

FREMONT ENVIRONMENTAL INC.

March 4, 2024

Mr. Jason Davidson
PDC Energy Inc.
4000 Burlington Ave
Evans, CO 80620

Subject: **Excavation Report**
 Guttersen 31T-221 Tank Battery
 SESE Sec. 31, T3N, R63W
 Weld County, Colorado
 Fremont Project No. C023-321
 Facility # 434637, Spill ID # 485755

Dear Mr. Davidson:

Enclosed please find a copy of the above referenced Excavation Report for the Guttersen 31T-221 Tank Battery aboveground storage tank (AST) release in Weld County, Colorado. The enclosed report describes excavation actions to remediate impacted soil at the site.

Since excavation has confirmed the removal of subsurface petroleum impacts, PDC Energy Inc. should request a No Further Action (NFA) determination be provided by the ECMC for this site.

Please contact me at (603) 477-6907 if you require any additional information.

Fremont appreciates the opportunity to provide this service.

Sincerely,
FREMONT ENVIRONMENTAL INC.



Ethan D. Black, P.G.
Geologist

Enclosure

EXCAVATION REPORT

PDC ENERGY INC.

GUTTERSEN 31T-221 TANK BATTERY

WELD COUNTY, COLORADO

FREMONT PROJECT NO. C023-321

FACILITY # 434637, SPILL ID # 485755

Prepared by:

**Fremont Environmental Inc.
1759 Redwing Lane
Broomfield, CO 80020
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March 4, 2024

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EXCAVATION REPORT
PDC ENERGY INC.
GUTTERSEN 31T-221 TANK BATTERY
WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-321
FACILITY # 434637, SPILL ID # 485755

1.0 INTRODUCTION

The purpose of this document is to present information collected during the excavation of impacted soil at the Guttersen 31T-221 Tank Battery (Guttersen) AST release location in Weld County, Colorado. Excavation of impacted soil was completed on December 14, 2023.

2.0 BACKGROUND INFORMATION

2.1 Site Location

The Guttersen site is located in Tampa, Colorado in Weld County as shown on Figure 1. The site is located in an agricultural area approximately 1.6 miles northwest of the intersection of Interstate 76 and County Rd 57. The location is further described as the SE ¼ of the SE ¼ of Section 31, Township 3N, Range 63W.

2.2 Site History

The Guttersen pad, which services multiple oil wells, has been in operation since 2014. A release of an unknown quantity of production fluids occurred on December 7, 2023 at the Guttersen tank battery when an over-pressurized AST caused an oil mist to release into secondary containment and off the facility pad. Remediation efforts were undertaken promptly following the release to determine the magnitude and extent of soil impacts adjacent to the AST which were subsequently removed by excavation.

3.0 FIELD ACTIVITIES

Remediation efforts consisted of the excavation of impacted soil adjacent to the Guttersen tank battery. The subsurface generally consisted of road base to approximately 0.25 feet below ground surface (bgs) within the excavation. Groundwater was not encountered during the excavation

Excavation of the 90'x20'x0.25' deep release area was completed on December 14, 2023. Seven soil samples were collected at ground surface and 0.25 feet bgs in the excavation at the Guttersen AST release location during the two-day excavation and field screened using a photoionization detector (PID).

The soil samples were submitted and analyzed by Summit Scientific Inc. in Golden, Colorado for benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, trimethylbenzenes, total petroleum hydrocarbons (TPH) - gasoline range organics (TPH-GRO) by EPA Method 8260B, and TPH - diesel range organics (TPH-DRO) and TPH - residual range organics (TPH-ORO) by EPA Method 8015, polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D, pH by APHA/ASTM/EPA methods, Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction for calculated analysis of sodium absorption ratio (SAR), electrical conductivity (EC) by EPA Method 120.1, Saturated Paste Extraction, boron (hot water soluble) and Table 915-1 metals by EPA 6020B. The laboratory's reports and chain-of-custody documentation are included in Appendix B and summarized in Tables 1 to 4.

Laboratory analysis of background samples collected in native soil adjacent to the release location exceeded the ECMC Table 915-1 standards for inorganics and metals. Background sample concentrations calculated at 125% of the maximum background concentration for Table 915-1 metals were greater than concentrations of samples

collected within the excavation that exceeded the ECMC Table 915-1 standards for metals. Therefore, the operator proposes to attribute elevated concentrations of inorganics and metals to local soil conditions.

The laboratory analyses indicate that petroleum constituents in soil samples collected from the excavation achieved the ECMC Table 915-1 RSSLs for all petroleum constituents. Approximately six cubic yards of impacted soil were removed by Mundt Oilfield Services during the excavation. The impacted soil was disposed of as non-hazardous waste at the Buffalo Ridge Landfill in Keenesburg, Colorado. The excavation was backfilled using clean, imported fill.

4.0 DISCUSSION

As demonstrated by the soil sampling, impacted soil was removed by excavation from the release area at the Guttersen AST location. This was confirmed by the analyses of soil samples collected from the excavation which achieved the ECMC Table 915-1 standards petroleum constituents.

Approximately six cubic yards of impacted soil were removed and transported to the landfill. The soil data are illustrated and summarized in the attached tables and figures.

5.0 REMARKS

The discussion and conclusions contained in this report represent our professional opinions. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

This report was prepared by **FREMONT ENVIRONMENTAL INC.**



3/4/24

Date _____

Ethan D. Black, P.G.

Geologist

Reviewed by:



3/4/24

Date _____

Paul V. Henehan, P.E.

Senior Consultant

TABLES

TABLE 1
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
PDC ENERGY INC.
GUTTERSEN 31T-221, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-321

Sample ID	Sample Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4-Trimethyl-Benzene (mg/kg)	1,3,5-Trimethyl-Benzene (mg/kg)	Naphthalene (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500**		
SS-01 Surf.	12/8/2023	Surface	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	0.02	0.68	490	87
SS-02 Surf.	12/8/2023	Surface	<0.002	<0.005	<0.005	<0.010	0.007	<0.005	0.01	0.75	1500	220
SS-03 Surf.	12/8/2023	Surface	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50
SS-04 Surf.	12/8/2023	Surface	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50
SS-05 Surf.	12/8/2023	Surface	<0.002	<0.005	<0.005	<0.010	0.049	0.01	0.09	2.2	230	<50
SS-06 Surf.	12/8/2023	Surface	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	0.02	0.64	710	80
SS-07 Surf.	12/8/2023	Surface	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	82	<50
SS-01 0.25FT	12/14/2023	0.25	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	54	<50
SS-02 0.25FT	12/14/2023	0.25	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SS-05 0.25FT	12/14/2023	0.25	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SS-06 0.25FT	12/14/2023	0.25	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SS-01 0.25FT (2)	02/20/2024	0.25	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50

Bold faced values exceed the ECMC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

Green highlighted cells indicate soil removed via excavation

* Indicates laboratory minimum detection limit in excess of SSL

** Summation of GRO+DRO+ORO must be less than 500 mg/kg

NA - Not analyzed

TABLE 2
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
PDC ENERGY INC.
GUTTERSEN 31T-221, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-321

