

## **Attachment A**

Soil Documents



BKG01 @ 2.5'  
BKG01 @ 4'  
BKG01 @ 5'

SS05 @ 4'  
SS06 @ 2.5'

SS09 @ 4'  
SS10 @ 2.5'

SS02 @ 5'

BKG02 @ 2.5'  
BKG02 @ 4'  
BKG02 @ 5'

GW02 @ 3'

SS01 @ 2'

SS07 @ 4'  
SS08 @ 2.5'

SS03 @ 4'  
SS04 @ 2.5'

BKG03 @ 2.5'  
BKG03 @ 4'  
BKG03 @ 5'

- Legend**
- Underground Flowline Location (Collected via Trimble GPS)
  - Excavation Extent (Collected via Trimble GPS)
  - Groundwater Sample Location
  - Soil Sample Location - Base
  - Laboratory Soil Sample Location (Collected via Trimble GPS)

**Notes**

All locations are approximate unless otherwise noted.

GPS – Global Positioning System

0 ft. 10 ft. 20 ft.

Image Source: Google Earth; July 2019  
Projection: WGS 84 UTM Zone 13 North

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

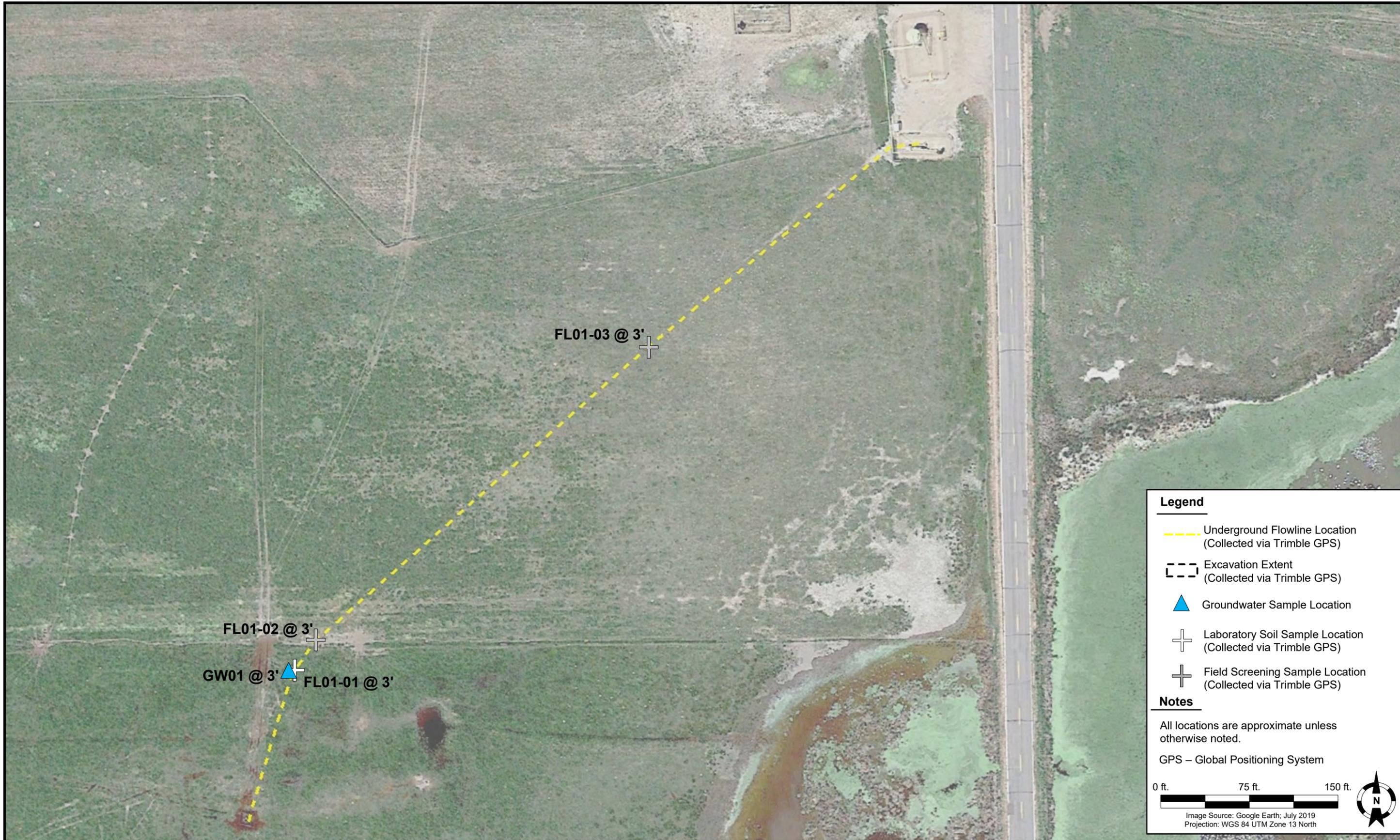


**Tasman, Inc.**  
6855 W. 119<sup>th</sup> Ave.  
Broomfield, CO 80020

**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



**Legend**

- Underground Flowline Location (Collected via Trimble GPS)
- Excavation Extent (Collected via Trimble GPS)
- Groundwater Sample Location
- Laboratory Soil Sample Location (Collected via Trimble GPS)
- Field Screening Sample Location (Collected via Trimble GPS)

**Notes**

All locations are approximate unless otherwise noted.

GPS – Global Positioning System

0 ft.      75 ft.      150 ft.

Image Source: Google Earth; July 2019  
Projection: WGS 84 UTM Zone 13 North

DATE: October 14, 2021

DESIGNED BY: C. Hamlin

DRAWN BY: D. Brightwell

**Tasman, Inc.**  
6855 W. 119<sup>th</sup> 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**



DATE: November 16, 2022

DESIGNED BY: C. Hamlin

DRAWN BY: S. Anderson



**Tasman, Inc.**  
6855 W. 119<sup>th</sup> 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**

**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 <sup>(4)</sup> (mg/kg)	pH (units)	SAR (units)	Arsenic <sup>(5)</sup> (mg/kg)	Lead (mg/kg)
Residential SSL <sup>(1,2)</sup>			1.2	490	5.8	58	30	27	2	500	-	-	0.68	400
Soil Suitability for Reclamation Standard <sup>(1)</sup>			-	-	-	-	-	-	-	-	6-8.3	<6	-	-
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	-	-	0.29	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	<b>0.28</b>	<0.0050	<b>4.8</b>	<b>47</b>	<b>15</b>	<b>10</b>	<b>0.10</b>	<b>4,180</b>	<b>8.33</b>	<b>9.10</b>	<b>2.48</b>	<b>130</b>
SS02 @ 5'	10/14/2021	5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<b>8.44</b>	3.69	<b>0.790</b>	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	<b>8.50</b>	4.43	<b>0.833</b>	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	<b>8.57</b>	<b>6.16</b>	<b>1.64</b>	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	<b>8.42</b>	4.80	<b>1.31</b>	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	<b>8.41</b>	5.52	<b>2.72</b>	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	<b>8.40</b>	<b>6.86</b>	<b>2.79</b>	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	<b>6.38</b>	<b>1.80</b>	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	<b>8.63</b>	<b>6.78</b>	<b>0.787</b>	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	<b>6.79</b>	<b>2.25</b>	<b>34.3</b>
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	<b>1.72</b>	5.02
BH02 @ 4'	3/23/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.06	5.11	<b>1.21</b>	3.90
BH03 @ 2.5'	3/23/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.97	3.66	<b>1.06</b>	4.93
BH03 @ 4'	3/23/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.99	4.25	<b>1.53</b>	4.17
BH04 @ 2.5'	3/23/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.92	3.76	<b>2.17</b>	6.99
BH04 @ 4'	3/23/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.12	5.55	<b>1.53</b>	3.36
BH05 @ 2.5'	3/23/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.92	3.52	<b>4.03</b>	8.48
BH05 @ 4'	3/23/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.11	4.52	<b>1.13</b>	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	<b>8.55</b>	NA	NA	NA
SB02 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.31</b>	NA	NA	NA
SB03 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.40</b>	4.09	<b>0.670</b>	NA
SB03 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.25	4.73	<b>0.552</b>	NA
SB04 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.45</b>	NA	NA	NA
SB04 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.59</b>	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	<b>1.82</b>	5.31
BKG01 @ 4'	10/15/2021	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.05	4.61	<b>0.640</b>	2.69
BKG01 @ 5'	10/15/2021	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.03	4.06	<b>0.975</b>	3.26
BKG02 @ 2.5'	11/30/2021	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.11	4.56	<b>1.16</b>	3.95
BKG02 @ 4'	11/30/2021	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.86	4.83	<b>0.939</b>	3.26
BKG02 @ 5'	11/30/2021	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.97	4.59	<b>1.38</b>	4.04
BKG03 @ 2.5'	11/30/2021	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.28	2.90	<b>1.81</b>	4.91
BKG03 @ 4'	11/30/2021	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.97	3.45	<b>1.65</b>	2.98
BKG03 @ 5'	11/30/2021	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.99	4.83	<b>0.997</b>	3.01
BKG04 @ 2.5'	11/2/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	7.77	4.16	<b>1.03</b>	9.09
BKG04 @ 4'	11/2/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.33</b>	5.20	<b>1.23</b>	4.40
BKG04 @ 5'	11/2/2022	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.64</b>	4.37	<b>0.446</b>	3.47
BKG04 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.55</b>	3.83	<b>0.692</b>	2.65
BKG04 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.58</b>	3.48	<b>0.597</b>	3.33
BKG05 @ 2.5'	11/2/2022	2.5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.34</b>	3.59	<b>0.916</b>	7.19
BKG05 @ 4'	11/2/2022	4 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.47</b>	<b>6.36</b>	<b>0.679</b>	3.90
BKG05 @ 5'	11/2/2022	5 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.57</b>	3.76	<b>0.691</b>	3.07
BKG05 @ 6'	11/2/2022	6 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	8.30	3.79	<b>0.774</b>	3.56
BKG05 @ 8'	11/2/2022	8 ft. bgs	NA	NA	NA	NA	NA	NA	NA	NA	<b>8.54</b>	3.10	<b>0.627</b>	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 extractable 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)
<b>Soil Suitability for Reclamation Standard <sup>(1)</sup></b>			<b>6-8.3</b>	<b>&lt;4</b>	<b>&lt;6</b>	<b>2</b>
SS01 @ 2'	10/15/2021	2 ft. bgs	<b>8.33</b>	2.54	<b>9.10</b>	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 <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			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) = Benzantracene  
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 <sup>(1,2)</sup>			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
SS01 @ 2'	10/15/2021	2 ft. bgs	<b>2.48</b>	51.8	0.266	<0.30	19.6	<b>130</b>	4.73	<b>0.610</b>	0.164	97.4
BKG01 @ 2.5'	10/15/2021	2.5 ft. bgs	<b>1.82</b>	<b>94.7</b>	<0.236	<0.30	5.91	5.31	7.71	<b>0.833</b>	0.0485	23.2
BKG01 @ 4'	10/15/2021	4 ft. bgs	<b>0.640</b>	27.9	<0.237	<0.30	2.32	2.69	2.50	<b>0.457</b>	<0.0237	11.1
BKG01 @ 5'	10/15/2021	5 ft. bgs	<b>0.975</b>	33.8	<0.235	<0.30	2.98	3.26	3.03	<b>0.613</b>	<0.0235	13.1
BKG02 @ 2.5'	11/30/2021	2.5 ft. bgs	<b>1.16</b>	NA	NA	NA	NA	3.95	NA	NA	NA	NA
BKG02 @ 4'	11/30/2021	4 ft. bgs	<b>0.939</b>	NA	NA	NA	NA	3.26	NA	NA	NA	NA
BKG02 @ 5'	11/30/2021	5 ft. bgs	<b>1.38</b>	NA	NA	NA	NA	4.04	NA	NA	NA	NA
BKG03 @ 2.5'	11/30/2021	2.5 ft. bgs	<b>1.81</b>	NA	NA	NA	NA	4.91	NA	NA	NA	NA
BKG03 @ 4'	11/30/2021	4 ft. bgs	<b>1.65</b>	NA	NA	NA	NA	2.98	NA	NA	NA	NA
BKG03 @ 5'	11/30/2021	5 ft. bgs	<b>0.997</b>	NA	NA	NA	NA	3.01	NA	NA	NA	NA

