.361558	-104.509513	1.2	0.0
FL01-03 @ 3'	10/14/2021	3 ft. bgs	40.362229	-104.508509	1.7	0.0
SS01 @ 2'	10/14/2021	2 ft. bgs	40.361127	-104.509731	1.2	803
SS02 @ 5'	10/14/2021	5 ft. bgs	NC	NC	NC	0.3
SS03 @ 4'	10/14/2021	4 ft. bgs	40.361109	-104.509741	1.3	0.0
SS04 @ 2.5'	10/14/2021	2.5 ft. bgs	40.361109	-104.509741	1.3	0.1
SS05 @ 4'	10/14/2021	4 ft. bgs	40.361135	-104.509759	1.3	0.3
SS06 @ 2.5'	10/14/2021	2.5 ft. bgs	40.361135	-104.509759	1.3	0.2
SS07 @ 4'	10/14/2021	4 ft. bgs	40.361144	-104.509696	1.3	3.1
SS08 @ 2.5'	10/14/2021	2.5 ft. bgs	40.361144	-104.509696	1.3	0.5
SS09 @ 4'	10/14/2021	4 ft. bgs	40.361156	-104.509732	1.3	125
SS10 @ 2.5'	10/14/2021	2.5 ft. bgs	40.361156	-104.509732	1.3	0.5
BKG01 @ 2.5'	10/15/2021	2.5 ft. bgs	40.361145	-104.509956	1.3	0.1
BKG01 @ 4'	10/15/2021	4 ft. bgs	40.361145	-104.509956	1.3	0.0
BKG01 @ 5'	10/15/2021	5 ft. bgs	40.361145	-104.509956	1.3	0.2
BKG02 @ 2.5'	11/30/2021	2.5 ft. bgs	40.361150	-104.509550	1.1	4.1
BKG02 @ 4'	11/30/2021	4 ft. bgs	40.361150	-104.509550	1.1	6.3
BKG02 @ 5'	11/30/2021	5 ft. bgs	40.361150	-104.509550	1.1	7.7
BKG03 @ 2.5'	11/30/2021	2.5 ft. bgs	40.361001	-104.509744	1.6	3.3
BKG03 @ 4'	11/30/2021	4 ft. bgs	40.361001	-104.509744	1.6	6.3
BKG03 @ 5'	11/30/2021	5 ft. bgs	40.361001	-104.509744	1.6	7.5
BH01	6/9/2022	12 ft. bgs	40.361136	-104.509734	NC	0.8
BH02	3/23/2022	6 ft. bgs	40.361204	-104.509718	NC	0.0
BH03	3/23/2022	7 ft. bgs	40.361133	-104.509635	NC	0.0
BH04	3/23/2022	7 ft. bgs	40.361070	-104.509728	NC	0.0
BH05	3/23/2022	7 ft. bgs	40.361128	-104.509801	NC	0.0
SB01 @ 6'	11/2/2022	6 ft. bgs	40.361175	-104.509720	NC	0.1
SB01 @ 8'	11/2/2022	8 ft. bgs	40.361175	-104.509720	NC	0.0
SB02 @ 6'	11/2/2022	6 ft. bgs	40.361149	-104.509766	NC	0.2
SB02 @ 8'	11/2/2022	8 ft. bgs	40.361149	-104.509766	NC	0.3
SB03 @ 6'	11/2/2022	6 ft. bgs	40.361130	-104.509690	NC	0.3
SB03 @ 8'	11/2/2022	8 ft. bgs	40.361130	-104.509690	NC	0.2
SB04 @ 6'	11/2/2022	6 ft. bgs	40.361113	-104.509740	NC	0.2
SB04 @ 8'	11/2/2022	8 ft. bgs	40.361113	-104.509740	NC	0.1
BKG04 @ 2.5'	11/2/2022	2.5 ft. bgs	40.361264	-104.509826	NC	0.1
BKG04 @ 4'	11/2/2022	4 ft. bgs	40.361264	-104.509826	NC	0.1
BKG04 @ 5'	11/2/2022	5 ft. bgs	40.361264	-104.509826	NC	0.1
BKG04 @ 6'	11/2/2022	6 ft. bgs	40.361264	-104.509826	NC	0.2
BKG04 @ 8'	11/2/2022	8 ft. bgs	40.361264	-104.509826	NC	0.1
BKG05 @ 2.5'	11/2/2022	2.5 ft. bgs	40.361223	-104.509938	NC	0.0

TABLE 6
FORMER LOLOFF 35-5 WELLHEAD
FIELD DATA SUMMARY TABLE

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾ Latitude / Longitude		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
BKG05 @ 4'	11/2/2022	4 ft. bgs	40.361223	-104.509938	NC	0.1
BKG05 @ 5'	11/2/2022	5 ft. bgs	40.361223	-104.509938	NC	0.1
BKG05 @ 6'	11/2/2022	6 ft. bgs	40.361223	-104.509938	NC	0.1
BKG05 @ 8'	11/2/2022	8 ft. bgs	40.361223	-104.509938	NC	0.1

Notes:

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

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

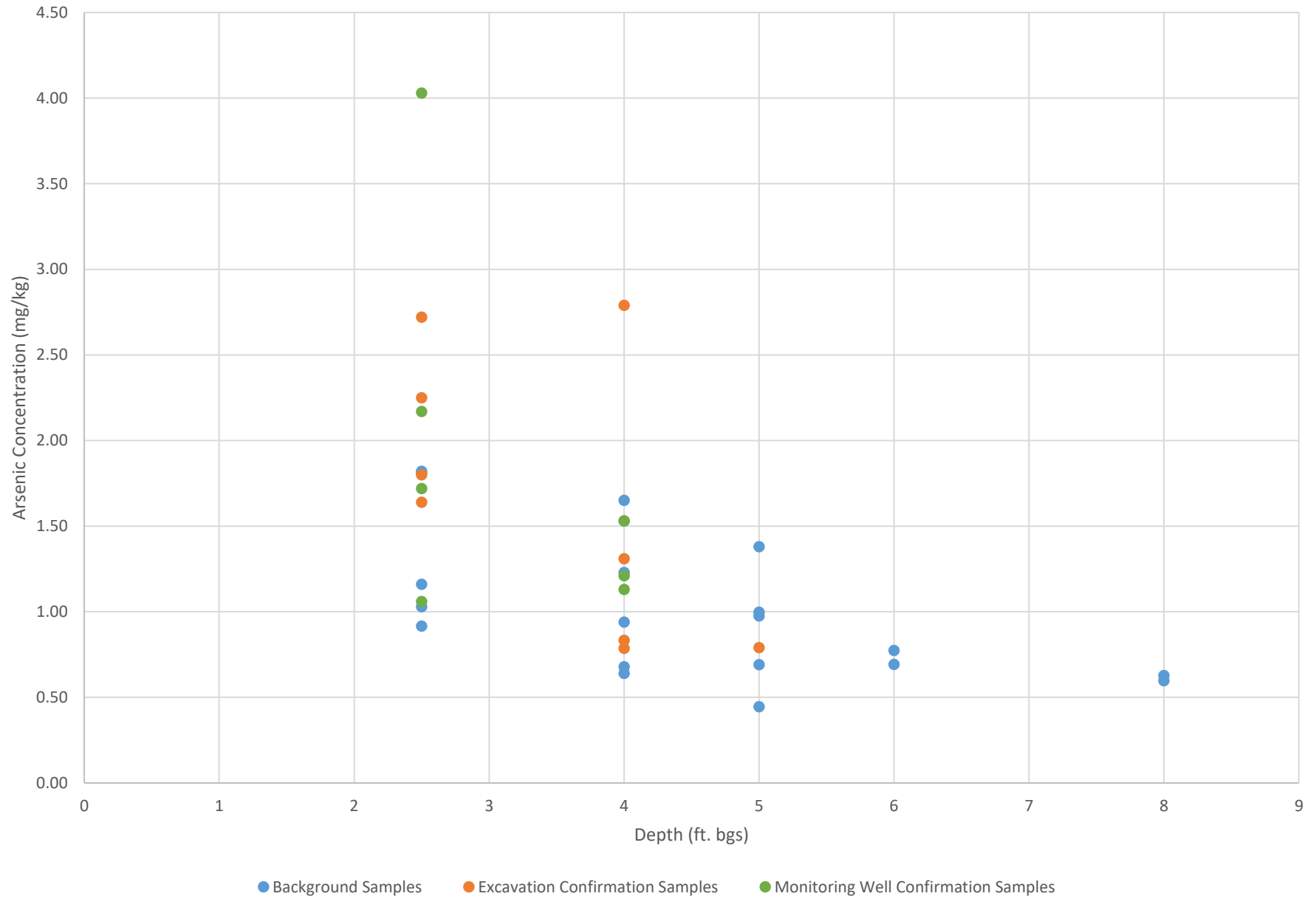
ft. = Feet

bgs = Below ground surface

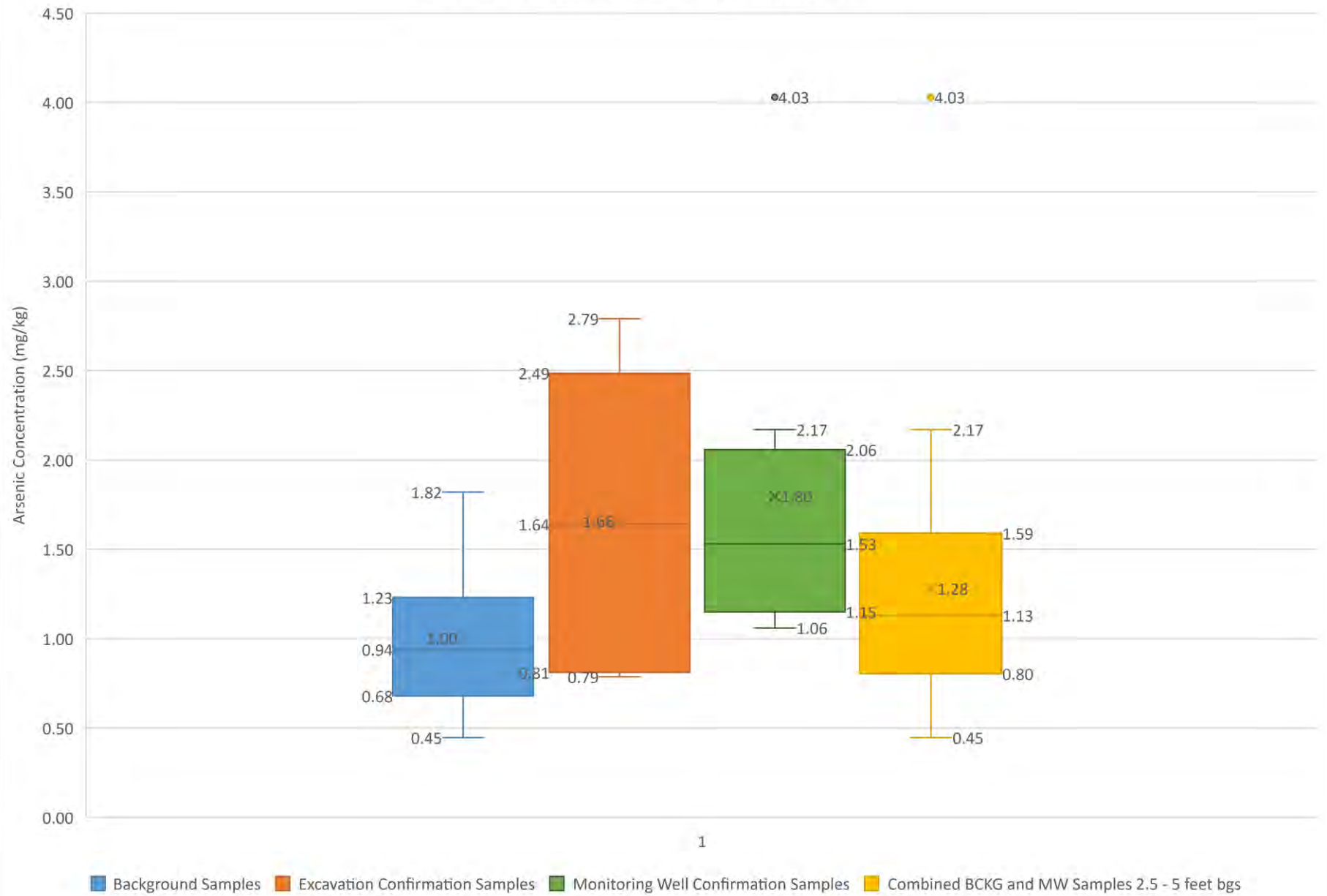
 = Source material characterization sample, transported off site for disposal.

NC = Data not collected

Arsenic Concentration vs Depth



Arsenic Concentration Statistical Evaluation



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 16, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

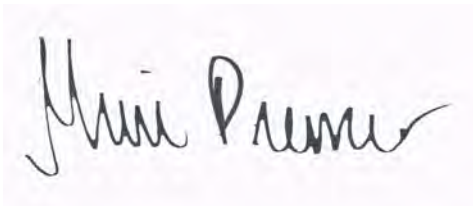
Denver, CO 80203

RE: Loloff 35-5 Wellhead

Work Order #2110232

Enclosed are the results of analyses for samples received by Summit Scientific on 10/14/21 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Muri Premier", is shown on a light pink background.