Sample ID	Sample Date	Depth (ft)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) Fluoranthene (mg/kg)	Benzo (k) Fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo (a,h) Anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3-cd) Pyrene (mg/kg)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl- Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			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
SS-01 Surf.	12/08/2023	Surface	<0.00500	<0.00500	0.041	<0.00500	<0.00500	<0.00500	0.0206	<0.00500	<0.00500	0.139	<0.00500	0.023	0.243	0.576
SS-02 Surf.	12/08/2023	Surface	<0.00500	<0.00500	0.084	<0.00500	<0.00500	<0.00500	0.0533	<0.00500	<0.00500	0.29	<0.00500	0.079	2.42	2.75
SS-03 Surf.	12/08/2023	Surface	<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
SS-04 Surf.	12/08/2023	Surface	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00579	0.00947
SS-05 Surf.	12/08/2023	Surface	<0.00500	<0.00500	0.012	<0.00500	<0.00500	<0.00500	0.0121	<0.00500	<0.00500	0.0645	<0.00500	0.012	0.143	0.329
SS-06 Surf.	12/08/2023	Surface	<0.00500	<0.00500	0.051	<0.00500	<0.00500	<0.00500	0.03	<0.00500	0.011	0.201	<0.00500	0.038	0.568	1.28
SS-07 Surf.	12/08/2023	Surface	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00597	<0.00500	<0.00500	<0.00500	<0.00500
SS-01 0.25FT	12/14/2023	0.25	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0306	<0.00500	<0.00500	0.167	0.151
SS-02 0.25FT	12/14/2023	0.25	<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
SS-05 0.25FT	12/14/2023	0.25	<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
SS-06 0.25FT	12/14/2023	0.25	<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
SS-01 0.25FT (2)	02/20/2024	0.25	<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

Bold faced values exceed the ECMC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

Green highlighted cells indicate soil removed via excavation

TABLE 3
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
PDC ENERGY INC.
GUTTERSEN 31T-221, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-321

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
Max. Background Concentration			8.64	-	-	-
SS-01 Surf.	12/08/2023	Surface	8.22	0.251	0.525	<2.00
SS-02 Surf.	12/08/2023	Surface	8.30	0.278	0.512	<2.00
SS-03 Surf.	12/08/2023	Surface	8.62	0.252	0.643	<2.00
SS-04 Surf.	12/08/2023	Surface	8.76	0.203	0.534	<2.00
SS-05 Surf.	12/08/2023	Surface	8.13	0.572	0.501	<2.00
SS-06 Surf.	12/08/2023	Surface	8.25	0.359	0.539	<2.00
SS-07 Surf.	12/08/2023	Surface	7.39	0.313	0.0225	<2.00
SS-01 0.25FT	12/14/2023	0.25	8.11	0.702	3.64	<2.00
SS-02 0.25FT	12/14/2023	0.25	7.93	0.61	0.492	<2.00
SS-05 0.25FT	12/14/2023	0.25	8.00	0.989	1.67	<2.00
SS-06 0.25FT	12/14/2023	0.25	7.96	1.42	1.65	<2.00
SS-04 SURF (2)	02/20/2024	0.25	8.62	NA	NA	NA
BKG-1 Surf.	12/08/2023	Surface	8.11	0.568	1.49	<2.00
BKG-2 Surf.	12/08/2023	Surface	8.64	0.182	0.595	<2.00
BKG-3 Surf.	12/08/2023	Surface	8.53	0.128	0.0161	<2.00
BKG-4 Surf.	12/08/2023	Surface	8.25	0.143	0.0163	<2.00
BKG-5 Surf.	12/08/2023	Surface	7.45	0.318	0.00422	<2.00

Bold faced, yellow highlighted values exceed the ECMC Table 915-1 concentrations

Green highlighted cells indicate soil removed via excavation

Yellow highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

Orange highlighted 915-1 Limits indicate soil exceeding the maximum background concentration/concentration range

NA - Not analyzed

TABLE 4
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
PDC ENERGY INC.
GUTTERSEN 31T-221, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-321

Sample ID	Sample Date	Depth (ft)	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)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
Max. Background Concentration			0.88	170	NA	NA	NA	NA	NA	NA	NA	NA
125% Max. Background Concentration			1.1	213	NA	NA	NA	NA	NA	NA	NA	NA
SS-01 Surf.	12/08/2023	Surface	0.649	48.3	<0.200	<0.30	1.95	3.37	1.57	<0.260	<0.0200	6.2
SS-02 Surf.	12/08/2023	Surface	0.754	41	<0.200	<0.30	2.29	3.44	1.7	<0.260	<0.0200	6.1
SS-03 Surf.	12/08/2023	Surface	0.787	40.2	<0.200	<0.30	2.19	2.54	1.67	<0.260	<0.0200	5.11
SS-04 Surf.	12/08/2023	Surface	0.796	37.4	<0.200	<0.30	2.21	2.92	1.56	<0.260	<0.0200	5.53
SS-05 Surf.	12/08/2023	Surface	0.615	54.1	<0.200	<0.30	1.42	2.87	1.08	<0.260	<0.0200	3.84
SS-06 Surf.	12/08/2023	Surface	0.775	62.2	<0.200	<0.30	2.2	2.86	1.5	<0.260	<0.0200	5.47
SS-07 Surf.	12/08/2023	Surface	0.612	73.4	<0.200	<0.30	1.44	3.44	1.03	<0.260	<0.0200	5.59
SS-01 0.25FT	12/14/2023	0.25	0.751	80.1	<0.200	<0.30	5.51	6.04	3.61	<0.260	0.0243	17.6
SS-02 0.25FT	12/14/2023	0.25	0.095	170	0.312	<0.30	7.4	11.4	5.3	<0.260	0.0741	23.1
SS-05 0.25FT	12/14/2023	0.25	0.832	172	<0.200	<0.30	3.74	4.15	2.07	<0.260	0.027	12.3
SS-06 0.25FT	12/14/2023	0.25	0.942	165	<0.200	<0.30	4.98	5.36	2.49	<0.260	0.0405	15.5
BKG-1 Surf.	12/08/2023	Surface	0.766	40.1	<0.200	<0.30	0.834	2.55	0.702	<0.260	<0.0200	2.9
BKG-2 Surf.	12/08/2023	Surface	0.793	34.4	<0.200	<0.30	2.15	2.7	1.54	<0.260	<0.0200	4.6
BKG-3 Surf.	12/08/2023	Surface	0.88	51.7	<0.200	<0.30	1.45	3.91	1.61	<0.260	<0.0200	6.05
BKG-4 Surf.	12/08/2023	Surface	0.855	170	<0.200	<0.30	1.77	4.8	1.63	<0.260	<0.0200	6.45
BKG-5 Surf.	12/08/2023	Surface	0.797	147	<0.200	<0.30	1.75	4.13	1.47	<0.260	<0.0200	6.4