**Notes:**

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with groundwater is present.
4. Compound falls within COGCC Table 915-1 Footnote 9.
5. 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 <sup>(2)</sup> (ft.)	Groundwater Elevation (ft. AMSL)
<b>COGCC Table 915-1 Groundwater Standard (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	<b>140</b>	<b>67</b>	<b>67</b>	<b>-</b>	<b>-</b>
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 <sup>(1)</sup>		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
			Latitude	Longitude		
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 <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (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

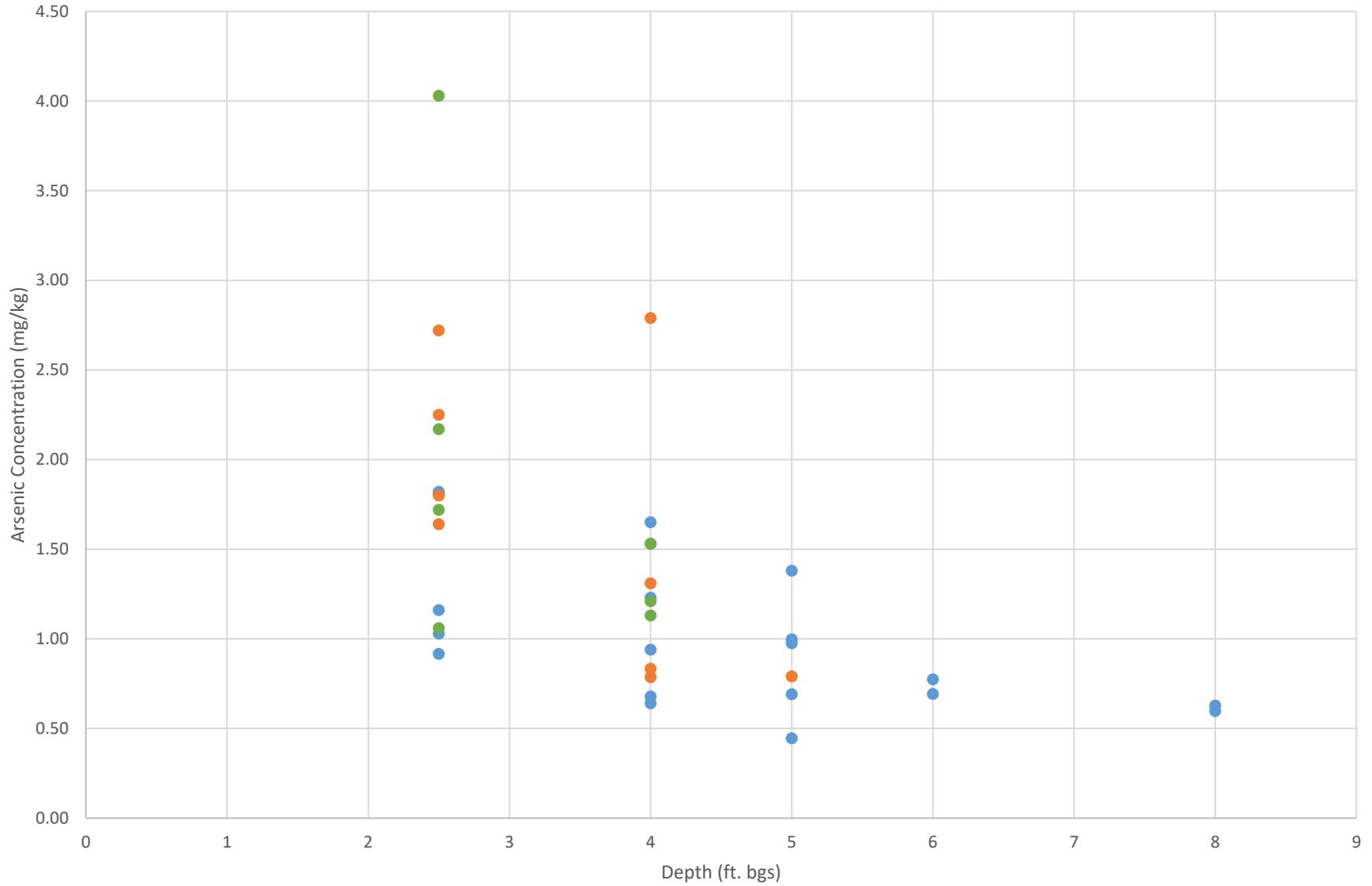
ft. = Feet

bgs = Below ground surface

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

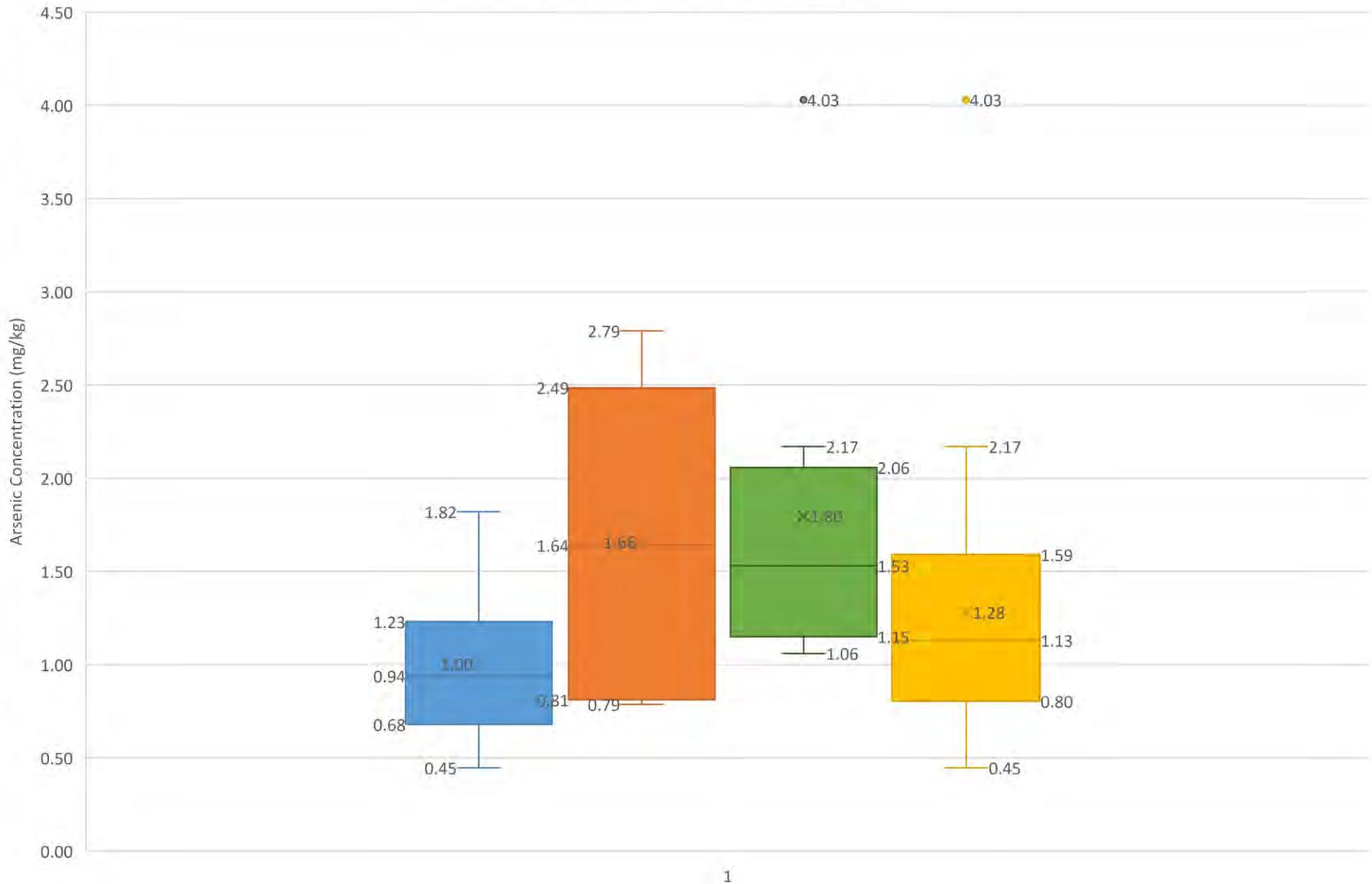
NC = Data not collected

### Arsenic Concentration vs Depth



● Background Samples    ● Excavation Confirmation Samples    ● Monitoring Well Confirmation Samples

### Arsenic Concentration Statistical Evaluation



■ Background Samples  
 ■ Excavation Confirmation Samples  
 ■ Monitoring Well Confirmation Samples  
 ■ Combined BCKG and MW Samples 2.5 - 5 feet bgs

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 16, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

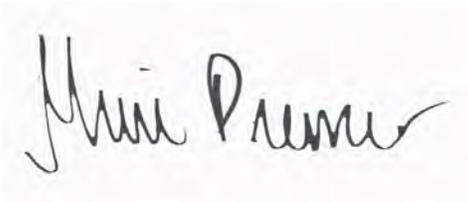
Denver, CO 80203

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 that reads "Muri Premer". The signature is written in a cursive style with a large initial "M".

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:**  
11/16/21 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

S<sub>2</sub>

2110232

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

Page 1 of 21 <sup>DB</sup>

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 <sub>3</sub>	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				
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'		14:28													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: Dylan Brightwell	Date/Time: 10/14/21 17:00	Received by: Tasman's Lock Box	Date/Time: 10/14/21 17:00	<b>Turn Around Time</b> (Check) Same Day <input checked="" type="checkbox"/> 72 hours 24 hours <input type="checkbox"/> Standard 48 hours <input type="checkbox"/> <b>Sample Integrity:</b> Temperature Upon Receipt: 7.1 Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box	Date/Time:	Received by:	Date/Time: 10/14/21 17:00		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2110 232

Client: Pbc/Tasman Client Project ID: Wloff 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 <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input 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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

[Signature]  
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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Benzene</b>	<b>0.28</b>	0.0020	mg/kg	1	BEJ0273	10/14/21	10/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>4.8</b>	0.050	"	10	"	"	"	"	
<b>Xylenes (total)</b>	<b>47</b>	0.10	"	"	"	"	"	"	E
<b>1,2,4-Trimethylbenzene</b>	<b>15</b>	0.050	"	"	"	"	"	"	E
<b>1,3,5-Trimethylbenzene</b>	<b>10</b>	0.050	"	"	"	"	"	"	E
<b>Naphthalene</b>	<b>0.10</b>	0.0038	"	1	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1500</b>	5.0	"	10	"	"	"	"	E

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

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

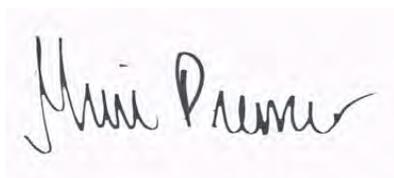
Date Sampled: **10/14/21 11:11**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		71.5 %	30-150	"	"	"	"	"	

**PAH by EPA Method 8270D SIM**

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

**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
<b>Boron</b>	<b>0.707</b>	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

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

**SS01@2'**  
**2110232-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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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

**SS01@2'**  
**2110232-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

% Solids	85.4	%	1	BEJ0276	10/15/21	10/15/21	Calculation
----------	------	---	---	---------	----------	----------	-------------

**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	

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**

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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	"	"	"	"	"	"	

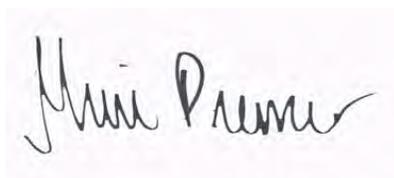
Date Sampled: **10/14/21 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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						
<b>Arsenic</b>	<b>0.790</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>2.83</b>	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						
<b>Calcium</b>	<b>143</b>	0.0592	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>63.9</b>	0.0592	"	"	"	"	"	"	