Muri Premier For Paul Shrewsbury
President



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

Project: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@2'	2110232-01	Soil	10/14/21 11:11	10/14/21 17:00
SS02@5'	2110232-02	Soil	10/14/21 13:20	10/14/21 17:00
SS03@4'	2110232-03	Soil	10/14/21 14:20	10/14/21 17:00
SS04@2.5'	2110232-04	Soil	10/14/21 14:22	10/14/21 17:00
SS05@4'	2110232-05	Soil	10/14/21 14:25	10/14/21 17:00
SS06@2.5'	2110232-06	Soil	10/14/21 14:20	10/14/21 17:00
SS07@4'	2110232-07	Soil	10/14/21 14:30	10/14/21 17:00
SS08@2.5'	2110232-08	Soil	10/14/21 14:32	10/14/21 17:00
SS09@4'	2110232-09	Soil	10/14/21 14:34	10/14/21 17:00
SS10@2.5'	2110232-10	Soil	10/14/21 14:36	10/14/21 17:00

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

2110232

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 21 ^{DB}

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: Loloff 35-5 wellhead

Sampler Name: Dylan Brightwell

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	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	SS01 @ 2'	10/14/21	11:11	3			X			X				X	X	X	X	X	X	X	
2	SS02 @ 5'		13:20											X	X	X					
3	SS03 @ 4'		14:20											X	X	X					
4	SS04 @ 2.5'		14:22											X	X	X					
5	SS05 @ 4'		14:25											X	X	X					
6	SS06 @ 2.5'		14:26											X	X	X					
7	SS07 @ 4'		14:30											X	X	X					
8	SS08 @ 2.5'		14:32											X	X	X					
9	SS09 @ 4'		14:34											X	X	X					
10	SS010 @ 2.5'		14:36											X	X	X					

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
Dylan Brightwell	10/14/21 17:00	Tasman's Lock Box	10/14/21 17:00	Same Day	<input checked="" type="checkbox"/> 72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	<input type="checkbox"/> Standard	
Tasman's Lock Box			10/14/21 17:00	48 hours	<input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
				Temperature Upon Receipt: 7.1		
				Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

S₂

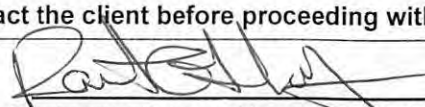
Sample Receipt Checklist

S2 Work Order# 2110 232Client: Pbc/Tasman Client Project ID: Wloff 35-5 wellheadShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other ☒ Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)Temp (°C) 7.1

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°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"/>	on ICE
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"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Same day
Is a chain-of-custody (COC) form present and filled out completely ⁽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"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽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 or Initials

10-14-21
 Date/Time



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS01@2'
2110232-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/14/21 11:11									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.28	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	4.8	0.050	"	10	"	"	"	"	
Xylenes (total)	47	0.10	"	"	"	"	"	"	E
1,2,4-Trimethylbenzene	15	0.050	"	"	"	"	"	"	E
1,3,5-Trimethylbenzene	10	0.050	"	"	"	"	"	"	E
Naphthalene	0.10	0.0038	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	1500	5.0	"	10	"	"	"	"	E

Date Sampled: 10/14/21 11:11									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		164 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		307 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 10/14/21 11:11									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1900	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	D-09
C28-C36 (ORO)	780	50	"	"	"	"	"	"	

Date Sampled: 10/14/21 11:11									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		71.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS01@2'
2110232-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEJ0274	10/15/21	10/17/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		84.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		81.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.707	0.0100	mg/L	1	BEJ0331	10/18/21	10/20/21	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS01@2'
2110232-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Arsenic	2.48	0.234	mg/kg dry	1	BEJ0277	10/15/21	10/19/21	EPA 6020B
Barium	51.8	0.468	"	"	"	"	"	"
Cadmium	0.266	0.234	"	"	"	"	"	"
Copper	19.6	0.468	"	"	"	"	"	"
Lead	130	0.234	"	"	"	"	"	"
Nickel	4.73	0.468	"	"	"	"	"	"
Selenium	0.610	0.304	"	"	"	"	"	"
Silver	0.164	0.0234	"	"	"	"	"	"
Zinc	97.4	0.468	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEJ0353	10/19/21	10/22/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	37.2	0.0585	mg/L dry	1	BEJ0294	10/18/21	10/20/21	EPA 6020B	
Magnesium	61.1	0.0585	"	"	"	"	"	"	
Sodium	388	0.0585	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	9.10	0.00100	units	1	BEJ0381	10/20/21	10/20/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS01@2'
2110232-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	85.4	%	1	BEJ0276	10/15/21	10/15/21	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.54	0.0100	mmhos/cm	1	BEJ0348	10/19/21	10/19/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.33		pH Units	1	BEJ0349	10/19/21	10/19/21	EPA 9045D	

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS02@5'
2110232-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		91.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		137 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		80.6 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS02@5'
2110232-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.790	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	2.83	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	143	0.0592	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	63.9	0.0592	"	"	"	"	"	"	
Sodium	211	0.0592	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.69	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.4		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.44		pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS03@4'
2110232-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		144 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		80.7 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS03@4'
2110232-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.833	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	3.16	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	155	0.0604	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	79.3	0.0604	"	"	"	"	"	"	
Sodium	272	0.0604	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.43	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	82.8		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.50		pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS04@2.5'
2110232-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		144 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.7 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS04@2.5'
2110232-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.64	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	3.10	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	136	0.0596	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	88.0	0.0596	"	"	"	"	"	"	
Sodium	375	0.0596	"	"	"	"	"	"	

Calculated Analysis

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	6.16	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.9		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.57		pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS05@4'
2110232-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		132 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		83.2 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS05@4'
2110232-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.31	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	2.63	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	193	0.0623	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	93.6	0.0623	"	"	"	"	"	"	
Sodium	325	0.0623	"	"	"	"	"	"	

Calculated Analysis

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.80	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	80.3		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.42		pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS06@2.5'
2110232-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		139 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		79.6 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS06@2.5'
2110232-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.72	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	4.15	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	151	0.0605	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	101	0.0605	"	"	"	"	"	"	
Sodium	357	0.0605	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.52	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	82.7		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/14/21 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.41		pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS07@4'
2110232-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		123 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		146 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

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

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		67.2 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS07@4'
2110232-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.79	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	4.19	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	276	0.0630	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	150	0.0630	"	"	"	"	"	"	
Sodium	570	0.0630	"	"	"	"	"	"	

Calculated Analysis

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	6.86	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	79.4		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.21	0.0100	mmhos/cm	1	BEK0320	11/15/21	11/15/21	EPA 120.1	I-04

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS07@4'
2110232-07 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.40			pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS08@2.5'
2110232-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		140 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		75.9 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS08@2.5'
2110232-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.80	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	4.74	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	97.9	0.0566	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	61.5	0.0566	"	"	"	"	"	"	
Sodium	327	0.0566	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	6.38	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.4		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/14/21 14:32**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.29		pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS09@4'
2110232-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	420	5.0	"	10	"	"	"	"	

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		72.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		116 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		283 %	21-167		"	"	"	"	S-02

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		75.7 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS09@4'
2110232-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.787	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	3.03	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	349	0.0643	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	219	0.0643	"	"	"	"	"	"	
Sodium	656	0.0643	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	6.78	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	77.8		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/14/21 14:34**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.63		pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS10@2.5'
2110232-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		145 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BEJ0272	10/14/21	10/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		74.0 %	30-150		"	"	"	"	

Total Metals by EPA 6020B

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

SS10@2.5'
2110232-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.25	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
Lead	34.3	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	431	0.0583	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
Magnesium	202	0.0583	"	"	"	"	"	"	
Sodium	682	0.0583	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	6.79	0.00100	units	1	BEK0257	11/11/21	11/11/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	85.8		%	1	BEK0167	11/08/21	11/08/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/14/21 14:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.85		pH Units	1	BEK0319	11/15/21	11/15/21	EPA 9045D	I-04

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

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 BEJ0273 - EPA 5030 Soil MS

Blank (BEJ0273-BLK1)

Prepared: 10/14/21 Analyzed: 10/15/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0375		"	0.0400		93.8	23-173			
Surrogate: Toluene-d8	0.0380		"	0.0400		95.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	21-167			

LCS (BEJ0273-BS1)

Prepared: 10/14/21 Analyzed: 10/15/21

Benzene	0.104	0.0020	mg/kg	0.100		104	70-130			
Toluene	0.0916	0.0050	"	0.100		91.6	70-130			
Ethylbenzene	0.108	0.0050	"	0.100		108	70-130			
m,p-Xylene	0.207	0.010	"	0.200		103	70-130			
o-Xylene	0.127	0.0050	"	0.100		127	70-130			
1,2,4-Trimethylbenzene	0.129	0.0050	"	0.100		129	70-130			
1,3,5-Trimethylbenzene	0.127	0.0050	"	0.100		127	70-130			
Naphthalene	0.107	0.0038	"	0.100		107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0381		"	0.0400		95.2	23-173			
Surrogate: Toluene-d8	0.0381		"	0.0400		95.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.6	21-167			

Matrix Spike (BEJ0273-MS1)

Source: 2110222-01

Prepared: 10/14/21 Analyzed: 10/15/21

Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130			
Toluene	0.119	0.0050	"	0.100	ND	119	70-130			
Ethylbenzene	0.124	0.0050	"	0.100	ND	124	70-130			
m,p-Xylene	0.239	0.010	"	0.200	ND	120	70-130			
o-Xylene	0.114	0.0050	"	0.100	ND	114	70-130			
1,2,4-Trimethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130			
1,3,5-Trimethylbenzene	0.114	0.0050	"	0.100	ND	114	70-130			
Naphthalene	0.104	0.0038	"	0.100	ND	104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0397		"	0.0400		99.3	23-173			
Surrogate: Toluene-d8	0.0410		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.7	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

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 BEJ0273 - EPA 5030 Soil MS

Matrix Spike Dup (BEJ0273-MSD1)		Source: 2110222-01			Prepared: 10/14/21 Analyzed: 10/15/21					
Benzene	0.108	0.0020	mg/kg	0.100	ND	108	70-130	5.60	30	
Toluene	0.126	0.0050	"	0.100	ND	126	70-130	5.19	30	
Ethylbenzene	0.102	0.0050	"	0.100	ND	102	70-130	19.2	30	
m,p-Xylene	0.255	0.010	"	0.200	ND	127	70-130	6.38	30	
o-Xylene	0.119	0.0050	"	0.100	ND	119	70-130	4.59	30	
1,2,4-Trimethylbenzene	0.124	0.0050	"	0.100	ND	124	70-130	5.33	30	
1,3,5-Trimethylbenzene	0.120	0.0050	"	0.100	ND	120	70-130	5.35	30	
Naphthalene	0.110	0.0038	"	0.100	ND	110	70-130	6.12	30	
<hr/>										
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0410		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.3	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEJ0272 - EPA 3550A

Blank (BEJ0272-BLK1)

Prepared: 10/14/21 Analyzed: 10/15/21

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

LCS (BEJ0272-BS1)

Prepared: 10/14/21 Analyzed: 10/15/21

C10-C28 (DRO)	505	50	mg/kg	500	101	70-130
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Matrix Spike (BEJ0272-MS1)

Source: 2110222-01

Prepared: 10/14/21 Analyzed: 10/15/21

C10-C28 (DRO)	483	50	mg/kg	500	39.9	88.6	70-130
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Matrix Spike Dup (BEJ0272-MSD1)

Source: 2110222-01

Prepared: 10/14/21 Analyzed: 10/15/21

C10-C28 (DRO)	515	50	mg/kg	500	39.9	95.1	70-130	6.47	20
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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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEJ0274 - EPA 5030 Soil MS

Blank (BEJ0274-BLK1)

Prepared: 10/15/21 Analyzed: 10/16/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0361		"	0.0333		108	40-150			
Surrogate: Fluoranthene-d10	0.0342		"	0.0333		103	40-150			

LCS (BEJ0274-BS1)

Prepared: 10/15/21 Analyzed: 10/17/21

Acenaphthene	0.0306	0.00500	mg/kg	0.0333	91.8	31-137
Anthracene	0.0293	0.00500	"	0.0333	88.0	30-120
Benzo (a) anthracene	0.0296	0.00500	"	0.0333	88.8	30-120
Benzo (a) pyrene	0.0205	0.00500	"	0.0333	61.4	30-120
Benzo (b) fluoranthene	0.0203	0.00500	"	0.0333	60.9	30-120
Benzo (k) fluoranthene	0.0239	0.00500	"	0.0333	71.6	30-120
Chrysene	0.0286	0.00500	"	0.0333	85.9	30-120
Dibenz (a,h) anthracene	0.0239	0.00500	"	0.0333	71.7	30-120
Fluoranthene	0.0267	0.00500	"	0.0333	80.1	30-120
Fluorene	0.0306	0.00500	"	0.0333	91.9	30-120
Indeno (1,2,3-cd) pyrene	0.0171	0.00500	"	0.0333	51.4	30-120
Pyrene	0.0263	0.00500	"	0.0333	78.8	35-142
1-Methylnaphthalene	0.0318	0.00500	"	0.0333	95.3	35-142
2-Methylnaphthalene	0.0309	0.00500	"	0.0333	92.8	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0321		"	0.0333	96.2	40-150
Surrogate: Fluoranthene-d10	0.0316		"	0.0333	94.7	40-150

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEJ0274 - EPA 5030 Soil MS

Matrix Spike (BEJ0274-MS1)