Bold faced values exceed the ECMC Table 915-1 concentrations

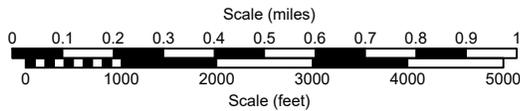
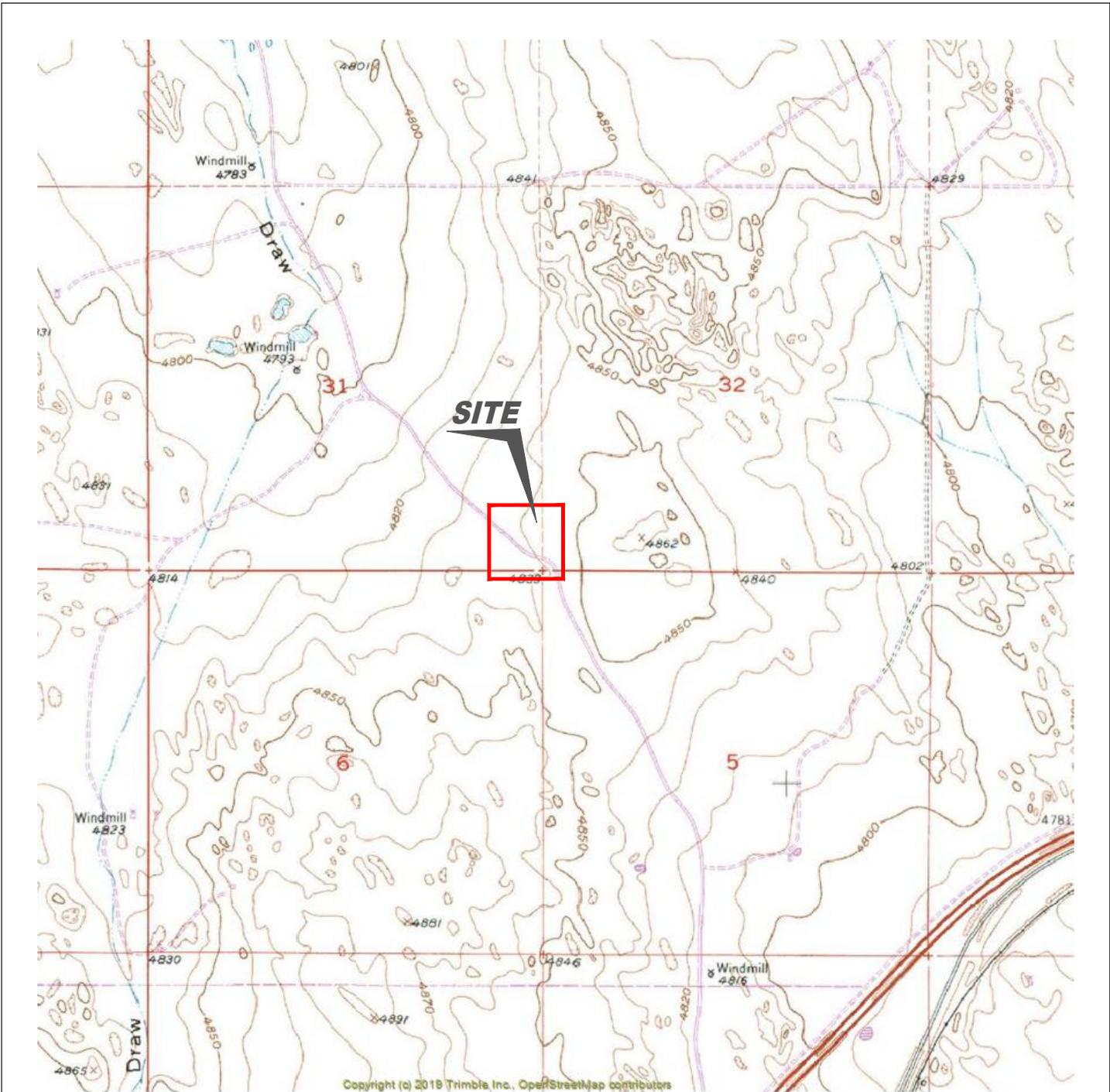
Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

* Indicates laboratory minimum detection limit in excess of SSL

Green highlighted cells indicate soil removed via excavation

NA - Not analyzed

FIGURES



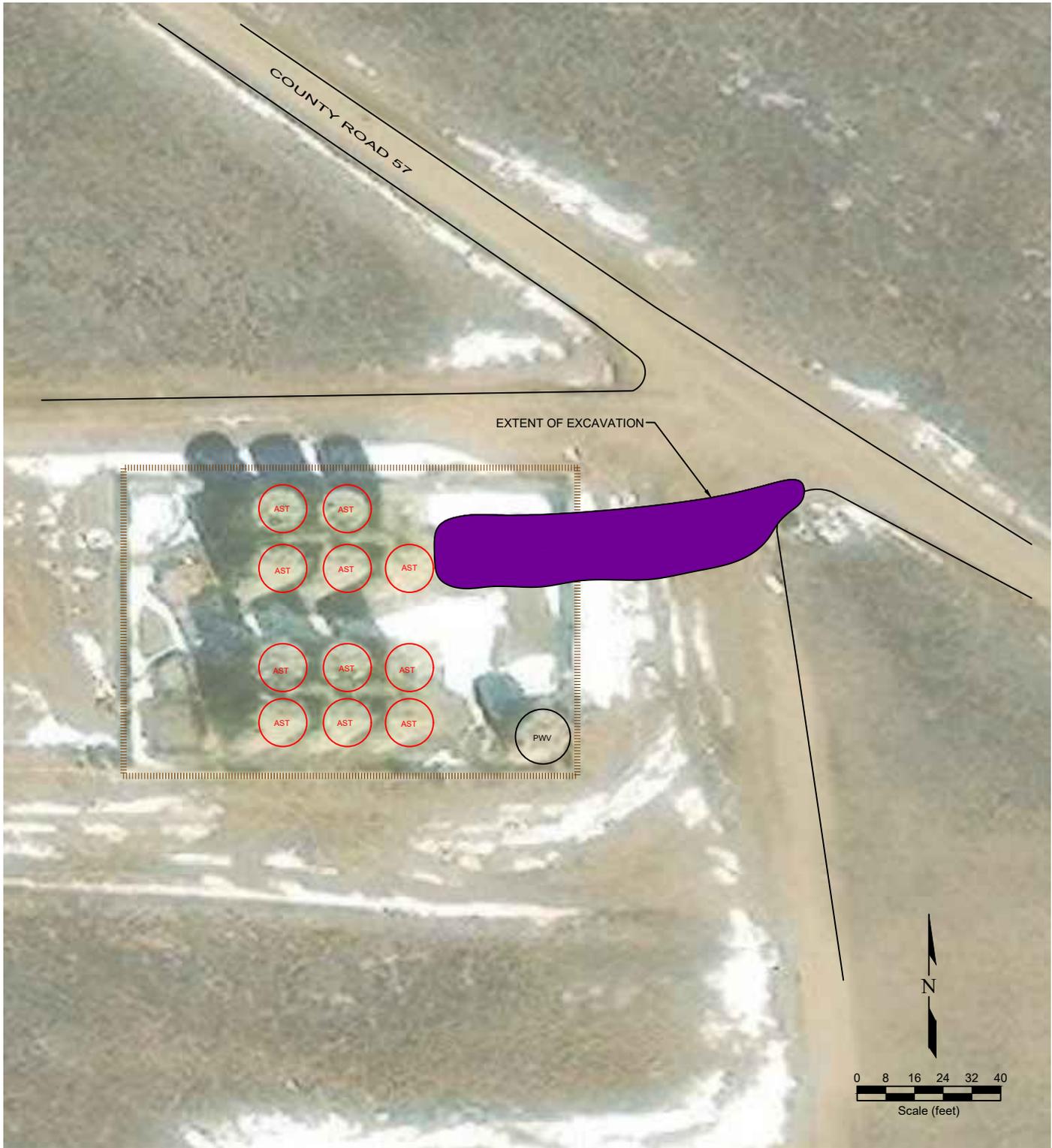
USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