<b>Sodium</b>	<b>211</b>	0.0592	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.69</b>	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						
<b>% Solids</b>	<b>84.4</b>		%	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						
<b>pH</b>	<b>8.44</b>		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

**SS03@4'**  
**2110232-03 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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	"	"	"	"	"	"	

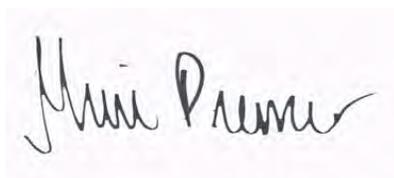
Date Sampled: **10/14/21 14:20**

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

**Total Metals by EPA 6020B**

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

**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						
<b>Arsenic</b>	<b>0.833</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>3.16</b>	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						
<b>Calcium</b>	<b>155</b>	0.0604	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>79.3</b>	0.0604	"	"	"	"	"	"	
<b>Sodium</b>	<b>272</b>	0.0604	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.43</b>	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						
<b>% Solids</b>	<b>82.8</b>		%	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						
<b>pH</b>	<b>8.50</b>		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

**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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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	"	"	"	"	"	"	

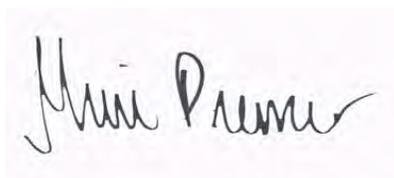
Date Sampled: **10/14/21 14:22**

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

**Total Metals by EPA 6020B**

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

**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						
<b>Arsenic</b>	<b>1.64</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>3.10</b>	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						
<b>Calcium</b>	<b>136</b>	0.0596	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>88.0</b>	0.0596	"	"	"	"	"	"	
<b>Sodium</b>	<b>375</b>	0.0596	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>6.16</b>	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						
<b>% Solids</b>	<b>83.9</b>		%	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						
<b>pH</b>	<b>8.57</b>		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

**SS05@4'**  
**2110232-05 (Soil)**

**Summit Scientific**

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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	"	"	"	"	"	"	

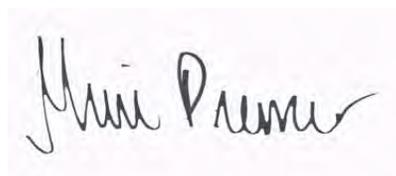
Date Sampled: **10/14/21 14:25**

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

**Total Metals by EPA 6020B**

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

**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						
<b>Arsenic</b>	<b>1.31</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>2.63</b>	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						
<b>Calcium</b>	<b>193</b>	0.0623	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>93.6</b>	0.0623	"	"	"	"	"	"	
<b>Sodium</b>	<b>325</b>	0.0623	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.80</b>	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						
<b>% Solids</b>	<b>80.3</b>		%	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						
<b>pH</b>	<b>8.42</b>		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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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						
<b>Arsenic</b>	<b>2.72</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>4.15</b>	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						
<b>Calcium</b>	<b>151</b>	0.0605	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>101</b>	0.0605	"	"	"	"	"	"	
<b>Sodium</b>	<b>357</b>	0.0605	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>5.52</b>	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						
<b>% Solids</b>	<b>82.7</b>		%	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						
<b>pH</b>	<b>8.41</b>		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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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	"	"	"	"	"	"	

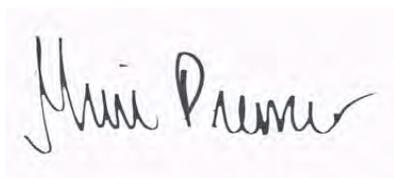
Date Sampled: **10/14/21 14:30**

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

**Total Metals by EPA 6020B**

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**

**Total Metals by EPA 6020B**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>2.79</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>4.19</b>	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						
<b>Calcium</b>	<b>276</b>	0.0630	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>150</b>	0.0630	"	"	"	"	"	"	
<b>Sodium</b>	<b>570</b>	0.0630	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>6.86</b>	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						
<b>% Solids</b>	<b>79.4</b>		%	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						
<b>Specific Conductance (EC)</b>	<b>1.21</b>	0.0100	mmhos/cm	1	BEK0320	11/15/21	11/15/21	EPA 120.1	I-04