Source: 2110179-01

Prepared: 10/15/21 Analyzed: 10/17/21

Acenaphthene	0.0217	0.00500	mg/kg	0.0333	ND	65.2	31-137		
Anthracene	0.0209	0.00500	"	0.0333	ND	62.7	30-120		
Benzo (a) anthracene	0.0217	0.00500	"	0.0333	ND	65.0	30-120		
Benzo (a) pyrene	0.0299	0.00500	"	0.0333	ND	89.7	30-120		
Benzo (b) fluoranthene	0.0375	0.00500	"	0.0333	ND	113	30-120		
Benzo (k) fluoranthene	0.0362	0.00500	"	0.0333	ND	109	30-120		
Chrysene	0.0218	0.00500	"	0.0333	0.00188	59.9	30-120		
Dibenz (a,h) anthracene	0.0144	0.00500	"	0.0333	ND	43.3	30-120		
Fluoranthene	0.0218	0.00500	"	0.0333	0.00236	58.2	30-120		
Fluorene	0.0225	0.00500	"	0.0333	ND	67.4	30-120		
Indeno (1,2,3-cd) pyrene	0.0110	0.00500	"	0.0333	ND	32.9	30-120		
Pyrene	0.0215	0.00500	"	0.0333	0.00243	57.2	35-142		
1-Methylnaphthalene	0.0222	0.00500	"	0.0333	ND	66.5	15-130		
2-Methylnaphthalene	0.0225	0.00500	"	0.0333	ND	67.5	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0212		"	0.0333		63.7	40-150		
Surrogate: Fluoranthene-d10	0.0233		"	0.0333		69.8	40-150		

Matrix Spike Dup (BEJ0274-MSD1)

Source: 2110179-01

Prepared: 10/15/21 Analyzed: 10/17/21

Acenaphthene	0.0243	0.00500	mg/kg	0.0333	ND	73.0	31-137	11.2	30
Anthracene	0.0243	0.00500	"	0.0333	ND	72.8	30-120	14.9	30
Benzo (a) anthracene	0.0251	0.00500	"	0.0333	ND	75.3	30-120	14.7	30
Benzo (a) pyrene	0.0350	0.00500	"	0.0333	ND	105	30-120	15.7	30
Benzo (b) fluoranthene	0.0339	0.00500	"	0.0333	ND	102	30-120	10.1	30
Benzo (k) fluoranthene	0.0319	0.00500	"	0.0333	ND	95.7	30-120	12.7	30
Chrysene	0.0251	0.00500	"	0.0333	0.00188	69.7	30-120	13.9	30
Dibenz (a,h) anthracene	0.0179	0.00500	"	0.0333	ND	53.6	30-120	21.2	30
Fluoranthene	0.0247	0.00500	"	0.0333	0.00236	67.2	30-120	12.8	30
Fluorene	0.0248	0.00500	"	0.0333	ND	74.5	30-120	10.1	30
Indeno (1,2,3-cd) pyrene	0.0136	0.00500	"	0.0333	ND	40.9	30-120	21.8	30
Pyrene	0.0255	0.00500	"	0.0333	0.00243	69.2	35-142	17.0	30
1-Methylnaphthalene	0.0264	0.00500	"	0.0333	ND	79.1	15-130	17.3	50
2-Methylnaphthalene	0.0256	0.00500	"	0.0333	ND	76.9	15-130	13.0	50
Surrogate: 2-Methylnaphthalene-d10	0.0265		"	0.0333		79.4	40-150		
Surrogate: Fluoranthene-d10	0.0268		"	0.0333		80.3	40-150		

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

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

Batch BEJ0331 - EPA 3050B

Blank (BEJ0331-BLK1)

Prepared: 10/18/21 Analyzed: 10/20/21

Boron ND 0.0100 mg/L

LCS (BEJ0331-BS1)

Prepared: 10/18/21 Analyzed: 10/20/21

Boron 5.48 0.0100 mg/L 5.00 110 80-120

Duplicate (BEJ0331-DUP1)

Source: 2110217-01

Prepared: 10/18/21 Analyzed: 10/20/21

Boron 0.376 0.0100 mg/L 0.404 7.29 20

Matrix Spike (BEJ0331-MS1)

Source: 2110217-01

Prepared: 10/18/21 Analyzed: 10/20/21

Boron 5.47 0.0100 mg/L 5.00 0.404 101 75-125

Matrix Spike Dup (BEJ0331-MSD1)

Source: 2110217-01

Prepared: 10/18/21 Analyzed: 10/20/21

Boron 5.80 0.0100 mg/L 5.00 0.404 108 75-125 5.93 25

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEJ0277 - EPA 3050B

Blank (BEJ0277-BLK1)

Prepared: 10/15/21 Analyzed: 10/19/21

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 (BEJ0277-BS1)

Prepared: 10/15/21 Analyzed: 10/19/21

Arsenic	45.7	0.200	mg/kg wet	40.0	114	80-120
Barium	42.3	0.400	"	40.0	106	80-120
Cadmium	2.30	0.200	"	2.00	115	80-120
Copper	43.2	0.400	"	40.0	108	80-120
Lead	21.0	0.200	"	20.0	105	80-120
Nickel	42.3	0.400	"	40.0	106	80-120
Selenium	4.21	0.260	"	4.00	105	80-120
Silver	2.08	0.0200	"	2.00	104	80-120
Zinc	45.4	0.400	"	40.0	114	80-120

Duplicate (BEJ0277-DUP1)

Source: 2110200-01

Prepared: 10/15/21 Analyzed: 10/19/21

Arsenic	4.27	0.242	mg/kg dry	4.29	0.404	20
Barium	138	0.484	"	132	4.87	20
Cadmium	0.319	0.242	"	0.349	8.87	20
Copper	11.2	0.484	"	11.3	0.342	20
Lead	9.49	0.242	"	10.7	11.5	20
Nickel	12.6	0.484	"	11.9	5.26	20
Selenium	0.821	0.315	"	0.852	3.73	20
Silver	0.0320	0.0242	"	0.0299	6.97	20
Zinc	54.8	0.484	"	49.7	9.79	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEJ0277 - EPA 3050B

Matrix Spike (BEJ0277-MS1)			Source: 2110200-01		Prepared: 10/15/21 Analyzed: 10/19/21					
Arsenic	58.8	0.242	mg/kg dry	48.4	4.29	113	75-125			
Barium	192	0.484	"	48.4	132	123	75-125			
Cadmium	3.02	0.242	"	2.42	0.349	110	75-125			
Copper	62.1	0.484	"	48.4	11.3	105	75-125			
Lead	33.2	0.242	"	24.2	10.7	93.1	75-125			
Nickel	63.3	0.484	"	48.4	11.9	106	75-125			
Selenium	4.97	0.315	"	4.84	0.852	85.1	75-125			
Silver	2.41	0.0242	"	2.42	0.0299	98.5	75-125			
Zinc	101	0.484	"	48.4	49.7	107	75-125			

Matrix Spike Dup (BEJ0277-MSD1)			Source: 2110200-01		Prepared: 10/15/21 Analyzed: 10/19/21					
Arsenic	61.3	0.242	mg/kg dry	48.4	4.29	118	75-125	4.15	25	
Barium	188	0.484	"	48.4	132	116	75-125	1.95	25	
Cadmium	3.13	0.242	"	2.42	0.349	115	75-125	3.53	25	
Copper	63.3	0.484	"	48.4	11.3	107	75-125	1.86	25	
Lead	33.9	0.242	"	24.2	10.7	96.0	75-125	2.11	25	
Nickel	67.1	0.484	"	48.4	11.9	114	75-125	5.76	25	
Selenium	5.24	0.315	"	4.84	0.852	90.6	75-125	5.21	25	
Silver	2.44	0.0242	"	2.42	0.0299	99.8	75-125	1.27	25	
Zinc	102	0.484	"	48.4	49.7	109	75-125	0.737	25	

Batch BEK0233 - EPA 3050B

Blank (BEK0233-BLK1)			Prepared: 11/10/21 Analyzed: 11/11/21							
Arsenic	ND	0.200	mg/kg wet							
Lead	ND	0.200	"							

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: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEK0233 - EPA 3050B

LCS (BEK0233-BS1)

Prepared: 11/10/21 Analyzed: 11/11/21

Arsenic	44.2	0.200	mg/kg wet	40.0		111	80-120			
Lead	21.6	0.200	"	20.0		108	80-120			

Duplicate (BEK0233-DUP1)

Source: 2110232-02

Prepared: 11/10/21 Analyzed: 11/11/21

Arsenic	1.04	0.200	mg/kg dry		0.790			27.4	20	QR-03
Lead	3.18	0.200	"		2.83			11.6	20	

Matrix Spike (BEK0233-MS1)

Source: 2110232-02

Prepared: 11/10/21 Analyzed: 11/11/21

Arsenic	52.8	0.200	mg/kg dry	47.4	0.790	110	75-125			
Lead	25.4	0.200	"	23.7	2.83	95.3	75-125			

Matrix Spike Dup (BEK0233-MSD1)

Source: 2110232-02

Prepared: 11/10/21 Analyzed: 11/11/21

Arsenic	50.7	0.200	mg/kg dry	47.4	0.790	105	75-125	4.14	25	
Lead	25.2	0.200	"	23.7	2.83	94.3	75-125	0.995	25	

Post Spike (BEK0233-PS1)

Source: 2110232-02

Prepared: 11/10/21 Analyzed: 11/11/21

Arsenic	111		ug/l	100	1.67	109	75-125			
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Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BEJ0353 - 3060A Mod

Blank (BEJ0353-BLK1)

Prepared: 10/19/21 Analyzed: 10/22/21

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BEJ0353-BS1)

Prepared: 10/19/21 Analyzed: 10/22/21

Chromium, Hexavalent 28.6 0.30 mg/kg wet 25.0 114 80-120

Duplicate (BEJ0353-DUP1)

Source: 2110215-01

Prepared: 10/19/21 Analyzed: 10/22/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BEJ0353-MS1)

Source: 2110215-01

Prepared: 10/19/21 Analyzed: 10/22/21

Chromium, Hexavalent 30.4 0.30 mg/kg dry 27.1 ND 112 75-125

Matrix Spike Dup (BEJ0353-MSD1)

Source: 2110215-01

Prepared: 10/19/21 Analyzed: 10/22/21

Chromium, Hexavalent 30.8 0.30 mg/kg dry 27.1 ND 114 75-125 1.24 20

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BEJ0294 - General Preparation

Blank (BEJ0294-BLK1)

Prepared: 10/15/21 Analyzed: 10/19/21

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BEJ0294-BS1)

Prepared: 10/15/21 Analyzed: 10/19/21

Calcium	5.73	0.0500	mg/L wet	5.00	115	70-130
Magnesium	5.21	0.0500	"	5.00	104	70-130
Sodium	6.34	0.0500	"	5.00	127	70-130

Batch BEK0175 - General Preparation

Blank (BEK0175-BLK1)

Prepared: 11/08/21 Analyzed: 11/09/21

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BEK0175-BS1)

Prepared: 11/08/21 Analyzed: 11/09/21

Calcium	5.57	0.0500	mg/L wet	5.00	111	70-130
Magnesium	5.32	0.0500	"	5.00	106	70-130
Sodium	5.29	0.0500	"	5.00	106	70-130

Summit Scientific

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

Project: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

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

Summit Scientific

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

Batch BEJ0276 - General Preparation

Duplicate (BEJ0276-DUP1)		Source: 2110211-02			Prepared & Analyzed: 10/15/21						
% Solids	81.9		%		82.0			0.165		20	

Batch BEK0167 - General Preparation

Duplicate (BEK0167-DUP1)		Source: 2110232-02			Prepared & Analyzed: 11/08/21						
% Solids	84.2		%		84.4			0.247		20	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BEJ0348 - General Preparation

Blank (BEJ0348-BLK1)

Prepared & Analyzed: 10/19/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEJ0348-BS1)

Prepared & Analyzed: 10/19/21

Specific Conductance (EC) 0.150 0.0100 mmhos/cm 0.150 100 95-105

Duplicate (BEJ0348-DUP1)

Source: 2110206-02

Prepared & Analyzed: 10/19/21

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.156 0.956 20

Batch BEK0320 - General Preparation

Blank (BEK0320-BLK1)

Prepared & Analyzed: 11/15/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEK0320-BS1)

Prepared & Analyzed: 11/15/21

Specific Conductance (EC) 0.158 0.0100 mmhos/cm 0.150 105 95-105

Duplicate (BEK0320-DUP1)

Source: 2110232-07

Prepared & Analyzed: 11/15/21

Specific Conductance (EC) 1.23 0.0100 mmhos/cm 1.21 1.15 20

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BEJ0349 - General Preparation

LCS (BEJ0349-BS1)

Prepared & Analyzed: 10/19/21

pH	9.14		pH Units	9.18		99.6	95-105		
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Duplicate (BEJ0349-DUP1)

Source: 2110206-02

Prepared & Analyzed: 10/19/21

pH	8.04		pH Units		7.94			1.25	20
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Batch BEK0319 - General Preparation

LCS (BEK0319-BS1)

Prepared & Analyzed: 11/15/21

pH	9.08		pH Units	9.18		98.9	95-105		
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Duplicate (BEK0319-DUP1)

Source: 2110232-02

Prepared & Analyzed: 11/15/21

pH	8.41		pH Units		8.44			0.356	20
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Summit Scientific

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

Project: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/16/21 11:25

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
I-04	Sample was analyzed out of recommended holding time per clients request.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
D-09	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
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 15, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Loloff 35-5 Wellhead

Work Order #2110233

Enclosed are the results of analyses for samples received by Summit Scientific on 10/14/21 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury

President



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

Project: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
10/15/21 06:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	2110233-01	Water	10/14/21 10:50	10/14/21 17:00
GW02	2110233-02	Water	10/14/21 11:40	10/14/21 17:00

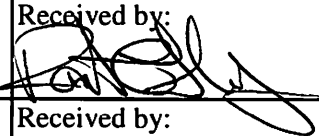
Summit Scientific

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.