PDC Energy, Inc. ~ Guttersen 31T-221
SESE Section 31, T3N, R63W, 6th PM
Weld County, Colorado
40.174874°, -104.472516°

Project No. C023-321	Initial Report Date 12/08/2023	Initial Spill/Release Report Doc # 403619421
Date 03/04/2024	Facility # 434637	Filename 23321T





LEGEND

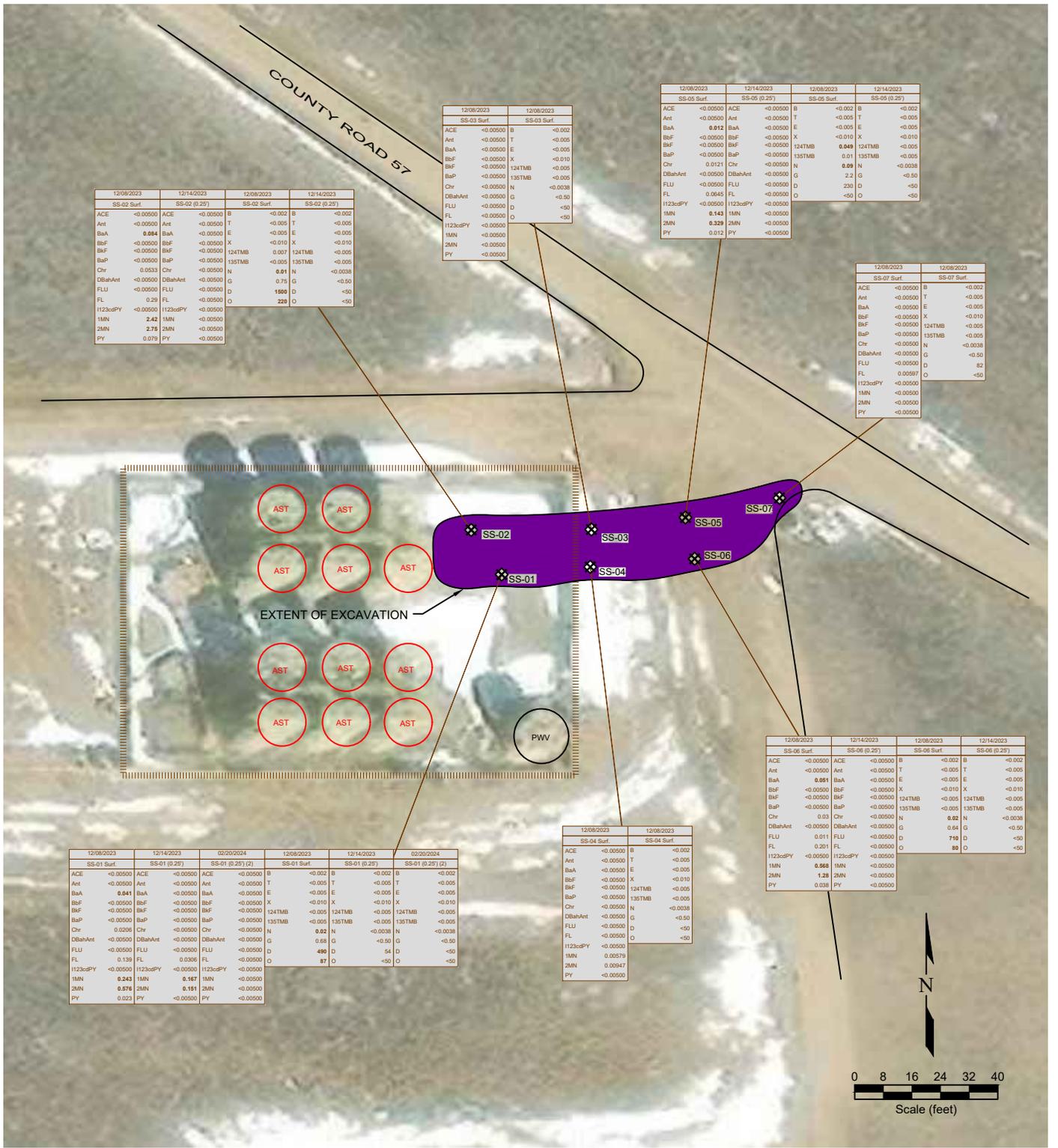
- ABOVEGROUND STORAGE TANK
- FORMER FORMER FACILITY
- EXCAVATED AREA
- CONTAINMENT WALL
- EXTENT OF EXCAVATION
- FENCE LINE

**Figure 2
SITE MAP**

PDC Energy, Inc. ~ Guttersen 31T-221
 SESE Section 31, T3N, R63W, 6th PM
 Weld County, Colorado
 40.174874°, -104.472516°

Project No. C023-321	Initial Report Date 12/08/2023	Initial Spill/Release Report Doc# 403619421
Date 03/04/2024	Facility # 434637	Filename 23321Q





12/08/2023		12/14/2023		12/08/2023		12/14/2023	
SS-02 Surf		SS-02 (0.25)		SS-02 Surf		SS-02 (0.25)	
ACE	<0.0050	ACE	<0.0050	B	<0.002	B	<0.002
Ant	<0.0050	Ant	<0.0050	T	<0.005	T	<0.005
BaA	0.084	BaA	<0.0050	E	<0.005	E	<0.005
BbF	<0.0050	BbF	<0.0050	X	<0.010	X	<0.010
BbP	<0.0050	BbP	<0.0050	124TMB	0.007	124TMB	<0.005
Chr	0.0533	Chr	<0.0050	135TMB	<0.005	135TMB	<0.005
DBahAnt	<0.0050	DBahAnt	<0.0050	G	0.81	G	<0.0038
FLU	<0.0050	FLU	<0.0050	D	1900	D	<50
FL	0.29	FL	<0.0050	O	229	O	<50
1123cdPY	<0.0050	1123cdPY	<0.0050				
1MN	2.42	1MN	<0.0050				
2MN	2.76	2MN	<0.0050				
PY	0.079	PY	<0.0050				

12/08/2023		12/08/2023	
SS-03 Surf		SS-03 Surf	
ACE	<0.0050	B	<0.002
Ant	<0.0050	T	<0.005
BaA	<0.0050	E	<0.005
BbF	<0.0050	X	<0.010
BbP	<0.0050	124TMB	<0.005
Chr	<0.0050	135TMB	<0.005
DBahAnt	<0.0050	N	<0.0038
FLU	<0.0050	G	<0.50
FL	<0.0050	D	<50
1123cdPY	<0.0050	O	<50
1MN	<0.0050		
2MN	<0.0050		
PY	<0.0050		

12/08/2023		12/14/2023		12/08/2023		12/14/2023	
SS-05 Surf		SS-05 (0.25)		SS-05 Surf		SS-05 (0.25)	
ACE	<0.0050	ACE	<0.0050	B	<0.002	B	<0.002
Ant	<0.0050	Ant	<0.0050	T	<0.005	T	<0.005
BaA	0.012	BaA	<0.0050	E	<0.005	E	<0.005
BbF	<0.0050	BbF	<0.0050	X	<0.010	X	<0.010
BbP	<0.0050	BbP	<0.0050	124TMB	0.049	124TMB	<0.005
Chr	0.0121	Chr	<0.0050	135TMB	0.01	135TMB	<0.005
DBahAnt	<0.0050	DBahAnt	<0.0050	N	0.99	N	<0.0038
FLU	<0.0050	FLU	<0.0050	G	2.2	G	<0.50
FL	0.0445	FL	<0.0050	D	230	D	<50
1123cdPY	<0.0050	1123cdPY	<0.0050	O	<50	O	<50
1MN	0.143	1MN	<0.0050				
2MN	0.329	2MN	<0.0050				
PY	0.012	PY	<0.0050				