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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**

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

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.40</b>		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

**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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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	"	"	"	"	"	"	

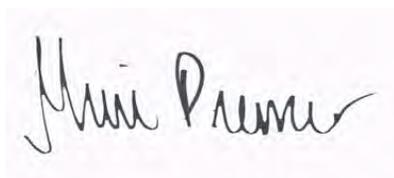
Date Sampled: **10/14/21 14:32**

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

**Total Metals by EPA 6020B**

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

**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						
<b>Arsenic</b>	<b>1.80</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>4.74</b>	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						
<b>Calcium</b>	<b>97.9</b>	0.0566	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>61.5</b>	0.0566	"	"	"	"	"	"	
<b>Sodium</b>	<b>327</b>	0.0566	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>6.38</b>	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						
<b>% Solids</b>	<b>88.4</b>		%	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						
<b>pH</b>	<b>8.29</b>		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

**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	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>420</b>	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	"	"	"	"	"	"	

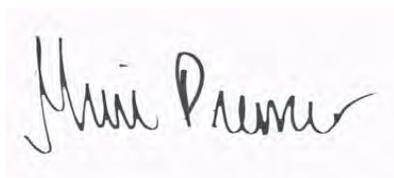
Date Sampled: **10/14/21 14:34**

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

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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

**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						
<b>Arsenic</b>	<b>0.787</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>3.03</b>	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						
<b>Calcium</b>	<b>349</b>	0.0643	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>219</b>	0.0643	"	"	"	"	"	"	
<b>Sodium</b>	<b>656</b>	0.0643	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>6.78</b>	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						
<b>% Solids</b>	<b>77.8</b>		%	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						
<b>pH</b>	<b>8.63</b>		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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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 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	"	"	"	"	"	"	

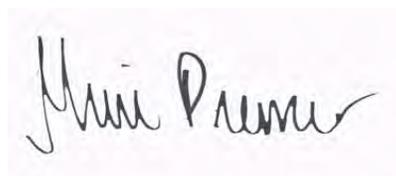
Date Sampled: **10/14/21 14:36**

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

**Total Metals by EPA 6020B**

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**

**Total Metals by EPA 6020B**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>2.25</b>	0.200	mg/kg dry	1	BEK0233	11/10/21	11/11/21	EPA 6020B	
<b>Lead</b>	<b>34.3</b>	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						
<b>Calcium</b>	<b>431</b>	0.0583	mg/L dry	1	BEK0175	11/08/21	11/09/21	EPA 6020B	
<b>Magnesium</b>	<b>202</b>	0.0583	"	"	"	"	"	"	
<b>Sodium</b>	<b>682</b>	0.0583	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>6.79</b>	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						
<b>% Solids</b>	<b>85.8</b>		%	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						
<b>pH</b>	<b>7.85</b>		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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0375</i>		<i>"</i>	<i>0.0400</i>		<i>93.8</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0380</i>		<i>"</i>	<i>0.0400</i>		<i>95.0</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>	<i>21-167</i>			

**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			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0381</i>		<i>"</i>	<i>0.0400</i>		<i>95.2</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0381</i>		<i>"</i>	<i>0.0400</i>		<i>95.3</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.6</i>	<i>21-167</i>			

**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			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.3</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0410</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.7</i>	<i>21-167</i>			

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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**

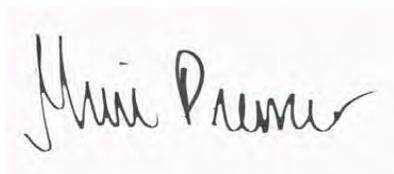
Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**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	
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			

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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

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**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)**

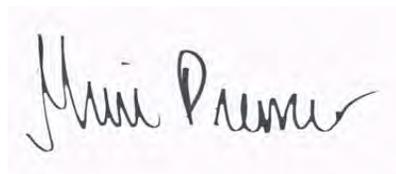
Source: 2110222-01

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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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**

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

**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	"								
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0361</i>		"	<i>0.0333</i>		<i>108</i>		<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0342</i>		"	<i>0.0333</i>		<i>103</i>		<i>40-150</i>			

**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
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0321</i>		"	<i>0.0333</i>	<i>96.2</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0316</i>		"	<i>0.0333</i>	<i>94.7</i>	<i>40-150</i>

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

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

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		

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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

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

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

**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)**

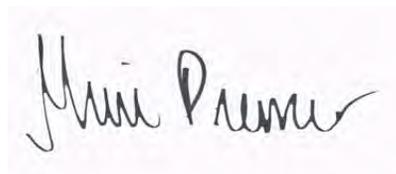
Source: 2110217-01

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

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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

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch 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

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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

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch 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	"						

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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

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

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

**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)**

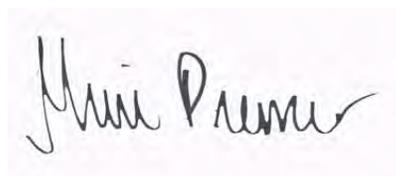
**Source: 2110215-01**

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

*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

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

**Summit Scientific**

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

**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

*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

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

**Summit Scientific**

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

**Batch BEJ0276 - General Preparation**

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

**Batch BEK0167 - General Preparation**

<b>Duplicate (BEK0167-DUP1)</b>		<b>Source: 2110232-02</b>			<b>Prepared &amp; Analyzed: 11/08/21</b>			
% Solids	84.2		%		84.4		0.247	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

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

**Summit Scientific**

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

**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

*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

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

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

**Batch BEJ0349 - General Preparation**

LCS (BEJ0349-BS1)										
					Prepared & Analyzed: 10/19/21					
pH	9.14		pH Units	9.18	99.6	95-105				
Duplicate (BEJ0349-DUP1)										
					Source: 2110206-02					
					Prepared & Analyzed: 10/19/21					
pH	8.04		pH Units	7.94	1.25	20				

**Batch BEK0319 - General Preparation**

LCS (BEK0319-BS1)										
					Prepared & Analyzed: 11/15/21					
pH	9.08		pH Units	9.18	98.9	95-105				
Duplicate (BEK0319-DUP1)										
					Source: 2110232-02					
					Prepared & Analyzed: 11/15/21					
pH	8.41		pH Units	8.44	0.356	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

### 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', written in a cursive style.

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.*



S<sub>2</sub>

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 <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ICE
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input 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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HCl
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

*Rose*  
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:**  
 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		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 10:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
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

*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

### Volatile Organic Compounds by EPA Method 8260B - Quality Control

#### Summit Scientific

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

#### Batch 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

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

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**Summit Scientific**

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

**Batch 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

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

### 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

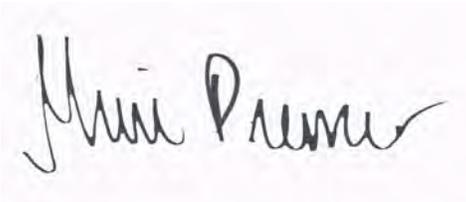
Denver, CO 80203

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 that reads "Muri Premer". The signature is written in a cursive style with a large initial "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:**  
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.*

# Summit Scientific

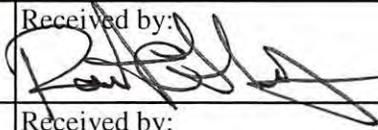
S<sub>2</sub>

2110262

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

Client: PDC / Tasman Project Manager: Mark Longhurst  
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com  
City/State/Zip: Broomfield/ CO/ 80020  
Phone: 303-487-1228 Project Name: 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 <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR	Hold	
1	BK G01 @ 2.5'	10/15/21					X			X								X	
2	BK G01 @ 4'	↓					X			X								X	
3	BK G01 @ 5'	↓					X			X								X	
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: <u>Dylan Brightwell</u>	Date/Time: <u>10/15/21 14:40</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>10/15/21 14:40</u>	Turn Around Time (Check)	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time:	Received by: 	Date/Time: <u>10/15/21 14:40</u>	Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>	
				48 hours <input type="checkbox"/>	
				Sample Integrity:	
				Temperature Upon Receipt: <u>4.1</u>	
				Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

S<sub>2</sub>

2110262

Sample Receipt Checklist

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

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) 4.1

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met 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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input 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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

[Signature]  
Custodian Printed Name or Initials

10-15-21  
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:**  
11/03/21 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**

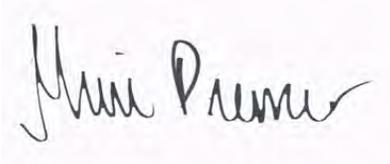
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	84.9		%	1	BEJ0602	10/29/21	10/29/21	Calculation	

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

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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						
<b>Arsenic</b>	<b>0.640</b>	0.237	mg/kg dry	1	BEJ0591	10/28/21	10/29/21	EPA 6020B	
<b>Barium</b>	<b>27.9</b>	0.474	"	"	"	"	"	"	
Cadmium	ND	0.237	"	"	"	"	"	"	
<b>Copper</b>	<b>2.32</b>	0.474	"	"	"	"	"	"	
<b>Lead</b>	<b>2.69</b>	0.237	"	"	"	"	"	"	
<b>Nickel</b>	<b>2.50</b>	0.474	"	"	"	"	"	"	
<b>Selenium</b>	<b>0.457</b>	0.308	"	"	"	"	"	"	
Silver	ND	0.0237	"	"	"	"	"	"	
<b>Zinc</b>	<b>11.1</b>	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						
<b>Calcium</b>	<b>103</b>	0.0593	mg/L dry	1	BEK0018	11/01/21	11/02/21	EPA 6020B	
<b>Magnesium</b>	<b>67.2</b>	0.0593	"	"	"	"	"	"	
<b>Sodium</b>	<b>245</b>	0.0593	"	"	"	"	"	"	