2110233

Page | of |

Project Number:

					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)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR																		pH, EC, SAR by saturated paste										
1	Gw01	10/14/21	10:50	3	X				X				X		X																														
2	Gw02	10/14/21	11:40	3	X				X				X		X																														
3																																													
4																																													
5																																													
6																																													
7																																													
8																																													
9																																													
10																																													
Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time		(Check)		Notes:																																	
Dylan Brightwell		10/14/21 17:00		Tasman's Lock Box		10/14/21 17:00		Same Day		X		72 hours																																	
Relinquished by:		Date/Time:		Received by:		Date/Time:		24 hours				Standard																																	
Tasman's Lock Box						10/14/21 17:00		48 hours																																					
Relinquished by:		Date/Time:		Received by:		Date/Time:		Sample Integrity:		Temperature Upon Receipt:																																			
								7.1		Samples Intact:		Yes																																	

S₂

Sample Receipt Checklist

S2 Work Order#

2110233

Client:

Roc/Tasman

Client Project ID:

1010ff 35-5 wellhead

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

Airbill #:

☐ ☒ ☐ ☐ ☐

Matrix (check all that apply):

☐ Air☐ Soil/Solid☒ Water☐ Other:

(Describe)

Temp (°C)

7.1

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°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"/>	on ICE
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"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sameday
Is a chain-of-custody (COC) form present and filled out completely ⁽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"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
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 or Initials

Date/Time

Roc/Tasman

10.14.21



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/15/21 06:35

GW01
2110233-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/14/21 10:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	BEJ0238	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/14/21 10:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		120 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/15/21 06:35

GW02
2110233-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/14/21 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BEJ0238	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/14/21 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		123 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.1 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/15/21 06:35

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 BEJ0238 - EPA 5030 Water MS

Blank (BEJ0238-BLK1)

Prepared: 10/13/21 Analyzed: 10/14/21

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Naphthalene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	16.5		"	13.3		124	23-173			
Surrogate: Toluene-d8	13.8		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	14.2		"	13.3		106	21-167			

LCS (BEJ0238-BS1)

Prepared: 10/13/21 Analyzed: 10/15/21

Benzene	35.4	1.0	ug/l	33.3		106	51-132			
Toluene	41.2	1.0	"	33.3		124	51-138			
Ethylbenzene	43.1	1.0	"	33.3		129	58-146			
m,p-Xylene	82.5	2.0	"	66.7		124	57-144			
o-Xylene	47.6	1.0	"	33.3		143	53-146			
Naphthalene	35.2	1.0	"	33.3		106	70-130			
1,2,4-Trimethylbenzene	34.3	1.0	"	33.3		103	70-130			
1,3,5-Trimethylbenzene	36.1	1.0	"	33.3		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	17.9		"	13.3		134	23-173			
Surrogate: Toluene-d8	14.1		"	13.3		106	20-170			
Surrogate: 4-Bromofluorobenzene	14.2		"	13.3		107	21-167			

Matrix Spike (BEJ0238-MS1)

Source: 2110233-01

Prepared: 10/13/21 Analyzed: 10/15/21

Benzene	38.4	1.0	ug/l	33.3	ND	115	34-141			
Toluene	31.8	1.0	"	33.3	ND	95.4	27-151			
Ethylbenzene	46.2	1.0	"	33.3	ND	139	29-160			
m,p-Xylene	107	2.0	"	66.7	ND	160	20-166			
o-Xylene	52.4	1.0	"	33.3	ND	157	33-159			
Naphthalene	36.7	1.0	"	33.3	ND	110	70-130			
1,2,4-Trimethylbenzene	31.1	1.0	"	33.3	ND	93.3	70-130			
1,3,5-Trimethylbenzene	36.5	1.0	"	33.3	ND	109	70-130			
Surrogate: 1,2-Dichloroethane-d4	17.7		"	13.3		133	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	15.2		"	13.3		114	21-167			

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
10/15/21 06:35

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 BEJ0238 - EPA 5030 Water MS

Matrix Spike Dup (BEJ0238-MSD1)		Source: 2110233-01			Prepared: 10/13/21 Analyzed: 10/15/21					
Benzene	41.6	1.0	ug/l	33.3	ND	125	34-141	8.15	30	
Toluene	38.9	1.0	"	33.3	ND	117	27-151	20.2	30	
Ethylbenzene	43.9	1.0	"	33.3	ND	132	29-160	5.04	30	
m,p-Xylene	98.4	2.0	"	66.7	ND	148	20-166	8.02	30	
o-Xylene	46.8	1.0	"	33.3	ND	140	33-159	11.3	30	
Naphthalene	37.2	1.0	"	33.3	ND	111	70-130	1.25	30	
1,2,4-Trimethylbenzene	36.2	1.0	"	33.3	ND	109	70-130	15.2	30	
1,3,5-Trimethylbenzene	42.4	1.0	"	33.3	ND	127	70-130	15.0	30	
Surrogate: 1,2-Dichloroethane-d4		16.8	"	13.3		126	23-173			
Surrogate: Toluene-d8		13.3	"	13.3		100	20-170			
Surrogate: 4-Bromofluorobenzene		12.8	"	13.3		95.9	21-167			

Summit Scientific

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

Project: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
10/15/21 06:35

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

November 03, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

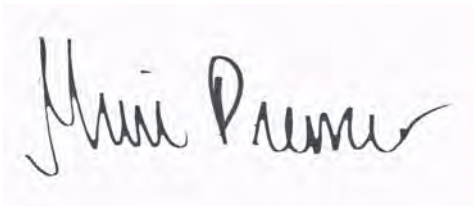
Denver, CO 80203

RE: Loloff 35-5 Wellhead

Work Order #2110262

Enclosed are the results of analyses for samples received by Summit Scientific on 10/15/21 14:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premer", is displayed on a light pink rectangular background.

Muri Premer For Paul Shrewsbury
President



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG01@2.5'	2110262-01	Soil	10/15/21 00:00	10/15/21 14:40
BKG01@4'	2110262-02	Soil	10/15/21 00:00	10/15/21 14:40
BKG01@5'	2110262-03	Soil	10/15/21 00:00	10/15/21 14:40

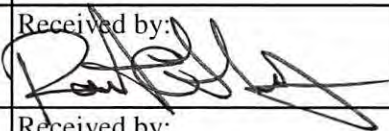
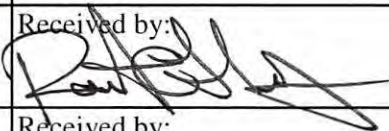
Summit Scientific

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

2110262

Page (of)

Project Number:

					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)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR							pH, EC, SAR by saturated paste	
1	BKGOL @ 2.5'	10/15/21					X			X									X						
2	BKGOL @ 4'	↓					X			X									X						
3	BKGOL @ 5'	↓					X			X									X						
4																									
5																									
6																									
7																									
8																									
9																									
10																									
Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time		(Check)		Notes:													
Dylan Brightwell		10/15/21 14:40		Tasman's Lock Box		10/15/21 14:40		Same Day		72 hours															
Tasman's Lock Box						10/15/21 14:40		24 hours		Standard															
Relinquished by:		Date/Time:		Received by:		Date/Time:		Sample Integrity:																	
Tasman's Lock Box						10/15/21 14:40		Temperature Upon Receipt:		4.1															
Relinquished by:		Date/Time:		Received by:		Date/Time:		Samples Intact:		Yes No															

S₂

2110262

Sample Receipt Checklist

S2 Work Order# _____

Client: Poc Tasman Client Project ID: 1010ff 35-5 wellheadShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)

Temp (°C)

4.1

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°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"/>	on TCE
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"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>	
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"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽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 or Initials

Date/Time

10-15-21



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

BKG01@2.5'
2110262-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.82	0.236	mg/kg dry	1	BEJ0591	10/28/21	10/29/21	EPA 6020B	
Barium	94.7	0.471	"	"	"	"	"	"	
Cadmium	ND	0.236	"	"	"	"	"	"	
Copper	5.91	0.471	"	"	"	"	"	"	
Lead	5.31	0.236	"	"	"	"	"	"	
Nickel	7.71	0.471	"	"	"	"	"	"	
Selenium	0.883	0.306	"	"	"	"	"	"	
Silver	0.0485	0.0236	"	"	"	"	"	"	
Zinc	23.2	0.471	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEK0007	11/01/21	11/01/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	65.8	0.0589	mg/L dry	1	BEK0018	11/01/21	11/02/21	EPA 6020B	
Magnesium	38.1	0.0589	"	"	"	"	"	"	
Sodium	230	0.0589	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.58	0.00100	units	1	BEK0072	11/03/21	11/03/21	Calculation	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

BKG01@2.5'
2110262-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	84.9			%	1	BEJ0602	10/29/21	10/29/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.14			pH Units	1	BEK0046	11/02/21	11/02/21	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

BKG01@4'
2110262-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.640	0.237	mg/kg dry	1	BEJ0591	10/28/21	10/29/21	EPA 6020B	
Barium	27.9	0.474	"	"	"	"	"	"	
Cadmium	ND	0.237	"	"	"	"	"	"	
Copper	2.32	0.474	"	"	"	"	"	"	
Lead	2.69	0.237	"	"	"	"	"	"	
Nickel	2.50	0.474	"	"	"	"	"	"	
Selenium	0.457	0.308	"	"	"	"	"	"	
Silver	ND	0.0237	"	"	"	"	"	"	
Zinc	11.1	0.474	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEK0007	11/01/21	11/01/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	103	0.0593	mg/L dry	1	BEK0018	11/01/21	11/02/21	EPA 6020B	
Magnesium	67.2	0.0593	"	"	"	"	"	"	
Sodium	245	0.0593	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.61	0.00100	units	1	BEK0072	11/03/21	11/03/21	Calculation	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

BKG01@4'
2110262-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.3		%	1	BEJ0578	10/28/21	10/29/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.05		pH Units	1	BEK0046	11/02/21	11/02/21	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

BKG01@5'
2110262-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.975	0.235	mg/kg dry	1	BEJ0591	10/28/21	10/29/21	EPA 6020B	
Barium	33.8	0.471	"	"	"	"	"	"	
Cadmium	ND	0.235	"	"	"	"	"	"	
Copper	2.98	0.471	"	"	"	"	"	"	
Lead	3.26	0.235	"	"	"	"	"	"	
Nickel	3.03	0.471	"	"	"	"	"	"	
Selenium	0.613	0.306	"	"	"	"	"	"	
Silver	ND	0.0235	"	"	"	"	"	"	
Zinc	13.1	0.471	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEK0007	11/01/21	11/01/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	109	0.0588	mg/L dry	1	BEK0018	11/01/21	11/02/21	EPA 6020B	
Magnesium	71.6	0.0588	"	"	"	"	"	"	
Sodium	222	0.0588	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.06	0.00100	units	1	BEK0072	11/03/21	11/03/21	Calculation	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

BKG01@5'
2110262-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	85.0			%	1	BEJ0602	10/29/21	10/29/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **10/15/21 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.03			pH Units	1	BEK0046	11/02/21	11/02/21	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

Total Metals by EPA 6020B - Quality Control

Summit Scientific

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

Batch BEJ0591 - EPA 3050B

Blank (BEJ0591-BLK1)

Prepared: 10/28/21 Analyzed: 10/29/21

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 (BEJ0591-BS1)

Prepared: 10/28/21 Analyzed: 10/29/21

Arsenic	43.6	0.200	mg/kg wet	40.0	109	80-120
Barium	39.9	0.400	"	40.0	99.8	80-120
Cadmium	2.08	0.200	"	2.00	104	80-120
Copper	41.3	0.400	"	40.0	103	80-120
Lead	19.5	0.200	"	20.0	97.4	80-120
Nickel	41.0	0.400	"	40.0	102	80-120
Selenium	4.07	0.260	"	4.00	102	80-120
Silver	2.10	0.0200	"	2.00	105	80-120
Zinc	44.3	0.400	"	40.0	111	80-120

Duplicate (BEJ0591-DUP1)

Source: 2110262-01

Prepared: 10/28/21 Analyzed: 10/29/21

Arsenic	2.30	0.236	mg/kg dry	1.82	23.4	20	QR-03
Barium	98.5	0.471	"	94.7	3.85	20	
Cadmium	0.153	0.236	"	0.166	8.12	20	
Copper	5.63	0.471	"	5.91	4.98	20	
Lead	5.35	0.236	"	5.31	0.704	20	
Nickel	6.89	0.471	"	7.71	11.2	20	
Selenium	0.898	0.306	"	0.883	1.69	20	
Silver	0.0478	0.0236	"	0.0485	1.36	20	
Zinc	22.4	0.471	"	23.2	3.46	20	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEJ0591 - EPA 3050B

Matrix Spike (BEJ0591-MS1)		Source: 2110262-01			Prepared: 10/28/21		Analyzed: 10/29/21			
Arsenic	55.3	0.236	mg/kg dry	47.1	1.82	114	75-125			
Barium	155	0.471	"	47.1	94.7	128	75-125			QR-03
Cadmium	2.73	0.236	"	2.36	0.166	109	75-125			
Copper	53.5	0.471	"	47.1	5.91	101	75-125			
Lead	28.5	0.236	"	23.6	5.31	98.3	75-125			
Nickel	57.1	0.471	"	47.1	7.71	105	75-125			
Selenium	5.17	0.306	"	4.71	0.883	91.0	75-125			
Silver	2.46	0.0236	"	2.36	0.0485	102	75-125			
Zinc	76.2	0.471	"	47.1	23.2	112	75-125			