12/08/2023		12/08/2023	
SS-07 Surf		SS-07 Surf	
ACE	<0.0050	B	<0.002
Ant	<0.0050	T	<0.005
BaA	<0.0050	E	<0.005
BbF	<0.0050	X	<0.010
BbP	<0.0050	124TMB	<0.005
Chr	<0.0050	135TMB	<0.005
DBahAnt	<0.0050	N	<0.0038
FLU	<0.0050	G	<0.50
FL	0.0097	D	82
1123cdPY	<0.0050	O	<50
1MN	<0.0050		
2MN	<0.0050		
PY	<0.0050		

12/08/2023		12/14/2023		02/20/2024		12/08/2023		12/14/2023		02/20/2024	
SS-01 Surf		SS-01 (0.25)		SS-01 (0.25) (Z)		SS-01 Surf		SS-01 (0.25)		SS-01 (0.25) (Z)	
ACE	<0.0050	ACE	<0.0050	B	<0.002	B	<0.002	B	<0.002	B	<0.002
Ant	<0.0050	Ant	<0.0050	T	<0.005	T	<0.005	T	<0.005	T	<0.005
BaA	0.041	BaA	<0.0050	E	<0.005	E	<0.005	E	<0.005	E	<0.005
BbF	<0.0050	BbF	<0.0050	X	<0.010	X	<0.010	X	<0.010	X	<0.010
BbP	<0.0050	BbP	<0.0050	124TMB	<0.005	124TMB	<0.005	124TMB	<0.005	124TMB	<0.005
Chr	0.0206	Chr	<0.0050	135TMB	<0.005	135TMB	<0.005	135TMB	<0.005	135TMB	<0.005
DBahAnt	<0.0050	DBahAnt	<0.0050	G	0.68	G	<0.50	G	<0.50	G	<0.50
FLU	<0.0050	FLU	<0.0050	D	490	D	54	D	<50	D	<50
FL	0.139	FL	0.0306	O	87	O	<50	O	<50	O	<50
1123cdPY	<0.0050	1123cdPY	<0.0050								
1MN	0.243	1MN	0.167	1MN	<0.0050						
2MN	0.876	2MN	0.181	2MN	<0.0050						
PY	0.023	PY	<0.0050	PY	<0.0050						

12/08/2023		12/08/2023	
SS-04 Surf		SS-04 Surf	
ACE	<0.0050	B	<0.002
Ant	<0.0050	T	<0.005
BaA	<0.0050	E	<0.005
BbF	<0.0050	X	<0.010
BbP	<0.0050	124TMB	<0.005
Chr	<0.0050	135TMB	<0.005
DBahAnt	<0.0050	N	<0.0038
FLU	<0.0050	G	<0.50
FL	<0.0050	D	<50
1123cdPY	<0.0050	O	<50
1MN	0.0579		
2MN	0.0247		
PY	<0.0050		

12/08/2023		12/14/2023		12/08/2023		12/14/2023	
SS-06 Surf		SS-06 (0.25)		SS-06 Surf		SS-06 (0.25)	
ACE	<0.0050	ACE	<0.0050	B	<0.002	B	<0.002
Ant	<0.0050	Ant	<0.0050	T	<0.005	T	<0.005
BaA	0.051	BaA	<0.0050	E	<0.005	E	<0.005
BbF	<0.0050	BbF	<0.0050	X	<0.010	X	<0.010
BbP	<0.0050	BbP	<0.0050	124TMB	<0.005	124TMB	<0.005
Chr	0.03	Chr	<0.0050	135TMB	<0.005	135TMB	<0.005
DBahAnt	<0.0050	DBahAnt	<0.0050	N	0.62	N	<0.0038
FLU	0.011	FLU	<0.0050	G	0.64	G	<0.50
FL	0.201	FL	<0.0050	D	710	D	<50
1123cdPY	<0.0050	1123cdPY	<0.0050	O	89	O	<50
1MN	<0.0050						
2MN	<0.0050						
PY	0.038	PY	<0.0050				

LEGEND

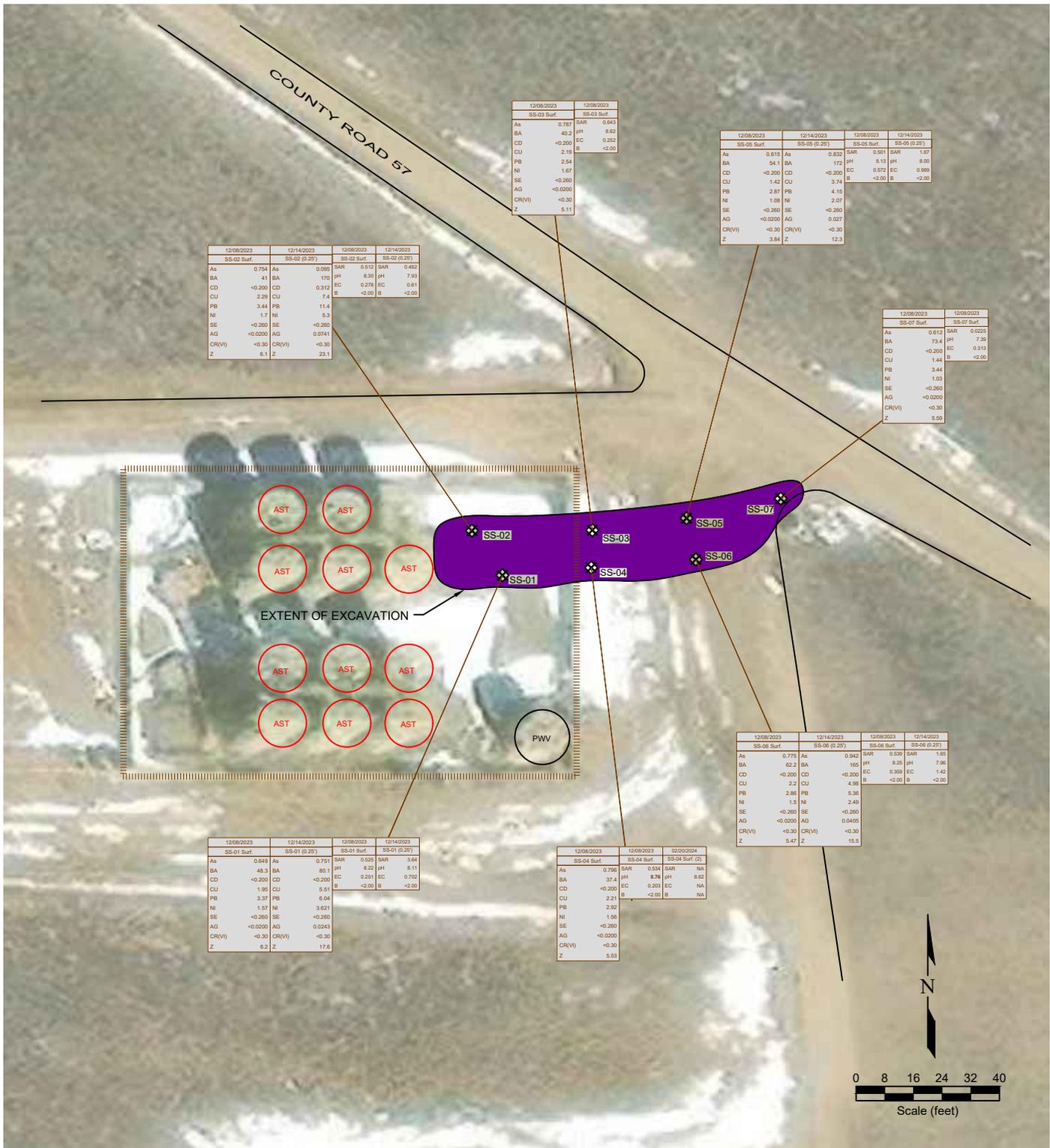
- SOIL SAMPLE LOCATION
- ABOVEGROUND STORAGE TANK
- FORMER FACILITY
- EXCAVATED AREA
- CONTAINMENT WALL
- EXTENT OF EXCAVATION
- FENCE LINE