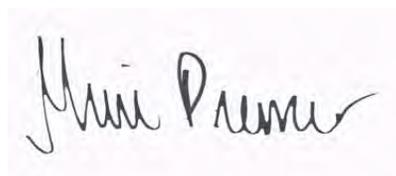
**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.61</b>	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	

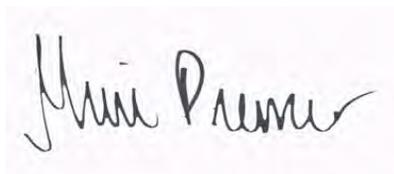
**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

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						
<b>Arsenic</b>	<b>0.975</b>	0.235	mg/kg dry	1	BEJ0591	10/28/21	10/29/21	EPA 6020B	
<b>Barium</b>	<b>33.8</b>	0.471	"	"	"	"	"	"	
Cadmium	ND	0.235	"	"	"	"	"	"	
<b>Copper</b>	<b>2.98</b>	0.471	"	"	"	"	"	"	
<b>Lead</b>	<b>3.26</b>	0.235	"	"	"	"	"	"	
<b>Nickel</b>	<b>3.03</b>	0.471	"	"	"	"	"	"	
<b>Selenium</b>	<b>0.613</b>	0.306	"	"	"	"	"	"	
Silver	ND	0.0235	"	"	"	"	"	"	
<b>Zinc</b>	<b>13.1</b>	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						
<b>Calcium</b>	<b>109</b>	0.0588	mg/L dry	1	BEK0018	11/01/21	11/02/21	EPA 6020B	
<b>Magnesium</b>	<b>71.6</b>	0.0588	"	"	"	"	"	"	
<b>Sodium</b>	<b>222</b>	0.0588	"	"	"	"	"	"	

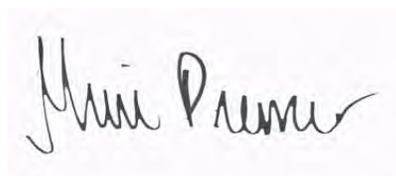
**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.06</b>	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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% 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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.03		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

**Total Metals by EPA 6020B - Quality Control**

**Summit Scientific**

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

**Batch 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		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch BEJ0591 - EPA 3050B**

<b>Matrix Spike (BEJ0591-MS1)</b>	<b>Source: 2110262-01</b>			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				

<b>Matrix Spike Dup (BEJ0591-MSD1)</b>	<b>Source: 2110262-01</b>			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

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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

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

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

**Batch BEK0007 - 3060A Mod**

<b>Blank (BEK0007-BLK1)</b>		Prepared & Analyzed: 11/01/21									
Chromium, Hexavalent	ND	0.30	mg/kg wet								
<b>LCS (BEK0007-BS1)</b>		Prepared & Analyzed: 11/01/21									
Chromium, Hexavalent	21.0	0.30	mg/kg wet	25.0	84.0	80-120					
<b>Duplicate (BEK0007-DUP1)</b>		<b>Source: 2110262-01</b>		Prepared & Analyzed: 11/01/21							
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND					20	
<b>Matrix Spike (BEK0007-MS1)</b>		<b>Source: 2110262-01</b>		Prepared & Analyzed: 11/01/21							
Chromium, Hexavalent	27.7	0.30	mg/kg dry	29.5	ND	94.0	75-125				
<b>Matrix Spike Dup (BEK0007-MSD1)</b>		<b>Source: 2110262-01</b>		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

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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

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

**Summit Scientific**

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

**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

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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

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

**Summit Scientific**

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

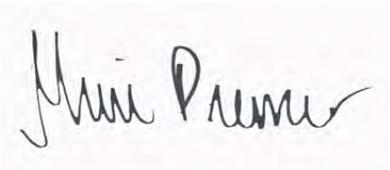
**Batch BEJ0578 - General Preparation**

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

**Batch BEJ0602 - General Preparation**

<b>Duplicate (BEJ0602-DUP1)</b>		<b>Source: 2110262-01</b>		Prepared & Analyzed: 10/29/21	
% Solids	84.8		%	84.9	0.133 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

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

**Summit Scientific**

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

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

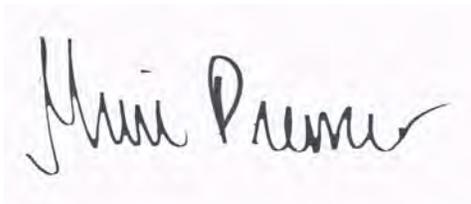
Denver, CO 80203

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 that reads "Muri Premer". The signature is written in a cursive style with a large initial "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.*

2111496

# Summit Scientific

S<sub>2</sub>

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

Client: PDC / Tasman Project Manager: Mark Longhurst  
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com  
City/State/Zip: Broomfield/ CO/ 80020  
Phone: 303-487-1228 Project Name: 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	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	pH, EC, SAR	Boron - HWS	TMBs (1,2,4)&(1,3,5)	PAH - 915		Metals - 915					
1	BK602@ 2.5'	11/30/21	1405	1			X			X				X						pH, EC, SAR by saturated paste Lead					
2	BK602@ 4'		1407	1			X			X				X						X					
3	BK602@ 5'		1409	1			X			X				X						X					
4	BK603@ 2.5'		1415	1			X			X				X						X					
5	BK603@ 4'		1417	1			X			X				X						X					
6	BK603@ 5'		1419	1			X			X				X						X					
7																									
8																									
9																									
10																									
Relinquished by: <i>David Vigil</i>		Date/Time: 11/30/21 1615		Received by: Tasman's Lock Box		Date/Time:		Turn Around Time (Check)		Notes:															
Tasman's Lock Box		Date/Time:		Received by: <i>[Signature]</i>		Date/Time: 11/30/21 1615		Same Day <input checked="" type="checkbox"/> 72 hours												24 hours <input type="checkbox"/> Standard		48 hours <input type="checkbox"/>		Sample Integrity:	
Relinquished by:		Date/Time:		Received by:		Date/Time:		Temperature Upon Receipt: 8.2												Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2111496

Client: Doc/Tasman Client Project ID: 1010ff 35-5 Tank Battery

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

Matrix (check all that apply):  Air  Soil/Solid  Water  Other: \_\_\_\_\_  
(Describe)

Temp (°C) 8.2

Thermometer ID: G86A9201901378

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met 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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input 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>Saveday</u>
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

[Signature]  
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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.11</b>		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						
<b>Arsenic</b>	<b>0.939</b>	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
<b>Lead</b>	<b>3.26</b>	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						
<b>Calcium</b>	<b>279</b>	0.0593	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
<b>Magnesium</b>	<b>168</b>	0.0593	"	"	"	"	"	"	
<b>Sodium</b>	<b>414</b>	0.0593	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.83</b>	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						
<b>% Solids</b>	<b>84.3</b>		%	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						
<b>Specific Conductance (EC)</b>	<b>4.29</b>	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@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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.86</b>		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@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						
<b>Arsenic</b>	<b>1.38</b>	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
<b>Lead</b>	<b>4.04</b>	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						
<b>Calcium</b>	<b>302</b>	0.0598	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
<b>Magnesium</b>	<b>175</b>	0.0598	"	"	"	"	"	"	
<b>Sodium</b>	<b>437</b>	0.0598	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.95</b>	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						
<b>% Solids</b>	<b>83.7</b>		%	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						
<b>Specific Conductance (EC)</b>	<b>4.59</b>	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@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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.97</b>		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

**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						
<b>Arsenic</b>	<b>1.81</b>	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
<b>Lead</b>	<b>4.91</b>	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						
<b>Calcium</b>	<b>60.7</b>	0.0596	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
<b>Magnesium</b>	<b>59.7</b>	0.0596	"	"	"	"	"	"	
<b>Sodium</b>	<b>458</b>	0.0596	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>10.0</b>	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						
<b>% Solids</b>	<b>84.0</b>		%	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						
<b>Specific Conductance (EC)</b>	<b>2.90</b>	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

**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								
<b>pH</b>	<b>8.28</b>			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	

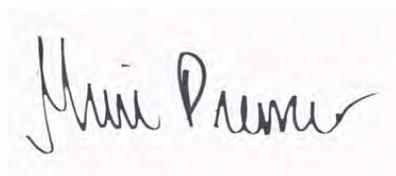
**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

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

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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

**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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.97</b>		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

**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						
<b>Arsenic</b>	<b>0.997</b>	0.200	mg/kg dry	1	BEL0157	12/08/21	12/12/21	EPA 6020B	
<b>Lead</b>	<b>3.01</b>	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						
<b>Calcium</b>	<b>203</b>	0.0577	mg/L dry	1	BEL0017	12/01/21	12/10/21	EPA 6020B	
<b>Magnesium</b>	<b>169</b>	0.0577	"	"	"	"	"	"	
<b>Sodium</b>	<b>579</b>	0.0577	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>7.27</b>	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						
<b>% Solids</b>	<b>86.6</b>		%	1	BEL0121	12/06/21	12/07/21	Calculation	

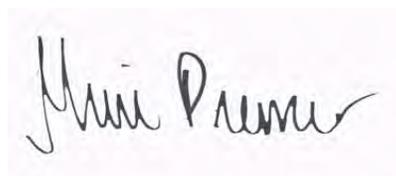
**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Specific Conductance (EC)</b>	<b>4.83</b>	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