Matrix Spike Dup (BEJ0591-MSD1)		Source: 2110262-01			Prepared: 10/28/21		Analyzed: 10/29/21			
Arsenic	51.4	0.236	mg/kg dry	47.1	1.82	105	75-125	7.27	25	
Barium	143	0.471	"	47.1	94.7	103	75-125	7.94	25	
Cadmium	2.58	0.236	"	2.36	0.166	103	75-125	5.64	25	
Copper	49.8	0.471	"	47.1	5.91	93.2	75-125	7.21	25	
Lead	26.4	0.236	"	23.6	5.31	89.6	75-125	7.42	25	
Nickel	52.4	0.471	"	47.1	7.71	94.8	75-125	8.63	25	
Selenium	4.83	0.306	"	4.71	0.883	83.8	75-125	6.75	25	
Silver	2.32	0.0236	"	2.36	0.0485	96.3	75-125	5.99	25	
Zinc	68.4	0.471	"	47.1	23.2	95.8	75-125	10.8	25	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BEK0007 - 3060A Mod

Blank (BEK0007-BLK1)

Prepared & Analyzed: 11/01/21

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BEK0007-BS1)

Prepared & Analyzed: 11/01/21

Chromium, Hexavalent 21.0 0.30 mg/kg wet 25.0 84.0 80-120

Duplicate (BEK0007-DUP1)

Source: 2110262-01

Prepared & Analyzed: 11/01/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BEK0007-MS1)

Source: 2110262-01

Prepared & Analyzed: 11/01/21

Chromium, Hexavalent 27.7 0.30 mg/kg dry 29.5 ND 94.0 75-125

Matrix Spike Dup (BEK0007-MSD1)

Source: 2110262-01

Prepared & Analyzed: 11/01/21

Chromium, Hexavalent 27.7 0.30 mg/kg dry 29.5 ND 94.0 75-125 0.00 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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BEK0018 - General Preparation

Blank (BEK0018-BLK1)

Prepared: 11/01/21 Analyzed: 11/02/21

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BEK0018-BS1)

Prepared: 11/01/21 Analyzed: 11/02/21

Calcium	5.60	0.0500	mg/L wet	5.00	112	70-130
Magnesium	5.08	0.0500	"	5.00	102	70-130
Sodium	4.94	0.0500	"	5.00	98.8	70-130

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: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

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

Summit Scientific

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

Batch BEJ0578 - General Preparation

Duplicate (BEJ0578-DUP1)		Source: 2110262-02			Prepared: 10/28/21 Analyzed: 10/29/21					
% Solids	85.1		%		84.3			0.873	20	

Batch BEJ0602 - General Preparation

Duplicate (BEJ0602-DUP1)		Source: 2110262-01			Prepared & Analyzed: 10/29/21					
% Solids	84.8		%		84.9			0.133	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: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEK0046 - General Preparation

LCS (BEK0046-BS1)

Prepared & Analyzed: 11/02/21

pH	9.19	pH Units	9.18	100	95-105
----	------	----------	------	-----	--------

Duplicate (BEK0046-DUP1)

Source: 2110262-01

Prepared & Analyzed: 11/02/21

pH	8.09	pH Units	8.14	0.616	20
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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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/03/21 11:54

Notes and Definitions

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

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

December 16, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

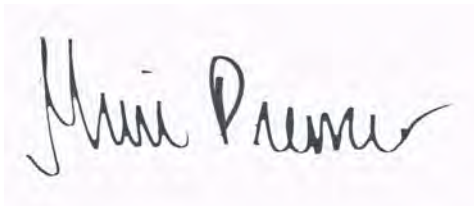
Denver, CO 80203

RE: Loloff 35-5 Wellhead

Work Order #2111496

Enclosed are the results of analyses for samples received by Summit Scientific on 11/30/21 16:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premer". The signature is written in a cursive style with a large, stylized "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury
President



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG02@2.5'	2111496-01	Soil	11/30/21 14:05	11/30/21 16:15
BKG02@4'	2111496-02	Soil	11/30/21 14:07	11/30/21 16:15
BKG02@5'	2111496-03	Soil	11/30/21 14:09	11/30/21 16:15
BKG03@2.5'	2111496-04	Soil	11/30/21 14:15	11/30/21 16:15
BKG03@4'	2111496-05	Soil	11/30/21 14:17	11/30/21 16:15
BKG03@5'	2111496-06	Soil	11/30/21 14:19	11/30/21 16:15

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.

Summit Scientific

S₂

2111496

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: LoloFF 35-5 wellhead

Sampler Name: David Vigil

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions
					HCl	HNO ₃	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	BK G02 @ 2.5'	11/30/21	1405	1			X			X					X					pH, EC, SAR by saturated paste <u>Lead</u>
2	BK G02 @ 4'		1407	1			X			X				X						X
3	BK G02 @ 5'		1409	1			X			X				X						X
4	BK G03 @ 2.5'		1415	1			X			X				X						X
5	BK G03 @ 4'		1417	1			X			X				X						X
6	BK G03 @ 5'		1419	1			X			X				X						X
7																				
8																				
9																				
10																				

Relinquished by: <u>David Vigil</u>	Date/Time: <u>11/30/21</u> <u>1615</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time:	Turn Around Time (Check) Same Day <u>X</u> 72 hours 24 hours 72 hours 48 hours Standard	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time:	Received by: <u>[Signature]</u>	Date/Time: <u>11/30/21</u> <u>1615</u>	Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: <u>8.2</u> Samples Intact: <u>(Yes)</u> No	

S₂

Sample Receipt Checklist

S2 Work Order# 2111496Client: Boc/TasmanClient Project ID: 1060ff 35-5 Tank BatteryShipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #: _____

☐ ☒ ☐ ☐ ☐

Matrix (check all that apply):

☐ Air☒ Soil/Solid☐ Water☐ Other: _____

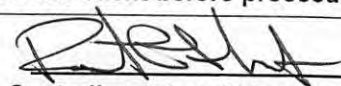
(Describe)

Temp (°C)	<u>8.2</u>
-----------	------------

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°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>
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"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Saved day</u>
Is a chain-of-custody (COC) form present and filled out completely ⁽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"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽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 or Initials

11.30.21
 Date/Time



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG02@2.5'
2111496-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/30/21 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.16	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
Lead	3.95	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/21 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	71.8	0.0566	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
Magnesium	40.6	0.0566	"	"	"	"	"	"	
Sodium	195	0.0566	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/21 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.56	0.00100	units	1	BEL0226	12/10/21	12/10/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/21 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.4		%	1	BEL0121	12/06/21	12/07/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/21 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	1.72	0.0100	mmhos/cm	1	BEL0029	12/02/21	12/03/21	EPA 120.1	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG02@2.5'
2111496-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/21 14:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.11			pH Units	1	BEL0028	12/02/21	12/03/21	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG02@4'
2111496-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/30/21 14:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.939	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
Lead	3.26	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/21 14:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	279	0.0593	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
Magnesium	168	0.0593	"	"	"	"	"	"	
Sodium	414	0.0593	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/21 14:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.83	0.00100	units	1	BEL0226	12/10/21	12/10/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/21 14:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.3		%	1	BEL0121	12/06/21	12/07/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/21 14:07**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	4.29	0.0100	mmhos/cm	1	BEL0029	12/02/21	12/03/21	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG02@4'
2111496-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/21 14:07**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.86			pH Units	1	BEL0028	12/02/21	12/03/21	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG02@5'
2111496-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/30/21 14:09**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.38	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
Lead	4.04	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/21 14:09**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	302	0.0598	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
Magnesium	175	0.0598	"	"	"	"	"	"	
Sodium	437	0.0598	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/21 14:09**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.95	0.00100	units	1	BEL0226	12/10/21	12/10/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/21 14:09**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.7		%	1	BEL0121	12/06/21	12/07/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/21 14:09**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	4.59	0.0100	mmhos/cm	1	BEL0029	12/02/21	12/03/21	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG02@5'
2111496-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/21 14:09**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.97			pH Units	1	BEL0028	12/02/21	12/03/21	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG03@2.5'
2111496-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/30/21 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.81	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
Lead	4.91	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/21 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	60.7	0.0596	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
Magnesium	59.7	0.0596	"	"	"	"	"	"	
Sodium	458	0.0596	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/21 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	10.0	0.00100	units	1	BEL0226	12/10/21	12/10/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/21 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.0		%	1	BEL0121	12/06/21	12/07/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/21 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	2.90	0.0100	mmhos/cm	1	BEL0029	12/02/21	12/03/21	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG03@2.5'
2111496-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/21 14:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.28			pH Units	1	BEL0028	12/02/21	12/03/21	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG03@4'
2111496-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/30/21 14:17**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.65	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
Lead	2.98	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/21 14:17**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	120	0.0585	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
Magnesium	105	0.0585	"	"	"	"	"	"	
Sodium	426	0.0585	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/21 14:17**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	6.85	0.00100	units	1	BEL0226	12/10/21	12/10/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/21 14:17**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	85.5		%	1	BEL0121	12/06/21	12/07/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/21 14:17**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	3.45	0.0100	mmhos/cm	1	BEL0029	12/02/21	12/03/21	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG03@4'
2111496-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/21 14:17**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.97			pH Units	1	BEL0028	12/02/21	12/03/21	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG03@5'
2111496-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/30/21 14:19**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.997	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
Lead	3.01	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/30/21 14:19**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	203	0.0577	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
Magnesium	169	0.0577	"	"	"	"	"	"	
Sodium	579	0.0577	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/30/21 14:19**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	7.27	0.00100	units	1	BEL0226	12/10/21	12/10/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/30/21 14:19**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	86.6		%	1	BEL0121	12/06/21	12/07/21	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/30/21 14:19**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	4.83	0.0100	mmhos/cm	1	BEL0029	12/02/21	12/03/21	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

BKG03@5'
2111496-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/30/21 14:19**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.99			pH Units	1	BEL0028	12/02/21	12/03/21	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

Total Metals by EPA 6020B - Quality Control

Summit Scientific

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

Batch BEL0157 - EPA 3050B

Blank (BEL0157-BLK1)

Prepared: 12/08/21 Analyzed: 12/11/21

Arsenic	ND	0.200	mg/kg wet
Lead	ND	0.200	"

LCS (BEL0157-BS1)

Prepared: 12/08/21 Analyzed: 12/11/21

Arsenic	43.0	0.200	mg/kg wet	40.0	108	80-120
Lead	19.2	0.200	"	20.0	95.8	80-120

Duplicate (BEL0157-DUP1)

Source: 2111105-01

Prepared: 12/08/21 Analyzed: 12/11/21

Arsenic	0.872	0.200	mg/kg dry	1.08	21.4	20	QR-03
Lead	4.93	0.200	"	4.24	15.3	20	

Matrix Spike (BEL0157-MS1)

Source: 2111105-01

Prepared: 12/08/21 Analyzed: 12/11/21

Arsenic	44.3	0.200	mg/kg dry	41.5	1.08	104	75-125
Lead	22.2	0.200	"	20.8	4.24	86.5	75-125

Matrix Spike Dup (BEL0157-MSD1)

Source: 2111105-01

Prepared: 12/08/21 Analyzed: 12/11/21

Arsenic	43.9	0.200	mg/kg dry	41.5	1.08	103	75-125	0.859	25
Lead	22.0	0.200	"	20.8	4.24	85.8	75-125	0.665	25

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEL0017 - General Preparation

Blank (BEL0017-BLK1)

Prepared: 12/01/21 Analyzed: 12/10/21

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BEL0017-BS1)

Prepared: 12/01/21 Analyzed: 12/10/21

Calcium	5.57	0.0500	mg/L wet	5.00	111	70-130
Magnesium	4.98	0.0500	"	5.00	99.6	70-130
Sodium	4.71	0.0500	"	5.00	94.1	70-130

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: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

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

Summit Scientific

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

Batch BEL0121 - General Preparation

Duplicate (BEL0121-DUP1)		Source: 2111429-01		Prepared: 12/06/21 Analyzed: 12/07/21	
% Solids	94.9		%	94.5	0.372 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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BEL0029 - General Preparation

Blank (BEL0029-BLK1)

Prepared: 12/02/21 Analyzed: 12/03/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEL0029-BS1)

Prepared: 12/02/21 Analyzed: 12/03/21

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 101 95-105

Duplicate (BEL0029-DUP1)

Source: 2111373-02

Prepared: 12/02/21 Analyzed: 12/03/21

Specific Conductance (EC) 1.50 0.0100 mmhos/cm 1.47 2.16 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: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEL0028 - General Preparation

LCS (BEL0028-BS1)

Prepared: 12/02/21 Analyzed: 12/03/21

pH	9.02	pH Units	9.18	98.3	95-105
----	------	----------	------	------	--------

Duplicate (BEL0028-DUP1)

Source: 2111373-02

Prepared: 12/02/21 Analyzed: 12/03/21

pH	7.94	pH Units	7.89	0.632	20
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Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
12/16/21 11:55

Notes and Definitions

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

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

April 11, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

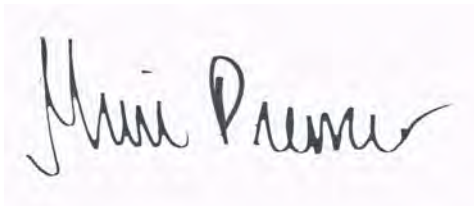
Denver, CO 80203

RE: Loloff 35-5 Wellhead

Work Order #2203381

Enclosed are the results of analyses for samples received by Summit Scientific on 03/23/22 13:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Muri Premer

Project Manager



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH02@2.5'	2203381-01	Soil	03/23/22 08:40	03/23/22 13:20
BH02@4'	2203381-02	Soil	03/23/22 08:45	03/23/22 13:20
BH03@2.5'	2203381-03	Soil	03/23/22 09:00	03/23/22 13:20
BH03@4'	2203381-04	Soil	03/23/22 09:10	03/23/22 13:20
BH04@2.5'	2203381-05	Soil	03/23/22 09:30	03/23/22 13:20
BH04@4'	2203381-06	Soil	03/23/22 09:40	03/23/22 13:20
BH05@2.5'	2203381-07	Soil	03/23/22 09:50	03/23/22 13:20
BH05@4'	2203381-08	Soil	03/23/22 09:55	03/23/22 13:20

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.