12/08/2023		12/08/2023		12/08/2023		12/08/2023	
SS-01 Surf		SS-01 Surf		SS-01 Surf		SS-01 Surf	
DATE SAMPLED	12/08/2023	DATE SAMPLED	12/08/2023	DATE SAMPLED	12/08/2023	DATE SAMPLED	12/08/2023
SAMPLE ID and DEPTH (ft)	SS-01 Surf	SAMPLE ID and DEPTH (ft)	SS-01 Surf	SAMPLE ID and DEPTH (ft)	SS-01 Surf	SAMPLE ID and DEPTH (ft)	SS-01 Surf
ACENAPHTHENE (mg/kg)	B	BENZENE (mg/kg)	B	ARSENIC (mg/kg)	B	BARILUM (mg/kg)	B
ANTHRACENE (mg/kg)	T	TOLUENE (mg/kg)	T	pH (unitless)	3.52	CADMIUM (mg/kg)	B
BENZO (A) ANTHRACENE (mg/kg)	E	ETHYLBENZENE (mg/kg)	E	pH (unitless)	8.2	COPPER (mg/kg)	B
BENZO (B) FLUORANTHENE (mg/kg)	X	TOTAL XYLENES (mg/kg)	X	EC (mmol/mol)	0.29	LEAD (mg/kg)	B
BENZO (K) FLUORANTHENE (mg/kg)	124TMB	1,2,4-TRIMETHYLBENZENE (mg/kg)	124TMB	EC (mmol/mol)	0.22	NICKEL (mg/kg)	B
BENZO (A) PYRENE (mg/kg)	135TMB	1,3,5-TRIMETHYLBENZENE (mg/kg)	135TMB			SILVER (mg/kg)	B
CHRYSENE (mg/kg)	N	NAPHTHALENE (mg/kg)	N			HEXAVALANT CHROMIUM (mg/kg)	B
DIBENZ (A,H) ANTHRACENE (mg/kg)	0.02	TPH-GRO (mg/kg)	0.08			ZINC (mg/kg)	B
FLUORANTHENE (mg/kg)	0.08	TPH-CRO (mg/kg)	0.08				
FLUORENE (mg/kg)	D						
INDENO (1,2,3-CD) PYRENE (mg/kg)	490						
1-METHYLNAPHTHALENE (mg/kg)	87						
1-METHYLNAPHTHALENE (mg/kg)	87						
2-METHYLNAPHTHALENE (mg/kg)	87						
PYRENE (mg/kg)	87						

Figure 3
PETROLEUM CONSTITUENTS SOIL CHEMISTRY MAP

PDC Energy, Inc. ~ Gutteresen 31T-221
SESE Section 31, T3N, R63W, 6th PM
Weld County, Colorado
40.174874°, -104.472516°

Project No. C023-321	Initial Report Date 12/08/2023	Initial Spill/Release Report Doc# 403619421	
Date 03/04/2024	Facility # 434637	Filename 23321Q	



LEGEND

- SOIL SAMPLE LOCATION
- ABOVEGROUND STORAGE TANK
- FORMER FACILITY
- EXCAVATED AREA
- CONTAINMENT WALL
- EXTENT OF EXCAVATION
- FENCE LINE

Table 8: 12/08/2023 SS-01 Surf

12/08/2023 SS-01 Surf	DATE SAMPLED	SAMPLE ID and DEPTH (ft)
ACE	<-0.0500	ACENAPHTHENE (mg/kg)
ANT	<-0.0500	ANTHRACENE (mg/kg)
BA	0.841	BENZO (A) ANTHRACENE (mg/kg)
BAF	<-0.0500	BENZO (B) FLUORANTHENE (mg/kg)
BAF	<-0.0500	BENZO (K) FLUORANTHENE (mg/kg)
BAF	<-0.0500	BENZO (A) PYRENE (mg/kg)
Chv	0.0200	CHRYSENE (mg/kg)
DibAant	<-0.0500	DIBENZ (A,H) ANTHRACENE (mg/kg)
FLU	<-0.0500	FLUORANTHENE (mg/kg)
FL	0.139	FLUORENE (mg/kg)
H23uDPV	<-0.0500	INDENO (1,2,3-CD) PYRENE (mg/kg)
1MN	0.241	1-METHYLNAPHTHALENE (mg/kg)
2MN	0.576	2-METHYLNAPHTHALENE (mg/kg)
PPY	0.022	PYRENE (mg/kg)