**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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.99</b>		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

**Total Metals by EPA 6020B - Quality Control**

**Summit Scientific**

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

**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

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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

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

**Summit Scientific**

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

**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

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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

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

**Summit Scientific**

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

**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

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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

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

**Summit Scientific**

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

**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

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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

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

**Summit Scientific**

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

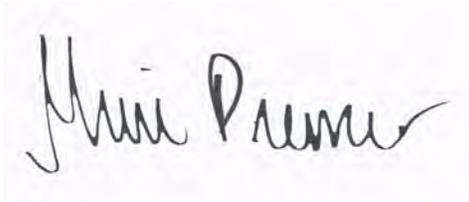
Denver, CO 80203

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 that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

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

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# Summit Scientific

2203381

S<sub>2</sub>

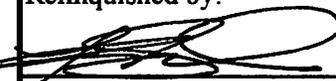
4653 Table Mountain Drive ♦ Golden, Colorado 80403

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.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	HNO3	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 1500	Received by: 	Date/Time: 3/23/22 1320	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: <u>5.6</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Notes:</b> 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# 2203381

Client: POC/Tasman Client Project ID: Wolff 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) 5.0

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met 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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input 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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation <b>(excluding cooling)</b> <sup>(1)</sup> ? 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 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

[Signature]  
Custodian Printed Name or Initials

3-23-22  
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	

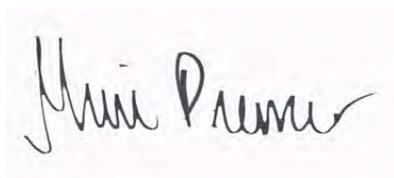
**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

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

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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

**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	

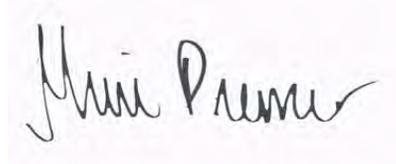
**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

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

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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

**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						
<b>Arsenic</b>	<b>1.06</b>	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
<b>Lead</b>	<b>4.93</b>	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						
<b>Calcium</b>	<b>64.6</b>	0.0571	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
<b>Magnesium</b>	<b>36.0</b>	0.0571	"	"	"	"	"	"	
<b>Sodium</b>	<b>148</b>	0.0571	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.66</b>	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						
<b>% Solids</b>	<b>87.6</b>		%	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						
<b>pH</b>	<b>7.97</b>		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

**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						
<b>Arsenic</b>	<b>1.53</b>	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
<b>Lead</b>	<b>4.17</b>	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						
<b>Calcium</b>	<b>81.3</b>	0.0569	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
<b>Magnesium</b>	<b>47.3</b>	0.0569	"	"	"	"	"	"	
<b>Sodium</b>	<b>195</b>	0.0569	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.25</b>	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						
<b>% Solids</b>	<b>87.9</b>		%	1	BFC0628	03/28/22	03/28/22	Calculation	

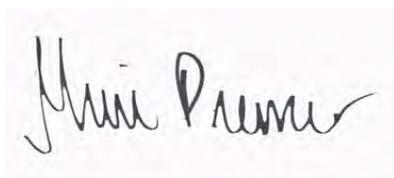
**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.99</b>		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						
<b>Arsenic</b>	<b>2.17</b>	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
<b>Lead</b>	<b>6.99</b>	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						
<b>Calcium</b>	<b>353</b>	0.0594	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
<b>Magnesium</b>	<b>146</b>	0.0594	"	"	"	"	"	"	
<b>Sodium</b>	<b>333</b>	0.0594	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.76</b>	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						
<b>% Solids</b>	<b>84.2</b>		%	1	BFC0628	03/28/22	03/28/22	Calculation	

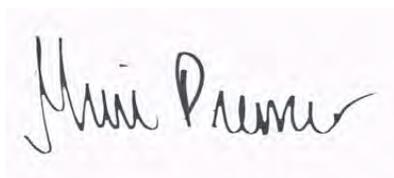
**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.92</b>		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	

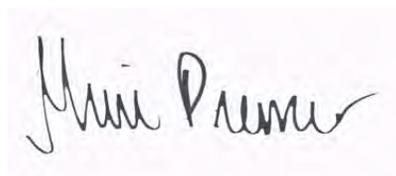
**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

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						
<b>Arsenic</b>	<b>4.03</b>	0.200	mg/kg dry	1	BFC0717	03/30/22	04/08/22	EPA 6020B	
<b>Lead</b>	<b>8.48</b>	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						
<b>Calcium</b>	<b>418</b>	0.0635	mg/L dry	1	BFC0676	03/29/22	04/08/22	EPA 6020B	
<b>Magnesium</b>	<b>155</b>	0.0635	"	"	"	"	"	"	
<b>Sodium</b>	<b>332</b>	0.0635	"	"	"	"	"	"	

**Calculated Analysis**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.52</b>	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						
<b>% Solids</b>	<b>78.7</b>		%	1	BFC0628	03/28/22	03/28/22	Calculation	

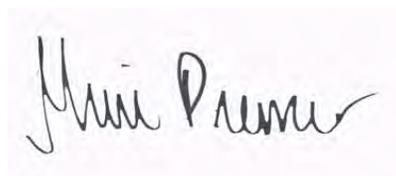
**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

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

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>7.92</b>		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@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	

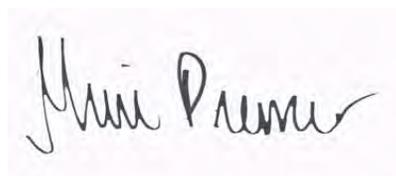
**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

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

**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

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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

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

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

**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	"							

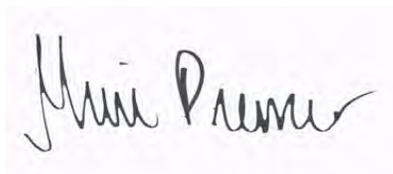
**LCS (BFC0676-BS1)**

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

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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

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

**Summit Scientific**

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

**Batch BFC0628 - General Preparation**

**Duplicate (BFC0628-DUP1)**

**Source: 2203095-06**

Prepared & Analyzed: 03/28/22

% Solids	85.7		%		85.7			0.0328		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:**  
 04/11/22 09:06

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

**Summit Scientific**

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

**Batch BFC0709 - General Preparation**

**LCS (BFC0709-BS1)**

Prepared & Analyzed: 03/30/22

pH 9.05 pH Units 9.18 98.6 95-105

**Duplicate (BFC0709-DUP1)**

Source: 2203356-16

Prepared & Analyzed: 03/30/22

pH 7.62 pH Units 7.72 1.30 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:**  
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,



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

S<sub>2</sub>

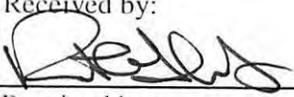
2206162

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	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5-TMB	Boron - HWS	pH, EC, SAR		
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	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 8.3 Samples Intact: <input checked="" type="checkbox"/> Yes No	<b>Notes:</b>
Relinquished by: Tasman's Lock Box Date/Time: 6922 1726	Received by:  Date/Time: 6922 1726		
Relinquished by: Date/Time:	Received by: Date/Time:		

S<sub>2</sub>

S2 Work Order# 2206162

Sample Receipt Checklist

Client: Wachtman Client Project ID: 1010ff 355 wellhead

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

-

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

Temp (°C)

Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C <sup>(1)</sup> ? <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			ON ICE
Were all samples received intact <sup>(1)</sup> ?	-			
Was adequate sample volume provided <sup>(1)</sup> ?	-			
If custody seals are present, are they intact <sup>(1)</sup> ?	-			
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 <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , 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 <sup>(1)</sup> ?	-			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	-			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	-			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	-			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			-	
Are samples preserved that require preservation <b>(excluding cooling)</b> <sup>(1)</sup> ? Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
<u>Additional Comments (if any):</u>  				
<sup>(1)</sup> 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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>8.08</b>		pH Units	1	BFF0308	06/10/22	06/10/22	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:**  
 06/17/22 11:03

**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 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.*



# Summit Scientific

S<sub>2</sub>

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: *Lodff 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	PAHs	
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: 11/21/22 1508	Received by: Tasman's Lock Box	Date/Time: 11/21/22 1508	<b>Turn Around Time (Check)</b> Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 8.7 Samples Intact: <input checked="" type="radio"/> Yes No	<b>Notes:</b> * = just Atomic + Lead * = just pH + SAR
Relinquished by: Tasman's Lock Box	Date/Time: 11/22/22 1737	Received by: 	Date/Time: 11/22/22 1737		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

S<sub>2</sub>

2/2

S2 Work Order# 2211053

Sample Receipt Checklist

Client: Pacifiastman Client Project ID: Lokoff 35-Swellhead

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: \_\_\_\_\_  
  -

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

Temp (°C)  Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C <sup>(1)</sup> ? <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			on ICE
If custody seals are present, are they intact <sup>(1)</sup> ?	-			
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 <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , 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 <sup>(1)</sup> ?	-			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	-			
Were all samples received intact <sup>(1)</sup> ?	-			
Was adequate sample volume provided <sup>(1)</sup> ?	-			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	-			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	-			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			-	
Are samples preserved that require preservation <b>(excluding cooling)</b> <sup>(1)</sup> ? Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	

Additional Comments (if any):