Summit Scientific

S₂

2203381

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: PDC/Tasman

Project Manager: Mark Loughurst

Address: 6855 W 119th Ave.

E-Mail: mark.loughurst@PDC-E.com

City/State/Zip: Broomfield CO 80020


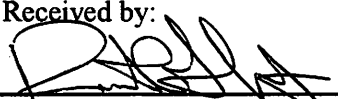
Phone: (303) 487-1228

Project Name: LoLoff 35-5 Wellhead

Sampler Name: Kris Shepherd

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions	
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	pH	SAR	Arsenic	Lead						
1	BH02@2.5'	3/23/22	0840	2			X			X				X	X	X	X					
2	BH02@4'		0845																			
3	BH03@2.5'		0900																			
4	BH03@4'		0910																			
5	BH04@2.5'		0930																			
6	BH04@4'		0940																			
7	BH05@2.5'		0950																			
8	BH05@4'	✓	0955	✓										✓	✓	✓	✓					
9																						
10																						

Relinquished by: 	Date/Time: 3/23/22 1320	Received by: 	Date/Time: 3/23/22 1320	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: <u>5.6</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes: pH & SAR by saturated paste.
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		



Sample Receipt Checklist

S2 Work Order# 2203381Client: POC/Tasman Client Project ID: Wolff 35-S wellheadShipped Via: ☐ H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: _____Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)Temp (°C) 5.6

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°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"/>	on ICE
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"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>	
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"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽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, H2SO4, NaOH, HNO3, 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.

[Signature]
Custodian Printed Name or Initials3-23-22
Date/Time



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

BH02@2.5'
2203381-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/23/22 08:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.72	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
Lead	5.02	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/23/22 08:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	42.7	0.0568	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
Magnesium	31.7	0.0568	"	"	"	"	"	"	
Sodium	171	0.0568	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/22 08:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.83	0.00100	units	1	BFD0172	04/08/22	04/08/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/22 08:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.0		%	1	BFC0628	03/28/22	03/28/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/23/22 08:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.95		pH Units	1	BFC0709	03/30/22	03/30/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

BH02@4'
2203381-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/23/22 08:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.21	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
Lead	3.90	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/23/22 08:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	66.8	0.0582	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
Magnesium	34.9	0.0582	"	"	"	"	"	"	
Sodium	207	0.0582	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/22 08:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.11	0.00100	units	1	BFD0172	04/08/22	04/08/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/22 08:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	85.8		%	1	BFC0628	03/28/22	03/28/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/23/22 08:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.06		pH Units	1	BFC0709	03/30/22	03/30/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

BH03@2.5'
2203381-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/23/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.06	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
Lead	4.93	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/23/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	64.6	0.0571	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
Magnesium	36.0	0.0571	"	"	"	"	"	"	
Sodium	148	0.0571	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.66	0.00100	units	1	BFD0172	04/08/22	04/08/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	87.6		%	1	BFC0628	03/28/22	03/28/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/23/22 09:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.97		pH Units	1	BFC0709	03/30/22	03/30/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

BH03@4'
2203381-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/23/22 09:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.53	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
Lead	4.17	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/23/22 09:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	81.3	0.0569	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
Magnesium	47.3	0.0569	"	"	"	"	"	"	
Sodium	195	0.0569	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/22 09:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.25	0.00100	units	1	BFD0172	04/08/22	04/08/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/22 09:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	87.9		%	1	BFC0628	03/28/22	03/28/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/23/22 09:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.99		pH Units	1	BFC0709	03/30/22	03/30/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

BH04@2.5'
2203381-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/23/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	2.17	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
Lead	6.99	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/23/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	353	0.0594	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
Magnesium	146	0.0594	"	"	"	"	"	"	
Sodium	333	0.0594	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.76	0.00100	units	1	BFD0172	04/08/22	04/08/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.2		%	1	BFC0628	03/28/22	03/28/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/23/22 09:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.92		pH Units	1	BFC0709	03/30/22	03/30/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

BH04@4'
2203381-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/23/22 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.53	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
Lead	3.36	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/23/22 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	78.7	0.0573	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
Magnesium	56.4	0.0573	"	"	"	"	"	"	
Sodium	264	0.0573	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/22 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.55	0.00100	units	1	BFD0172	04/08/22	04/08/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/22 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	87.3		%	1	BFC0628	03/28/22	03/28/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/23/22 09:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.12		pH Units	1	BFC0709	03/30/22	03/30/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

BH05@2.5'
2203381-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/23/22 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.03	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
Lead	8.48	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/23/22 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	418	0.0635	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
Magnesium	155	0.0635	"	"	"	"	"	"	
Sodium	332	0.0635	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/22 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.52	0.00100	units	1	BFD0172	04/08/22	04/08/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/22 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	78.7		%	1	BFC0628	03/28/22	03/28/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/23/22 09:50**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.92		pH Units	1	BFC0709	03/30/22	03/30/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

BH05@4'
2203381-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **03/23/22 09:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.13	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
Lead	3.56	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **03/23/22 09:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	75.9	0.0594	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
Magnesium	45.8	0.0594	"	"	"	"	"	"	
Sodium	202	0.0594	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **03/23/22 09:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.52	0.00100	units	1	BFD0172	04/08/22	04/08/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **03/23/22 09:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.2		%	1	BFC0628	03/28/22	03/28/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **03/23/22 09:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.11		pH Units	1	BFC0709	03/30/22	03/30/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

Total Metals by EPA 6020B - Quality Control

Summit Scientific

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

Batch BFC0717 - EPA 3050B

Blank (BFC0717-BLK1)

Prepared: 03/30/22 Analyzed: 04/08/22

Arsenic	ND	0.200	mg/kg wet
Lead	ND	0.200	"

LCS (BFC0717-BS1)

Prepared: 03/30/22 Analyzed: 04/08/22

Arsenic	35.1	0.200	mg/kg wet	40.0	87.7	80-120
Lead	18.1	0.200	"	20.0	90.5	80-120

Duplicate (BFC0717-DUP1)

Source: 2203381-01

Prepared: 03/30/22 Analyzed: 04/08/22

Arsenic	2.05	0.200	mg/kg dry	1.72	17.4	20
Lead	5.03	0.200	"	5.02	0.286	20

Matrix Spike (BFC0717-MS1)

Source: 2203381-01

Prepared: 03/30/22 Analyzed: 04/08/22

Arsenic	42.4	0.200	mg/kg dry	45.5	1.72	89.5	75-125
Lead	23.4	0.200	"	22.7	5.02	80.8	75-125

Matrix Spike Dup (BFC0717-MSD1)

Source: 2203381-01

Prepared: 03/30/22 Analyzed: 04/08/22

Arsenic	39.6	0.200	mg/kg dry	45.5	1.72	83.2	75-125	6.94	25
Lead	23.8	0.200	"	22.7	5.02	82.7	75-125	1.84	25

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BFC0676 - General Preparation

Blank (BFC0676-BLK1)

Prepared: 03/29/22 Analyzed: 04/08/22

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BFC0676-BS1)

Prepared: 03/29/22 Analyzed: 04/08/22

Calcium	5.79	0.0500	mg/L wet	5.00	116	70-130
Magnesium	5.15	0.0500	"	5.00	103	70-130
Sodium	5.01	0.0500	"	5.00	100	70-130

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: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:

04/11/22 09:06

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

Summit Scientific

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

Batch BFC0628 - General Preparation

Duplicate (BFC0628-DUP1)		Source: 2203095-06		Prepared & Analyzed: 03/28/22						
% Solids	85.7		%		85.7			0.0328	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: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BFC0709 - General Preparation

LCS (BFC0709-BS1)

Prepared & Analyzed: 03/30/22

pH	9.05	pH Units	9.18	98.6	95-105
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Duplicate (BFC0709-DUP1)

Source: 2203356-16

Prepared & Analyzed: 03/30/22

pH	7.62	pH Units	7.72	1.30	20
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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: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
04/11/22 09:06

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

June 17, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Loloff 35-5 Wellhead

Work Order #2206162

Enclosed are the results of analyses for samples received by Summit Scientific on 06/09/22 17:26. 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", is written over a light gray rectangular background.

Mikayla Axtell For Paul Shrewsbury

President



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/17/22 11:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@11'	2206162-01	Soil	06/09/22 09:12	06/09/22 17:26

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

2206162

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


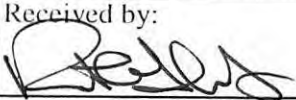
Phone: 303-487-1228

Project Name: Loleff 35-5 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	pH			
1	Btore 11'	6/9/22	912	1			X			X											pH, EC, SAR by saturated paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 6/9/22	Received by: Tasman's Lock Box	Date/Time: 6/9/22	Turn Around Time (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: 8.3 Samples Intact: <input checked="" type="checkbox"/> Yes No	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 6922 1726	Received by: 	Date/Time: 6922 1726		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S₂

Sample Receipt Checklist

S2 Work Order# 2206162

Client: Rafman Client Project ID: 101 off 355 wellhead

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

	-			
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Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 8.3Thermometer # 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.	-			ON ICE
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples due within 48 hours present?		-		
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			-	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			-	
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.			-	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				



Custodian Printed Name

6922

Date/Time



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/17/22 11:03

BH01@11'
2206162-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **06/09/22 09:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.08			pH Units	1	BFF0308	06/10/22	06/10/22	EPA 9045D	

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: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:

06/17/22 11:03

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BFF0308 - General Preparation

LCS (BFF0308-BS1)

Prepared & Analyzed: 06/10/22

pH	9.03		pH Units	9.18	98.4	95-105
----	------	--	----------	------	------	--------

Duplicate (BFF0308-DUP1)

Source: 2205408-02

Prepared & Analyzed: 06/10/22

pH	6.64		pH Units	6.71	1.05	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: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/17/22 11:03

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

November 08, 2022

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Loloff 35-5 Wellhead

Work Order #2211053

Enclosed are the results of analyses for samples received by Summit Scientific on 11/02/22 17:37. 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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01@6'	2211053-01	Soil	11/02/22 11:30	11/02/22 17:37
SB01@8'	2211053-02	Soil	11/02/22 11:31	11/02/22 17:37
SB02@6'	2211053-03	Soil	11/02/22 11:15	11/02/22 17:37
SB02@8'	2211053-04	Soil	11/02/22 11:17	11/02/22 17:37
SB03@6'	2211053-05	Soil	11/02/22 10:40	11/02/22 17:37
SB03@8'	2211053-06	Soil	11/02/22 10:44	11/02/22 17:37
SB04@6'	2211053-07	Soil	11/02/22 11:01	11/02/22 17:37
SB04@8'	2211053-08	Soil	11/02/22 11:03	11/02/22 17:37
BKG04@2.5'	2211053-09	Soil	11/02/22 11:40	11/02/22 17:37
BKG04@4'	2211053-10	Soil	11/02/22 11:44	11/02/22 17:37
BKG04@5'	2211053-11	Soil	11/02/22 11:46	11/02/22 17:37
BKG04@6'	2211053-12	Soil	11/02/22 11:55	11/02/22 17:37
BKG04@8'	2211053-13	Soil	11/02/22 11:57	11/02/22 17:37
BKG05@2.5'	2211053-14	Soil	11/02/22 12:02	11/02/22 17:37
BKG05@4'	2211053-15	Soil	11/02/22 12:04	11/02/22 17:37
BKG05@5'	2211053-16	Soil	11/02/22 12:05	11/02/22 17:37
BKG05@6'	2211053-17	Soil	11/02/22 12:10	11/02/22 17:37
BKG05@8'	2211053-18	Soil	11/02/22 12:12	11/02/22 17:37

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.