Table 9: 12/08/2023 SS-01 Surf

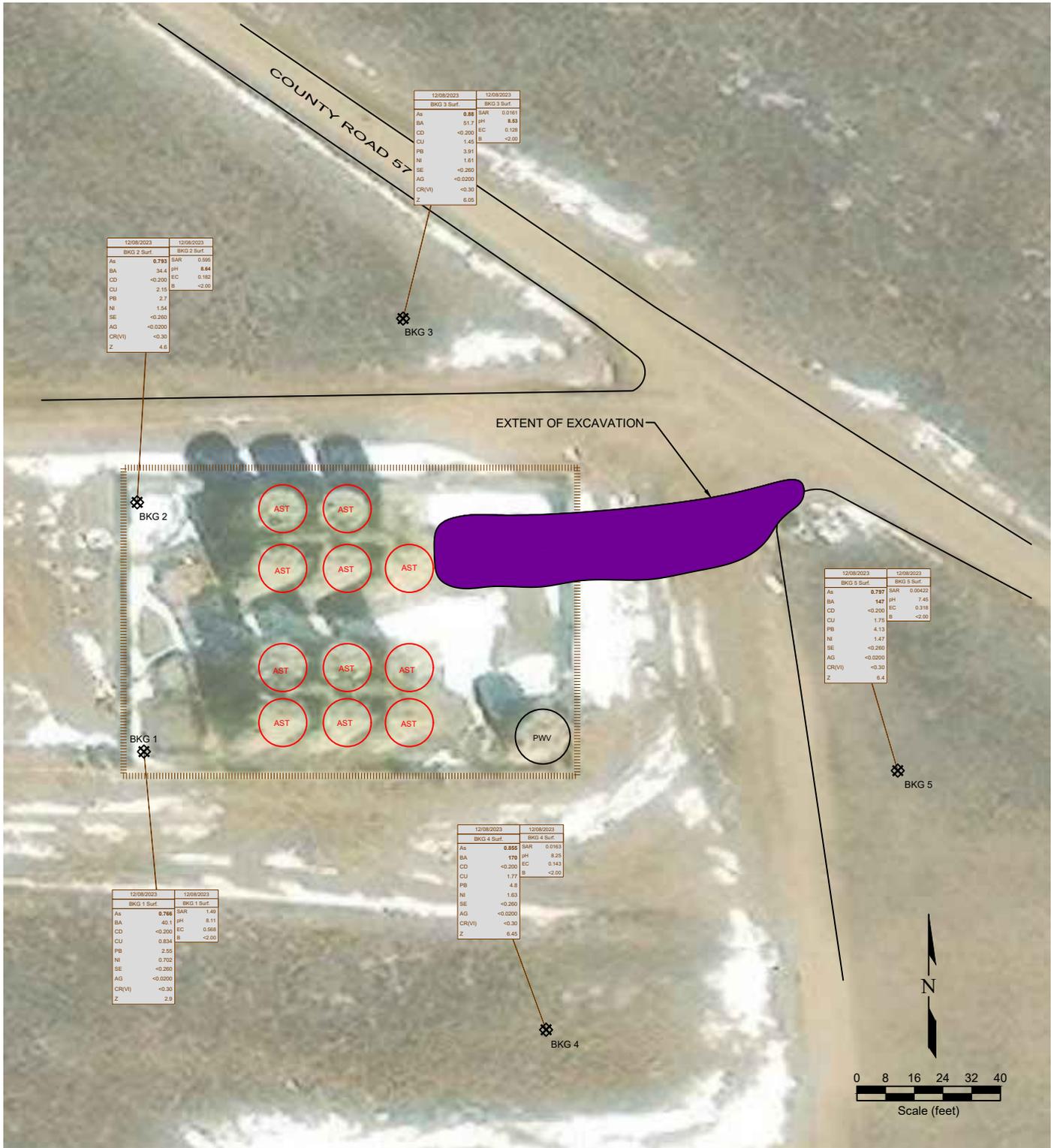
12/08/2023 SS-01 Surf	DATE SAMPLED	SAMPLE ID and DEPTH (ft)
B	<-0.0500	BENZENE (mg/kg)
T	<-0.0500	TOLUENE (mg/kg)
E	<-0.0500	ETHYLBENZENE (mg/kg)
X	<-0.010	TOTAL XYLENES (mg/kg)
1,2,4TMB	<-0.0500	1,2,4-TRIMETHYLBENZENE (mg/kg)
1,3,5TMB	<-0.0500	1,3,5-TRIMETHYLBENZENE (mg/kg)
N	0.02	NAPHTHALENE (mg/kg)
D	0.88	TPH-GRO (mg/kg)
D	480	TPH-DRO (mg/kg)
D	87	TPH-ORO (mg/kg)

Table 10: 12/08/2023 SS-01 Surf

12/08/2023 SS-01 Surf	DATE SAMPLED	SAMPLE ID & DEPTH (ft)
As	0.499	ARSENIC (mg/kg)
BA	48.3	BARIUM (mg/kg)
CU	<-2.000	CADMIUM (mg/kg)
CU	1.90	COPPER (mg/kg)
PB	3.37	LEAD (mg/kg)
NI	1.57	NICKEL (mg/kg)
SE	<-2.000	SELENIUM (mg/kg)
AG	<-0.0200	SILVER (mg/kg)
CR(VI)	<-0.30	HEXAVALENT CHROMIUM (mg/kg)
Z	6.2	ZINC (mg/kg)

Figure 4
METALS AND INORGANIC CONSTITUENTS SOIL CHEMISTRY MAP
 PDC Energy, Inc. ~ Gutteresen 31T-221
 SESE Section 31, T3N, R63W, 6th PM
 Weld County, Colorado
 40.174874°, -104.472516°

Project No. C023-321	Initial Report Date 12/08/2023	Initial Spill/Release Report Doc# 403619421
Date 03/04/2024	Facility # 434637	Filename 23321Q



LEGEND

SOIL SAMPLE LOCATION
 ABOVEGROUND STORAGE TANK
 FORMER FACILITY
 EXCAVATED AREA
 CONTAINMENT WALL
 EXTENT OF EXCAVATION
 FENCE LINE

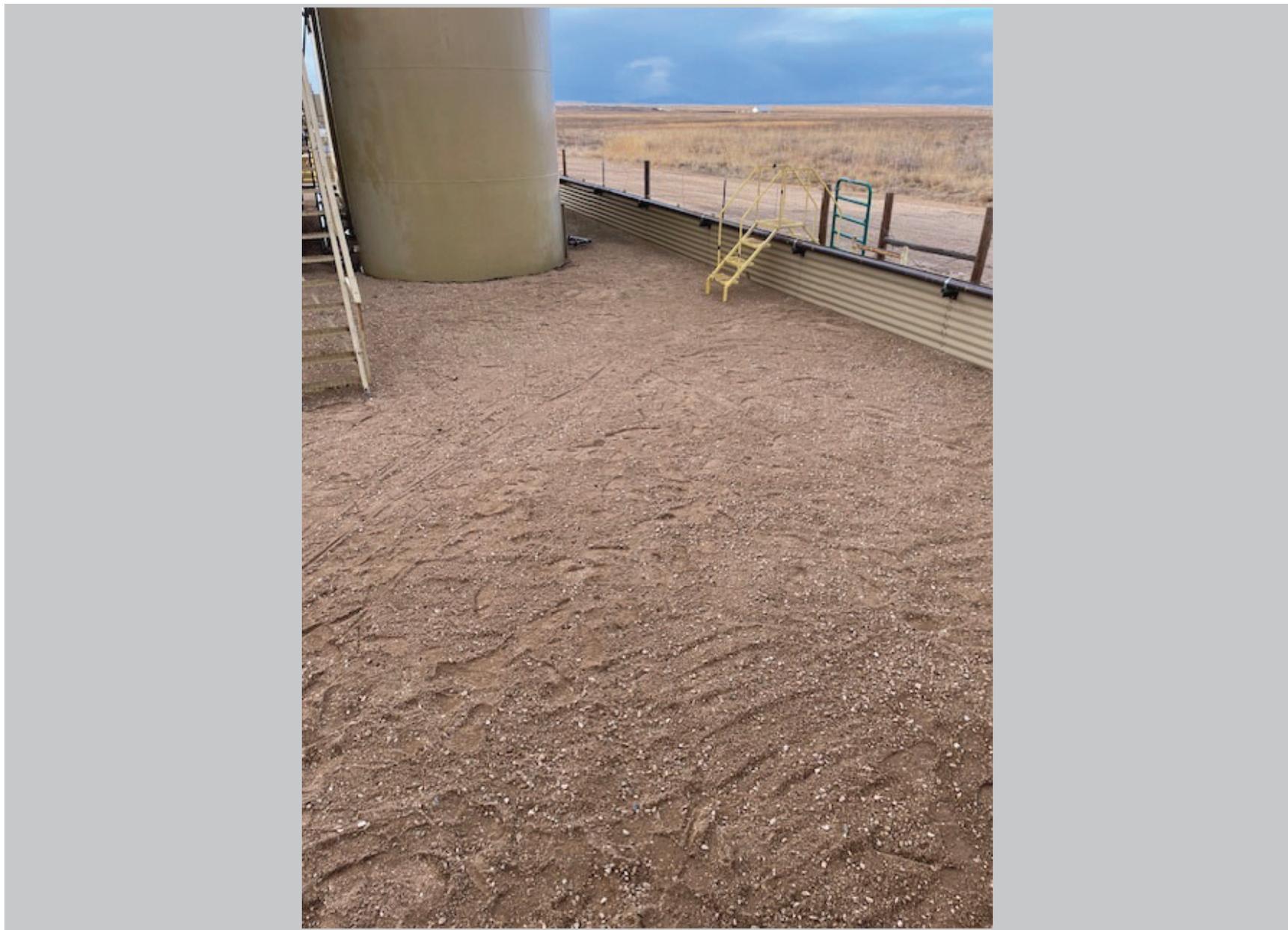
Figure 5
BACKGROUND SAMPLE METALS AND INORGANIC CONSTITUENTS SOIL CHEMISTRY MAP
PDC Energy, Inc. ~ Gutteresen 31T-221
 SESE Section 31, T3N, R63W, 6th PM
 Weld County, Colorado
 40.174874°, -104.472516°