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

[Signature]  
Custodian Printed Name

11-2-22 1737  
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:**  
11/08/22 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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>185</b>	0.0593	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	<b>114</b>	0.0593	"	"	"	"	"	"	
Sodium	<b>383</b>	0.0593	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	<b>5.46</b>	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 Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	<b>84.4</b>		%	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						
<b>Calcium</b>	<b>93.1</b>	0.0590	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>45.4</b>	0.0590	"	"	"	"	"	"	
<b>Sodium</b>	<b>163</b>	0.0590	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 11:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.46</b>	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						
<b>% Solids</b>	<b>84.7</b>		%	1	BFK0156	11/06/22	11/07/22	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:**  
 11/08/22 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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.55</b>		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

**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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.31</b>		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

**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	<b>0.670</b>	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	<b>143</b>	0.0603	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
Magnesium	<b>75.4</b>	0.0603	"	"	"	"	"	"	
Sodium	<b>243</b>	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	<b>4.09</b>	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	<b>82.9</b>		%	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	<b>8.40</b>		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

**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

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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

**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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.45</b>		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

**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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.59</b>		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						
<b>Arsenic</b>	<b>1.03</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>9.09</b>	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						
<b>Calcium</b>	<b>597</b>	0.0595	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>186</b>	0.0595	"	"	"	"	"	"	
<b>Sodium</b>	<b>454</b>	0.0595	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.16</b>	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						
<b>% Solids</b>	<b>84.1</b>		%	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						
<b>pH</b>	<b>7.77</b>		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						
<b>Arsenic</b>	<b>1.23</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>4.40</b>	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						
<b>Calcium</b>	<b>95.9</b>	0.0599	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>57.8</b>	0.0599	"	"	"	"	"	"	
<b>Sodium</b>	<b>261</b>	0.0599	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 11:44**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>5.20</b>	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						
<b>% Solids</b>	<b>83.5</b>		%	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						
<b>pH</b>	<b>8.33</b>		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						
<b>Arsenic</b>	<b>0.446</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>3.47</b>	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						
<b>Calcium</b>	<b>167</b>	0.0580	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>113</b>	0.0580	"	"	"	"	"	"	
<b>Sodium</b>	<b>298</b>	0.0580	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 11:46**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>4.37</b>	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						
<b>% Solids</b>	<b>86.2</b>		%	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						
<b>pH</b>	<b>8.64</b>		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						
<b>Arsenic</b>	<b>0.692</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>2.65</b>	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						
<b>Calcium</b>	<b>95.3</b>	0.0597	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>67.3</b>	0.0597	"	"	"	"	"	"	
<b>Sodium</b>	<b>200</b>	0.0597	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 11:55**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.83</b>	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						
<b>% Solids</b>	<b>83.7</b>		%	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						
<b>pH</b>	<b>8.55</b>		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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>0.597</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>3.33</b>	0.200	"	"	"	"	"	"	

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

Date Sampled: **11/02/22 11:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Calcium</b>	<b>113</b>	0.0593	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>61.5</b>	0.0593	"	"	"	"	"	"	
<b>Sodium</b>	<b>185</b>	0.0593	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 11:57**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.48</b>	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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>84.4</b>		%	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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.58</b>		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						
<b>Arsenic</b>	<b>0.916</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>7.19</b>	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						
<b>Calcium</b>	<b>57.5</b>	0.0593	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>38.3</b>	0.0593	"	"	"	"	"	"	
<b>Sodium</b>	<b>143</b>	0.0593	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 12:02**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.59</b>	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						
<b>% Solids</b>	<b>84.3</b>		%	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						
<b>pH</b>	<b>8.34</b>		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						
<b>Arsenic</b>	<b>0.679</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>3.90</b>	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						
<b>Calcium</b>	<b>102</b>	0.0612	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>64.8</b>	0.0612	"	"	"	"	"	"	
<b>Sodium</b>	<b>334</b>	0.0612	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 12:04**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>6.36</b>	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						
<b>% Solids</b>	<b>81.6</b>		%	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						
<b>pH</b>	<b>8.47</b>		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						
<b>Arsenic</b>	<b>0.691</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>3.07</b>	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						
<b>Calcium</b>	<b>74.5</b>	0.0584	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>53.2</b>	0.0584	"	"	"	"	"	"	
<b>Sodium</b>	<b>174</b>	0.0584	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 12:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.76</b>	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						
<b>% Solids</b>	<b>85.7</b>		%	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						
<b>pH</b>	<b>8.57</b>		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						
<b>Arsenic</b>	<b>0.774</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>3.56</b>	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						
<b>Calcium</b>	<b>121</b>	0.0602	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>86.1</b>	0.0602	"	"	"	"	"	"	
<b>Sodium</b>	<b>223</b>	0.0602	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 12:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.79</b>	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						
<b>% Solids</b>	<b>83.1</b>		%	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						
<b>pH</b>	<b>8.30</b>		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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>0.627</b>	0.200	mg/kg dry	1	BFK0117	11/03/22	11/04/22	EPA 6020B	
<b>Lead</b>	<b>3.03</b>	0.200	"	"	"	"	"	"	

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

Date Sampled: **11/02/22 12:12**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Calcium</b>	<b>67.8</b>	0.0586	mg/L dry	1	BFK0134	11/04/22	11/05/22	EPA 6020B	
<b>Magnesium</b>	<b>39.5</b>	0.0586	"	"	"	"	"	"	
<b>Sodium</b>	<b>130</b>	0.0586	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **11/02/22 12:12**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>3.10</b>	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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>85.3</b>		%	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		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.54</b>		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	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**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

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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

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

**Summit Scientific**

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

**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

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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

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

**Summit Scientific**

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

**Batch 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

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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

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

**Summit Scientific**

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

**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

<b>SITE NAME:</b> Loloff 35-5							<b>DATE:</b> 10/14/2021	<b>REM. PROJECT #:</b> 19816	<b>WEATHER:</b> Cloudy and 40s		
<b>SITE DIRECTIONS:</b> CR 50 & CR 59, N 0.875, W into							<b>CLIENT:</b> PDC/ Delbert Pace				
<b>LEGALS AND LAT/LONG:</b> 40.362858 -104.507697							<b>TASMAN PERSONNEL:</b> Dylan Brightwell				
<b>SOIL TYPES:</b> Silty Sand - SM							<b>SURFACE GRADIENT:</b> 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	<b>IMPACTED SOIL IDENTIFIED?</b> Yes				
10/14/2021 14:25	SS05 @ 4'	0.3	No Staining	No Odor	Yes	Lab	<b>ESTIMATED VOLUME OF IMPACTS:</b>				
10/14/2021 14:28	SS06 @ 2.5'	0.2	No Staining	No Odor	Yes	Lab	<b>Date</b>	<b>Number</b>	<b>CY</b>		
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	<b>Total Removed</b>		3	30	
10/15/2021 08:16	BKG01 @ 4'	0.0	No Staining	No Odor	Yes	On-Hold	<b>Disposal Facility:</b> WM - Ault				
10/15/2021 08:18	BKG 01 @ 5'	0.2	No Staining	No Odor	Yes	On-Hold	Groundwater Recovery				
							<b>DATE GW ENCOUNTERED:</b> 10/14/2021		<b>DEPTH:</b> 3'		
							<b>GROUNDWATER IN CONTACT WITH IMPACTED SOIL?</b> Groundwater in contact with soil impacts.				
							<b>LNAPL OR SHEEN OBSERVED ON GW?</b>				
GROUNDWATER SAMPLING							Date		BBLs		
							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					
							<b>Total Removed</b>		8		
							<b>Disposal Facility:</b> NGL C6				

Photographic Log

					
Material:	Volume:	Contents:	Material:	Volume:	Contents:
Notes/Conditions:			Notes/Conditions:		

Photographic Log



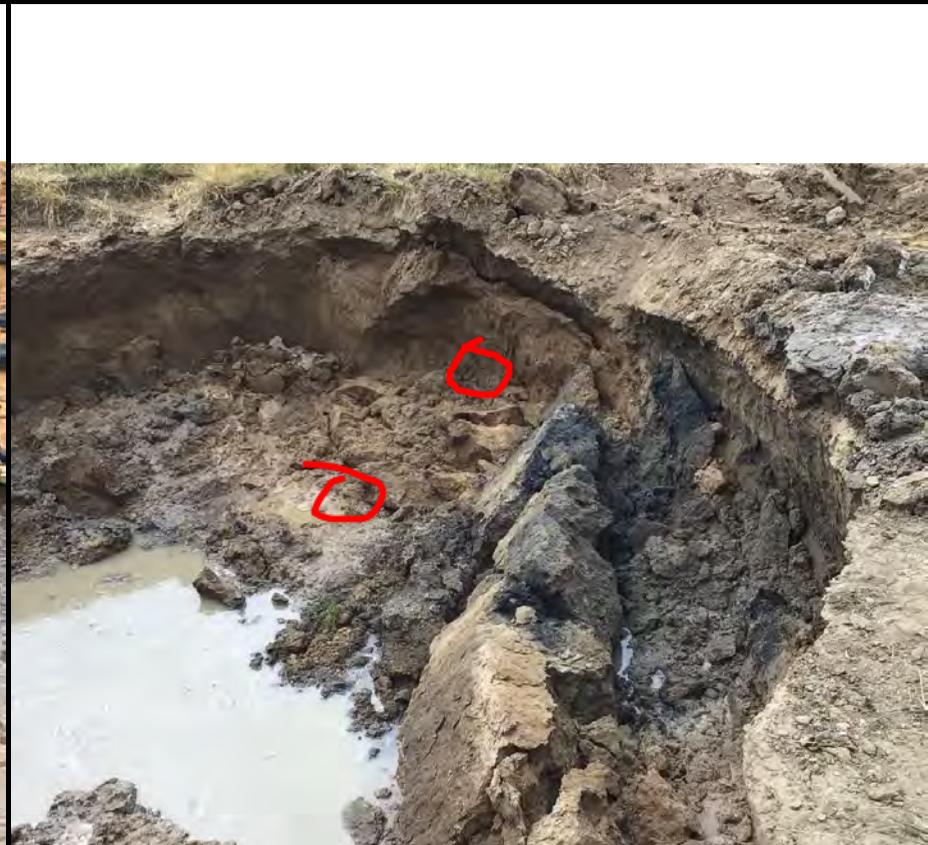
<b>Equipment ID:</b> FL01-02		<b>Equipment Type:</b>		<b>Equipment ID:</b> FL01-03		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b>			