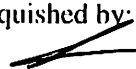
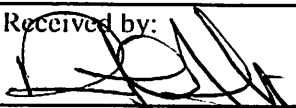
S_2

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

Page 1 of 2

Project Number:

					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)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	As	SAR	Asenic	pH, EC, SAR by saturated paste	
1	SB01 @ 6'	11/2/22	1130	1			X			X									X			
2	SB01 @ 8'		1131	1															X			
3	SB02 @ 6'		1115	1														X				
4	SB02 @ 8'		1117	1														X				
5	SB03 @ 6'		1040	1														X	X	X		
6	SB03 @ 8'		1044	1														X	X	X		
7	SB04 @ 6'		1101	2														X				
8	SB04 @ 8'	V	1103	V						V								X				
9																						
10																						

Relinquished by: 		Date/Time: 1508 11/2/22		Received by: Tasman's Lock Box		Date/Time: 1508 11/2/22		Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: 8.7 Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: Tasman's Lock Box		Date/Time: 11222 1737		Received by: 		Date/Time: 11222 1737			
Relinquished by:		Date/Time:		Received by:		Date/Time:			

Summit Scientific

S₂

2211053.2

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

Page 2 of 2

Client:	PDC / Tasman	Project Manager:	Mark Longhurst
Address:	6855 W 119th Ave	E-Mail:	mark.longhurst@PDCE.com
City/State/Zip:	Broomfield/ CO/ 80020		
Phone:	303-487-1228	Project Name:	Lodoff 35-5 wellhead
Sampler Name:	Sam Anderson	Project Number:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	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	BK604 e 2.5'	11/21/22	1140	1			X			X							X		X	pH, EC, SAR by saturated paste	
2	BK604 e 4'		1144																		
3	BK604 e 5'		1146																		
4	BK604 e 6'		1155																		
5	BK604 e 8'		1157																		
6	BK605 e 2.5'		1202																		
7	BK605 e 4'		1204																		
8	BK605 e 5'		1205																		
9	BK605 e 6'		1210																		
10	BK605 e 8'		1212																		

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes: * = just Atomic + Lead * = just pH + SAR
	11/21/22 1508	Tasman's Lock Box	11/21/22 1508	Same Day	72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
Tasman's Lock Box	11/22/22 1737		11/22/22 1737	48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	Temperature Upon Receipt:	
					8.7	
				Samples Intact:	Yes No	

S₂

2/2

S2 Work Order#

2211053

Sample Receipt Checklist

Client: ProctermanClient Project ID: Lokoff 35-S wellhead

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

Airbill #:

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

Matrix (Check all that apply)

Air

☐

Soil/Solid

☒

Water

☐

Other

☐

Temp (°C)

8.7

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.	-			on ICE
If custody seals are present, are they intact ⁽¹⁾ ?	-			
Are samples due within 48 hours present?		-		
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			-	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	-			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	-			
Were all samples received intact ⁽¹⁾ ?	-			
Was adequate sample volume provided ⁽¹⁾ ?	-			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	-			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			-	
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.			-	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Custodian Printed Name

Date/Time

11-2-22 1737



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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

SB01@6'
2211053-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	185	0.0593	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	114	0.0593	"	"	"	"	"	"	
Sodium	383	0.0593	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.46	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.4		%	1	BFK0156	11/06/22	11/07/22	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

SB01@8'
2211053-02 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 11:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	93.1	0.0590	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	45.4	0.0590	"	"	"	"	"	"	
Sodium	163	0.0590	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 11:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.46	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 11:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.7		%	1	BFK0156	11/06/22	11/07/22	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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

SB02@6'
2211053-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.55			pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

SB02@8'
2211053-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:17**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.31			pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

SB03@6'
2211053-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.670	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	143	0.0603	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	75.4	0.0603	"	"	"	"	"	"	
Sodium	243	0.0603	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.09	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	82.9		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.40		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

SB03@8'
2211053-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.552	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	166	0.0622	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	89.0	0.0622	"	"	"	"	"	"	
Sodium	304	0.0622	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.73	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	80.4		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 10:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.25		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

SB04@6'
2211053-07 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.45			pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

SB04@8'
2211053-08 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.59			pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG04@2.5'
2211053-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.03	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	9.09	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	597	0.0595	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	186	0.0595	"	"	"	"	"	"	
Sodium	454	0.0595	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.16	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.1		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	7.77		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG04@4'
2211053-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 11:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.23	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	4.40	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 11:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	95.9	0.0599	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	57.8	0.0599	"	"	"	"	"	"	
Sodium	261	0.0599	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 11:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	5.20	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 11:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.5		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.33		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG04@5'
2211053-11 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 11:46**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.446	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	3.47	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 11:46**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	167	0.0580	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	113	0.0580	"	"	"	"	"	"	
Sodium	298	0.0580	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 11:46**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	4.37	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 11:46**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	86.2		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:46**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.64		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG04@6'
2211053-12 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 11:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.692	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	2.65	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 11:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	95.3	0.0597	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	67.3	0.0597	"	"	"	"	"	"	
Sodium	200	0.0597	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 11:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.83	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 11:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.7		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.55		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG04@8'
2211053-13 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 11:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Arsenic	0.597	0.200		mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	3.33	0.200		"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 11:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	113	0.0593		mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	61.5	0.0593		"	"	"	"	"	"	
Sodium	185	0.0593		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 11:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	3.48	0.00100		units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 11:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	84.4			%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 11:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.58			pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG05@2.5'
2211053-14 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.916	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	7.19	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	57.5	0.0593	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	38.3	0.0593	"	"	"	"	"	"	
Sodium	143	0.0593	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.59	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	84.3		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.34		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG05@4'
2211053-15 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.679	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	3.90	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	102	0.0612	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	64.8	0.0612	"	"	"	"	"	"	
Sodium	334	0.0612	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	6.36	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	81.6		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.47		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG05@5'
2211053-16 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 12:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.691	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	3.07	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 12:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	74.5	0.0584	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	53.2	0.0584	"	"	"	"	"	"	
Sodium	174	0.0584	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 12:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.76	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 12:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	85.7		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 12:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.57		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG05@6'
2211053-17 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.774	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	3.56	0.200	"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	121	0.0602	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	86.1	0.0602	"	"	"	"	"	"	
Sodium	223	0.0602	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.79	0.00100	units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.1		%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.30		pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

BKG05@8'
2211053-18 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **11/02/22 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Arsenic	0.627	0.200		mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
Lead	3.03	0.200		"	"	"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **11/02/22 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Calcium	67.8	0.0586		mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	39.5	0.0586		"	"	"	"	"	"	
Sodium	130	0.0586		"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/02/22 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Sodium Adsorption Ratio	3.10	0.00100		units	1	BFK0181	11/07/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/02/22 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	85.3			%	1	BFK0156	11/06/22	11/07/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **11/02/22 12:12**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.54			pH Units	1	BFK0128	11/04/22	11/04/22	EPA 9045D	

Summit Scientific

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

Project: Loloff 35-5 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

Total Metals by EPA 6020B - Quality Control

Summit Scientific

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

Batch BFK0117 - EPA 3050B

Blank (BFK0117-BLK1)

Prepared: 11/03/22 Analyzed: 11/04/22

Arsenic	ND	0.200	mg/kg wet							
Lead	ND	0.200	"							

LCS (BFK0117-BS1)

Prepared: 11/03/22 Analyzed: 11/04/22

Arsenic	40.9	0.200	mg/kg wet	40.0		102	80-120			
Lead	20.0	0.200	"	20.0		100	80-120			

Duplicate (BFK0117-DUP1)

Source: 2211053-05

Prepared: 11/03/22 Analyzed: 11/04/22

Arsenic	0.676	0.200	mg/kg dry		0.670			0.861	20	
Lead	3.76	0.200	"		3.92			4.18	20	

Matrix Spike (BFK0117-MS1)

Source: 2211053-05

Prepared: 11/03/22 Analyzed: 11/04/22

Arsenic	22.4	0.200	mg/kg dry	48.3	0.670	45.1	75-125			QM-05
Lead	24.6	0.200	"	24.1	3.92	85.7	75-125			

Matrix Spike Dup (BFK0117-MSD1)

Source: 2211053-05

Prepared: 11/03/22 Analyzed: 11/04/22

Arsenic	22.6	0.200	mg/kg dry	48.3	0.670	45.4	75-125	0.637	25	QM-05
Lead	27.9	0.200	"	24.1	3.92	99.4	75-125	12.6	25	

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: Loloff 35-5 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control
Summit Scientific

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

Batch BFK0134 - General Preparation

Blank (BFK0134-BLK1)

Prepared: 11/04/22 Analyzed: 11/05/22

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (BFK0134-BS1)

Prepared: 11/04/22 Analyzed: 11/05/22

Calcium	4.88	0.0500	mg/L wet	5.00	97.7	70-130
Magnesium	5.03	0.0500	"	5.00	101	70-130
Sodium	5.07	0.0500	"	5.00	101	70-130

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: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

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

Summit Scientific

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

Batch BFK0156 - General Preparation

Duplicate (BFK0156-DUP1)		Source: 2211053-01		Prepared: 11/06/22 Analyzed: 11/07/22	
% Solids	85.4		%	84.4	1.20 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: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BFK0128 - General Preparation

LCS (BFK0128-BS1)

Prepared & Analyzed: 11/04/22

pH	8.99	pH Units	9.18	97.9	95-105
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Duplicate (BFK0128-DUP1)

Source: 2211053-03

Prepared & Analyzed: 11/04/22

pH	8.50	pH Units	8.55	0.587	20
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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: Loloff 35-5 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
11/08/22 09:49

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



WELLHEAD ABANDONMENT FORM

SITE NAME: Loloff 35-5							DATE: 10/14/2021	REM. PROJECT #: 19816		WEATHER: Cloudy and 40s	
SITE DIRECTIONS: CR 50 & CR 59, N 0.875, W into							CLIENT: PDC/ Delbert Pace				
LEGALS AND LAT/LONG: 40.362858 -104.507697							TASMAN PERSONNEL: Dylan Brightwell				
SOIL TYPES: Silty Sand - SM							SURFACE GRADIENT: West				
SOIL SAMPLING							FACILITY INFRASTRUCTURE				
Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?	EQUIPMENT		Quantity		
							Above Ground Storage Tank (AST)				
							Buried or Partially Buried Vessel				
							Separator				
10/14/2021 10:20	FL01-01 @ 3'	0.2	Organic Content	No Odor	Yes	Lab	Emission Control Device (ECD)				
10/14/2021 10:18	FL01-02 @ 3'	0.0	Organic Content	No Odor	Yes	Grab	Dump Line				
10/14/2021 10:16	FL01-03 @ 3'	0.0	No Staining	No Odor	Yes	Grab	Wellhead		1		
10/14/2021 11:11	SS01 @ 2'	802.6	HC Staining	No Odor	Yes	Lab	Flowline		1		
10/14/2021 13:20	SS02 @ 5'	0.3	No Staining	No Odor	Yes	Lab	Other:				
10/14/2021 14:20	SS03 @ 4'	0.0	No Staining	No Odor	Yes	Lab	Soil Loads Removed				
10/14/2021 14:22	SS04 @ 2.5'	0.1	No Staining	No Odor	Yes	Lab	IMPACTED SOIL IDENTIFIED? Yes				
10/14/2021 14:25	SS05 @ 4'	0.3	No Staining	No Odor	Yes	Lab	ESTIMATED VOLUME OF IMPACTS:				
10/14/2021 14:28	SS06 @ 2.5'	0.2	No Staining	No Odor	Yes	Lab	Date		Number	CY	
10/14/2021 14:30	SS07 @ 4'	3.1	Organic Content	No Odor	Yes	Lab	10/14/2021		3	30	
10/14/2021 14:32	SS08 @ 2.5'	0.5	No Staining	No Odor	Yes	Lab					
10/14/2021 14:34	SS09 @ 4'	125	HC Staining	HC Odor	Yes	Lab					
10/14/2021 14:36	SS10 @ 2.5'	0.5	Organic Content	No Odor	Yes	Lab					
10/15/2021 08:15	BKG01 @ 2.5'	0.1	No Staining	No Odor	Yes	On-Hold	Total Removed		3	30	
10/15/2021 08:16	BKG01 @ 4'	0.0	No Staining	No Odor	Yes	On-Hold	Disposal Facility: WM - Ault				
10/15/2021 08:18	BKG 01 @ 5'	0.2	No Staining	No Odor	Yes	On-Hold	Groundwater Recovery				
							DATE GW ENCOUNTERED: 10/14/2021		DEPTH: 3'		
							GROUNDWATER IN CONTACT WITH IMPACTED SOIL? Groundwater in contact with soil impacts.				
							LNAPL OR SHEEN OBSERVED ON GW?				
GROUNDWATER SAMPLING							Date		BBLS		
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?	10/14/2021		8		
10/14/2021 10:50	GW01	3'	Low Turbidity	None	None	Yes					
10/14/2021 11:40	GW02	3'	Medium Turbidity	None	None	Yes					
							Total Removed		8		
							Disposal Facility: NGL C6				



Photographic Log

											
Equipment ID:SS01.		Equipment Type:		Equipment ID:FL01-01 and GW01		Equipment Type:					
Material:		Volume:		Contents:		Material:		Volume:		Contents:	
Notes/Conditions:						Notes/Conditions:					

Photographic Log

					
Equipment ID: FL01-02		Equipment Type:			
Material:	Volume:	Contents:		Equipment ID: FL01-03	
				Equipment Type:	
Material:		Volume:	Contents:		
Notes/Conditions:			Notes/Conditions:		



Photographic Log

							
Equipment ID: GW02		Equipment Type:		Equipment ID: SS02		Equipment Type:	
Material:		Volume:		Material:		Volume:	
				Contents:		Contents:	
				Notes/Conditions: Water reacted with HCL		Notes/Conditions: Due to water recharge black soil has been layered on top of clean soil this will be removed upon cleaning the Iberia roof of the hole.	