### Photographic Log



<b>Equipment ID:</b> GW02		<b>Equipment Type:</b>		<b>Equipment ID:</b> SS02		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b> Water reacted with HCL				<b>Notes/Conditions:</b> 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



<b>Equipment ID:</b>		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b> Wellhead Cap			

<b>Equipment ID:</b> SS03 and SS04		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>			

**Photographic Log**


<b>Equipment ID:</b> SS5 and SS06		<b>Equipment Type:</b>		<b>Equipment ID:</b> SS07 and SS08		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b>			

**Photographic Log**


<b>Equipment ID:</b> SS09 and SS10		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>			

<b>Equipment ID:</b> BKG01		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>			



## WELLHEAD ABANDONMENT FORM

<b>SITE NAME:</b> Loloff 35-5 Wellhead							<b>DATE:</b> 11/30/2021	<b>REM. PROJECT #:</b> 19816	<b>WEATHER:</b> 50s and sunny
<b>SITE DIRECTIONS:</b> CR50&CR59, N 0.9, W into							<b>CLIENT:</b> PDC		
<b>LEGALS AND LAT/LONG:</b> 40.361149, -104.509716							<b>TASMAN PERSONNEL:</b> david vigil		
<b>SOIL TYPES:</b> Silty Sand - SM							<b>SURFACE GRADIENT:</b> 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**

					
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b>			<b>Notes/Conditions:</b>		

## Borehole Logging Form

**BOREHOLE ID:** BH02      **SITE NAME:** Loloff 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		HA	100%	0.0	BH0202.5' (1840)		↓
4				0.0	BH0204' (1845)	SM	- As above, saturated
5				0.0			↓
6				0.0			SW
7							
8							
9							
10							
11							
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25							

## Borehole Logging Form

BOREHOLE ID: <b>BH03</b>	SITE NAME: <b>106th 35-5 Wt</b>	CLIENT NAME: <b>PDC ENERGY</b>
Date Completed: <b>3/22/2022</b>	Location: <b>E PDC</b>	
Drilling Company: <b>Tasman</b>	Surface Completion: <b>Flush</b>	DTW: <b>~3'</b> TD: <b>~7'</b>
Type of Drill: <b>Hand Auger</b>	Geologist: <b>Kris Shepherd</b>	Project Manager: <b>B. Nelson</b>
Bit Size: <b>3"</b>	Logging Method: <b>HA</b>	
Well Const. Material: Diameter: <b>1"</b> Screen: <b>Sch 40 PVC Slotted 0.010</b> Riser: <b>Sch 40 PVC Blank</b>		

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	<b>BH03@2.5' (0900)</b>	SM	↓ - As above, saturated
4		<b>HA</b>	<b>100%</b>	0.0	<b>BH03@4' (0910)</b>		↓
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							
12							
13							
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23							
24							
25							



# Borehole Logging Form

**BOREHOLE ID:** BH04      **SITE NAME:** Loloff 35-5 WH      **CLIENT NAME:** PDC ENERGY  
**Date Completed:** 3/23/2022      **Location:** S POC  
**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 ↓ As above, saturated ↓ Tan, sand, fine to medium grain, poorly sorted, saturated, no odor ↓
2	---			0.0			
3	---			0.0	BH04@25' (0930)	SM	
4	---	HA	100%	0.0	BH04@4' (0940)	SM	
5	---			0.0		SW	
6	---			0.0			
7	---			0.0			
8							
9							
10							
11							
12							
13							
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24							
25							

## Borehole Logging Form

BOREHOLE ID: <b>BH05</b>	SITE NAME: <b>loloff 35-5 WH</b>	CLIENT NAME: <b>PDC ENERGY</b>
Date Completed: <b>3/23/2022</b>	Location: <b>W POC</b>	
Drilling Company: <b>Tasman</b>	Surface Completion: <b>Flush</b>	DTW: <b>~3.5'</b> TD: <b>~7'</b>
Type of Drill: <b>Hand Auger</b>	Geologist: <b>Kris Shepherd</b>	Project Manager: <b>B. Nelson</b>
Bit Size: <b>3"</b>	Logging Method: <b>HA</b>	
Well Const. Material: Diameter: <b>1"</b> Screen: <b>Sch 40 PVC Slotted 0.010</b> Riser: <b>Sch 40 PVC Blank</b>		

Depth (feet)	Well Completion	Sample Type	% Recovery	PID (ppm)	Laboratory Sample	USCS	Description	
1		HA	100%	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				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								
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# Borehole Logging Form

BOREHOLE ID: **BH01**      SITE NAME: **Loloff 35-5 wellhead**      CLIENT NAME: **PDC ENERGY**

Date Completed: **6/9/22**      Location: **SWICE**

Drilling Company: **Tasman**      Surface Completion: **Concrete/well cover**      DTW: **7'**      TD: **12'**

Type of Drill: **Hand Auger (DPT)**      Geologist: **Smith/Deas**      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		↑	↑	0.8		SC	0-1' = Brown, clayey sand, poorly sorted, fine-coarse grain, moist, organic odor.			
2				0.2						
3				0.0						
4					HA	100%	0.1		CL	1-4' = Tan/bay, Clay, low plasticity, moist, organic odor.
5					0.4					
6					↓	↓	0.6		CL	4-6' = Tan/bay/black, sandy clay, low plasticity, poorly sorted, fine-med grain, moist, organic odor. 7-12' = Tan/clayey sand, moderately sorted, fine-medium grain, saturated, organic odor.
7					↑	↑	0.4			
8					DPT	40%	0.8			
9							0.1			
10							0.6	BH01 11'		
11							0.1	912		
12									CL	7-12' = Tan, sandy clay, low plasticity, moderate sorting, fine-medium, saturated, organic odor.
13										
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: Saggy 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		↑	↑	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' 1130		
7		SBS	100%	0.1				
8		↓	↓	↓	0.0	S801e8' 1131		
9	x							
10								
11								
12								
13								
14								
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22								
23								
24								
25								



# Borehole Logging Form

BOREHOLE ID: SB02 SITE NAME: Loloff 35-5 WH CLIENT NAME: PDC ENERGY

Date Completed: 11/2/22 Location: western most boring.

Drilling Company: Tasman Surface Completion: NA DTW: 3' TD: 8'

Type of Drill: HA = Hand Auger SBS = Soggy water side Geologist: Sam A. 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	↑	↑	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		SBS	100%	0.2		1115	
8		↓	↓	0.3		SB02c 8'	1117
9							
10							
11							
12							
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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 source	
Drilling Company: Tasman	Surface Completion:	DTW: ~3 TD: 8'
Type of Drill: HA = 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		SW	1-4 = Tan, Sand, well-sorted, Fine-Grained, saturated at 3', no staining/odor.
3		↓	↓	0.3		SW	
4		↓	↓	0.3			
5		↑	↑	0.2		SW	4-8 = Brown/Tan, Sand, poorly sorted, Fine to coarse grain, saturated, no odor/stain.
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: N/A	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, granular setting, dry, organic odor/stain.	
2		HA		0.1	BK604 C 2.5' 1140	CL	1-3' = Brown, clay, moderate plasticity, saturated, at 3', no staining/odor.	
3			100%	0.0				
4					0.1	BK604 C 4' 1144	SW	3-5' = Tan/brown, sand, well graded, fine-course grain, saturated, no odor/staining
5			↓	↓	0.1	BK604 C 5' 1146		
6			↑	↑	0.2	BK604 C 6' 1155	SW	5-8' = Tan, sand, poor setting, fine to coarse silt/clay, no odor or staining
7			SBS	100%	0.1			
8			↓	↓	0.1	BK604 C 8' 1157		
9								
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11								
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# Borehole Logging Form

BOREHOLE ID: BK605      SITE NAME: Ldoff 35-5 w4      CLIENT NAME: PDC ENERGY

Date Completed: 11/2/77      Location: Far west of source

Drilling Company: Tasman      Surface Completion: NA      DTW: 3'      TD: 8'

Type of Drill: HA=hand auger      SBS= Soggy 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 @ 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 @ 4' 1204		
5		↓	↓	0.1	BK605 @ 5' 1205		
6		↑	↑	0.1	BK605 @ 6' 1210	SW	5-8' = Tan/Brown, sand, poorly sorted, fine to coarse with trace gravel, soft, organic odor, no staining
7		SBS	100%	0.0			
8		↓	↓	0.1	BK605 @ 8' 1212		
9	X						
10							
11							
12							
13							
14							
15							
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19							
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