Photographic Log

							
Equipment ID:		Equipment Type:		Equipment ID: SS03 and SS04		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions: Wellhead Cap				Notes/Conditions:			

Photographic Log

							
Equipment ID: SS5 and SS06		Equipment Type:		Equipment ID: SS07 and SS08		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions:				Notes/Conditions:			

Photographic Log



							
Equipment ID: SS09 and SS10		Equipment Type:		Equipment ID: BKG01		Equipment Type:	
Material:	Volume:	Contents:		Material:	Volume:	Contents:	
Notes/Conditions:				Notes/Conditions:			



WELLHEAD ABANDONMENT FORM

SITE NAME: Loloff 35-5 Wellhead							DATE: 11/30/2021	REM. PROJECT #: 19816		WEATHER: 50s and sunny	
SITE DIRECTIONS: CR50&CR59, N 0.9, W into							CLIENT: PDC				
LEGALS AND LAT/LONG: 40.361149, -104.509716							TASMAN PERSONNEL: david vigil				
SOIL TYPES: Silty Sand - SM							SURFACE GRADIENT: West				
SOIL SAMPLING							FACILITY INFRASTRUCTURE				
Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?	EQUIPMENT		Quantity		
							Above Ground Storage Tank (AST)				
11/30/2021 14:05	BKG02 @ 2.5	4.1	No Staining	No Odor	Yes	Lab	Buried or Partially Buried Vessel				
11/30/2021 14:07	BKG02 @ 4	6.3	No Staining	No Odor	Yes	Lab	Separator				
11/30/2021 14:09	BKG02 @ 5	7.7	No Staining	No Odor	Yes	Lab	Emission Control Device (ECD)				
11/30/2021 14:15	BKG03 @ 2.5	3.3	No Staining	No Odor	Yes	Lab	Dump Line				
11/30/2021 14:17	BKG03 @ 4	6.3	No Staining	No Odor	Yes	Lab	Wellhead				
11/30/2021 14:19	BKG03 @ 5	7.5	No Staining	No Odor	Yes	Lab	Flowline				
							Other:				
							Soil Loads Removed				
							IMPACTED SOIL IDENTIFIED?				
							ESTIMATED VOLUME OF IMPACTS:				
							Date		Number	CY	
							Total Removed		0	0	
							Disposal Facility:				
							Groundwater Recovery				
							DATE GW ENCOUNTERED:		DEPTH:		
							GROUNDWATER IN CONTACT WITH IMPACTED SOIL?				
							LNAPL OR SHEEN OBSERVED ON GW?				
GROUNDWATER SAMPLING							Date		BBLS		
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?					
							Total Removed		0		
							Disposal Facility:				

Photographic Log

					
Equipment ID: BKG02		Equipment Type:			
Material:	Volume:	Contents:		Equipment ID: BKG03	
				Equipment Type:	
Material:		Volume:	Contents:		
Notes/Conditions:			Notes/Conditions:		

Borehole Logging Form

BOREHOLE ID: BH02	SITE NAME: Lot 35-5 WH	CLIENT NAME: PDC ENERGY
Date Completed: 3/23/2022	Location: N POC	
Drilling Company: Tasman	Surface Completion: Flush	DTW: ~3.5' TD: ~6'
Type of Drill: Hand Auger	Geologist: Kris Shepherd	Project Manager: B. Nelson
Bit Size: 3"	Logging Method: HA	

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		SM	Brown, silty sand, fine to medium grain, moist, no odor
2				0.0			
3				0.0	BH02C2.5' (NB40)		
4		HA	100%	0.0	BH02C4' (NB45)	SM	As above, saturated
5				0.0			
6				0.0		SW	Tan, sand, fine to medium grain, poorly sorted, saturated, no odor
7							
8							
9							
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25							

Borehole Logging Form

BOREHOLE ID: BH03	SITE NAME: 100ft 35-5 WH	CLIENT NAME: PDC ENERGY
Date Completed: 3/22/2022	Location: E PDC	
Drilling Company: Tasman	Surface Completion: Flush	DTW: ~3' TD: ~7'
Type of Drill: Hand Auger	Geologist: Kris Shepherd	Project Manager: B. Nelson
Bit Size: 3"	Logging Method: HA	

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		SM	Brown, silty sand, fine to medium grain, moist, poorly sorted, no odor
2				0.0			
3				0.0	BH03@2.5' (0900)	SM	↓ As above, saturated
4		HA	100%	0.0	BH03@4' (0910)		↓
5				0.0		SW	Tan, sand, fine to medium grain, poorly sorted, saturated, no odor
6				0.0			↓
7				0.0			
8							
9							
10							
11							
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24							
25							

Borehole Logging Form

BOREHOLE ID: BH04	SITE NAME: 100ft 35-5 WH	CLIENT NAME: PDC ENERGY
Date Completed: 3/23/2022	Location: S 20C	
Drilling Company: Tasman	Surface Completion: Flush	DTW: ~3' TD: ~7'
Type of Drill: Hand Auger	Geologist: Kris Shepherd	Project Manager: B. Nelson
Bit Size: 3"	Logging Method: HA	

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		SM	Brown, silty sand, fine to medium grain, poorly sorted, moist, no odor
2				0.0			
3				0.0	BH04@25' (0930)		
4		HA	100%	0.0	BH04@4' (0940)	SM	As above, saturated
5				0.0		SW	Tan, sand, fine to medium grain, poorly sorted, saturated, no odor
6				0.0			
7				0.0			
8							
9							
10							
11							
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16							
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23							
24							
25							

Borehole Logging Form

BOREHOLE ID: BH05 SITE NAME: Loloff 35-5 WH CLIENT NAME: PDC ENERGY

Date Completed: 3/23/2022 Location: W POC

Drilling Company: Tasman Surface Completion: Flush DTW: ~3.5' TD: ~7'

Type of Drill: Hand Auger Geologist: Kris Shepherd Project Manager: B. Nelson

Bit Size: 3" Logging Method: HA

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		SM	Brown, silty sand, fine to medium grain, poorly sorted, moist, no odor
2				0.0			
3				0.0	BH05@2.5' (0950)		
4		HA	100%	0.0	BH05@4' (0955)	SM	- As above, saturated
5				0.0		SW	Tan, sand, fine to medium grain, poorly sorted, saturated, no odor
6				0.0			
7				0.0			
8							
9							
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Borehole Logging Form

BOREHOLE ID: <u>BH01</u>	SITE NAME: <u>Loloff 35-5 wellhead</u>	CLIENT NAME: <u>PDC ENERGY</u>
Date Completed: <u>6/9/22</u>	Location: <u>SWR</u>	
Drilling Company: <u>Tasman</u>	Surface Completion: <u>Concrete/well cover</u>	DTW: <u>7'</u> TD: <u>12'</u>
Type of Drill: <u>Hand Auger (DPT)</u>	Geologist: <u>Smith/Boas</u>	Project Manager: <u>B.Nelson</u>

Bit Size: <u>2 3/8"</u>	Logging Method:
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Well Const. Material: Diameter: <u>1"</u>	Screen: <u>Sch 40 PVC Slotted 0.010</u>	Riser: <u>Sch 40 PVC Blank</u>
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Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description
1				0.8			
2				0.2		SC	0-1' = Brown, clayey sand, poorly sorted, fine-coarse grain, moist, organic odor.
3				0.0			
4				0.1			
5		HA	100%	0.4		CL	1-4' = Tan/bay, Clay, low plasticity, moist, organic odor.
6				0.6			
7				0.4		CL	4-6' = Tan/bay/black, Sandy clay, low plasticity, poorly sorted, fine-med grain, moist, organic odor.
8							7-12' = Tan/bay/black, Sandy clay, low plasticity, poorly sorted, fine-med grain, moist, organic odor.
9		DPT	40%	0.8			
10							
11				0.6	BH01 11' 912		
12				0.1			
13						CL	7-12' = Tan, Sandy clay, low plasticity, moist, sorting, fine-medium, saturated, organic odor.
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



Borehole Logging Form

BOREHOLE ID: S801 SITE NAME: Ldoff 35-5 WH CLIENT NAME: PDC ENERGY

Date Completed: 11/2/22 Location: Source

Drilling Company: Tasman Surface Completion: NA DTW: 3' TD: 8'

Type of Drill: ~~Song~~ Bottom Sucker / Hand Auger = HA 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	↑	↑	0.1		SM	0-1' = Tan, Silty Sand, Fine to med. grained, moderately sorted, dry, organic odor.
2		↑	↑	0.2		CL	1-3' = Brown, clay, moderate plasticity, moist no staining or odor.
3		HA	100%	0.0			
4		↓	↓	0.1		SW	3-8' = Tan, Sand, poorly sorted, Fine to coarse grain, saturated, no odor/staining
5		↑	↑	0.1			
6		↑	↑	0.1	S801c6'		
7		S85	100%	0.1	1130		
8		↓	↓	0.0	S801e8'		
9							
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**TASMAN****Borehole Logging Form**BOREHOLE ID: SB02SITE NAME: Loloff 35-5 WHCLIENT NAME: PDC ENERGYDate Completed: 11/2/22Location: Western most boring.Drilling Company: TasmanSurface Completion: NADTW: 3'TD: 8'Type of Drill: HA = Hand Auger SSS = Soggy Bottom SuckerGeologist: Sam A.Project Manager: B. NelsonBit Size: 2 3/8"

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	x	↑	↑	1.1		SC	0-2' = Brown, clayey sand, poorly sorted, fine to med. grain, moist, organic odor/staining.
2		HA		0.3			
3			100%	0.2		SW	2-8' = Tan, sand, poorly sorted, fine to coarse, saturated at 3', no odor/staining.
4		↓	↓	0.2			
5		↑	↑	0.2			
6				0.2	SB02c 6'		
7		SSS	100%	0.2	1115		
8		↓	↓	0.3	SB02c 8'		
9							
10							
11							
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**TASMAN****Borehole Logging Form**

BOREHOLE ID: SB03		SITE NAME: Lot 1 off 35-5 WH		CLIENT NAME: PDC ENERGY				
Date Completed: 11/2/22		Location: East of source						
Drilling Company: Tasman		Surface Completion: NA		DTW: ~3 TD: 8'				
Type of Drill: Hand Auger = HA <small>Soil Bottom Sample = SBS</small>		Geologist: Rob Ambrose		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			0-1 = Brown, Silty Sand, well graded	
2		↑	↑	0.2			Rice - Conglomerate, moist, Noadrasthen	
3		HA	100%	0.2		SW	1-2 = Brown/Tan, Sand, well graded, Rice Conglomerate, moist, medium sand	
4		↓	↓	0.2			2-3 = Same as above, Tan, Backwashed at 3'	
5		↓	↓	0.3			3-4 = Same as above	
6		↑	↑	0.3	SB03 c 6' 1040	SW	4-5 = Same as above	
7		SBS	90%	0.2			5-8 = Tan/brown sand, poorly sorted, fine to coarse grain, subrounded, no odor/stain	
8		↓	↓	0.2	SB03 c 8' 1044			
9	X							
10								
11								
12								
13								
14								
15								
16								
17								- Eastern most Soil bank
18								
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TASMAN

Borehole Logging Form

BOREHOLE ID: 5804		SITE NAME: Loloff 35-5 WH		CLIENT NAME: PDC ENERGY			
Date Completed: 11/2/72		Location: South of saune					
Drilling Company: Tasman		Surface Completion:		DTW: 13		TD: 8'	
Type of Drill: H = Hand Auger SBS = Soggy Bottom		Geologist: Sam		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		↑	↑	0.3		SC	0-1 = Brown, Elongated Sand, Fine-Grained, well-sorted, moist, no odor
2		HA	100%	0.3		SL	1-4 = Tan, Sand, well-sorted, Fine-Grained, moist, no odor
3		↓	↓	0.3		SL	4-8 = Brown/Tan, Sand, poorly sorted, Fine to coarse grain, Saturated, no odor/stain.
4		↓	↓	0.3			
5		↑	↑	0.2		SW	
6		SBS	100%	0.2	5804 & 6' 1101		
7		↓	↓	0.1			
8		↓	↓	0.1	5804 & 8' 1103		
9	X						
10							
11							
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**TASMAN****Borehole Logging Form**

BOREHOLE ID: BK604		SITE NAME: Loloff 35-5 WH		CLIENT NAME: PDC ENERGY	
Date Completed: 11/2/22		Location: NW of excavation			
Drilling Company: Tasman		Surface Completion: NA		DTW: 3'	TD: 8'
Type of Drill: Hand Auger / SBS		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	↑	↑	0.0		SM	0-1' = Brown, Silty sand, fine-medium grained, somewhat soft, dry, organic odor/stain.
2		HA		0.1	BK604C2.5'	CL	1-3' = Brown, clay, moderate plasticity, saturated, at 3', no staining/odor.
3		↓	100%	0.0	1140		
4				0.1	BK604C4'	SW	3-5' = Tan/brown, sand, well graded, fine-coarse grain, saturated, no odor/staining
5		↓	↓	0.1	BK604C5'		
6		↑	↑	0.2	BK604C6'	SW	5-8' = Tan, sand, poor sorting, fine to coarse, saturated, no odor or staining
7		SBS	100%	0.1	1155		
8		↓	↓	0.1	BK604C8'		
9				1157			
10							
11							
12							
13							
14							
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TASMAN

Borehole Logging Form

BOREHOLE ID: BK605	SITE NAME: Ldoff 35-5 WH	CLIENT NAME: PDC ENERGY
Date Completed: 11/2/20	Location: Far west of source	
Drilling Company: Tasman	Surface Completion: NA	DTW: 3' TD: 8'
Type of Drill: HA = Hand Auger SSS = Sippy Bottom	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		CL	0-2' = Brown, clay, moderate plasticity, moist, organic odor, staining
2		HA	100%	0.0	BK605 C 2.5' 1203	SW	2-5' = Brown/tan, sand, poorly sorted. Fine to coarse grain, saturated at 3', organic odor/staining.
3 ✓		↓	↓	0.1			
4		↓	↓	0.1	BK605 C 4' 1204		
5		↓	↓	0.1	BK605 C 5' 1205		
6		↑	↑	0.1	BK605 C 6' 1210	SW	5-8' = Tan/Brown, sand, poorly sorted, fine to coarse with trace gravel, Slightly, organic odor, no staining
7		SSS	100%	0.0			
8		↓	↓	0.1	BK605 C 8' 1212		
9	X						
10							
11							
12							
13							
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