Project No. C023-321	Initial Report Date 12/08/2023	Initial Spill/Release Report Doc# 403619421	
Date 03/04/2024	Facility # 434637	Filename 23321Q	

APPENDIX A

PHOTO LOG

Photo Log



Description:

1 - Guttersen 31T-221 AST release, in containment spill extent, looking NW

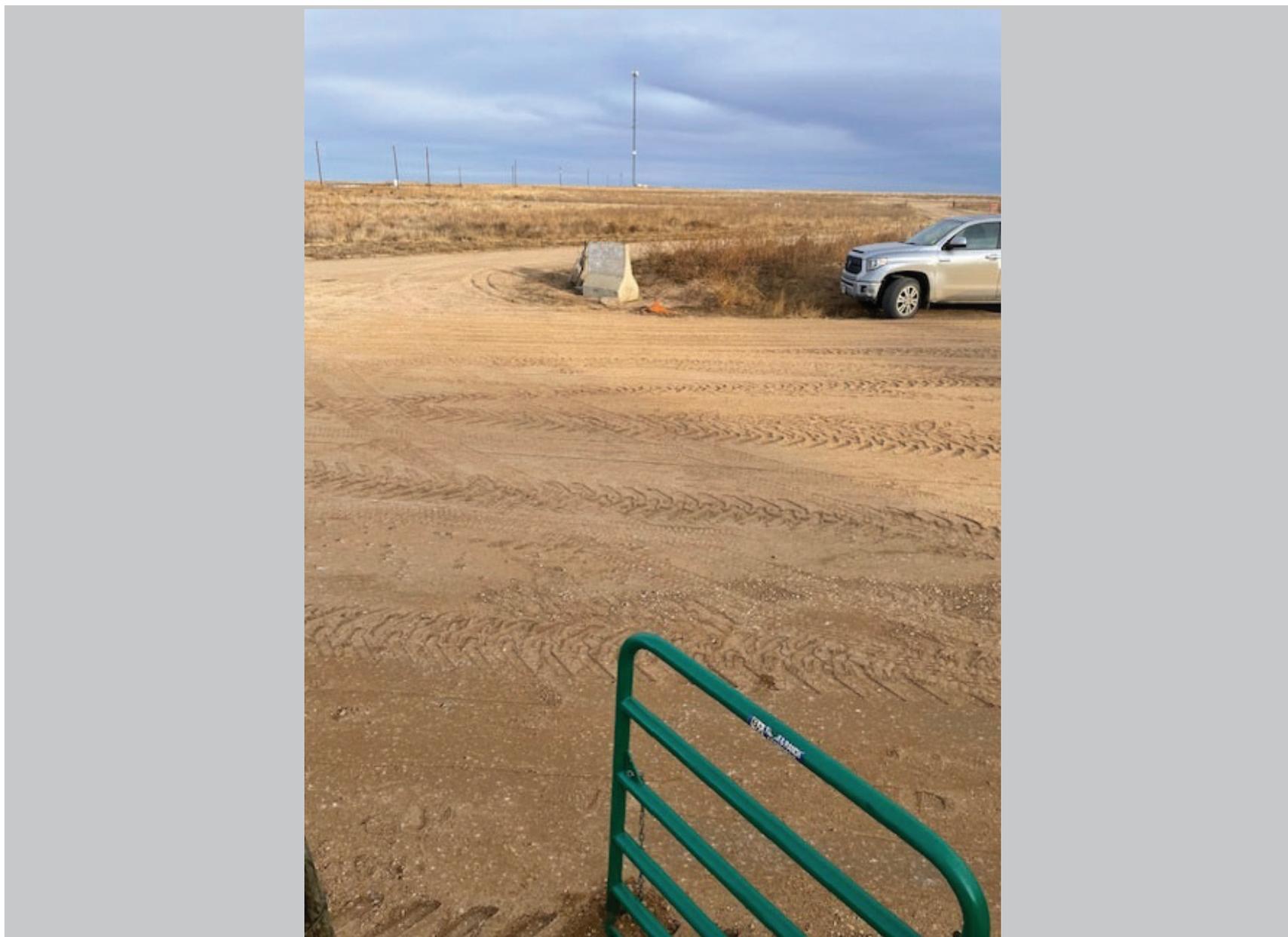
Photo Log



Description:

2 - Guttersen 31T-221 AST release, in containment spill extent, looking W

Photo Log



Description:

3 - Guttersen 31T-221 AST release, outside containment spill extent, looking E

APPENDIX B

LABORATORY DOCUMENTATION

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 15, 2024

Paul Henchan
Fremont Environmental
PO Box 1289
Wellington, CO 80549

RE: PDC - Gutteresen

Work Order #2312184

Enclosed are the results of analyses for samples received by Summit Scientific on 12/08/23 16:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial "J" and a long, sweeping underline.

Jacob Wood For Paul Shrewsbury
President



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-01 Surf.	2312184-01	Soil	12/08/23 00:00	12/08/23 16:50
SS-02 Surf.	2312184-02	Soil	12/08/23 00:00	12/08/23 16:50
SS-03 Surf.	2312184-03	Soil	12/08/23 00:00	12/08/23 16:50
SS-04 Surf.	2312184-04	Soil	12/08/23 00:00	12/08/23 16:50
SS-05 Surf.	2312184-05	Soil	12/08/23 00:00	12/08/23 16:50
SS-06 Surf.	2312184-06	Soil	12/08/23 00:00	12/08/23 16:50
SS-07 Surf.	2312184-07	Soil	12/08/23 00:00	12/08/23 16:50
BKG-1 Surf.	2312184-08	Soil	12/08/23 00:00	12/08/23 16:50
BKG-2 Surf.	2312184-09	Soil	12/08/23 00:00	12/08/23 16:50
BKG-3 Surf.	2312184-10	Soil	12/08/23 00:00	12/08/23 16:50
BKG-4 Surf.	2312184-11	Soil	12/08/23 00:00	12/08/23 16:50
BKG-5 Surf.	2312184-12	Soil	12/08/23 00:00	12/08/23 16:50

Summit Scientific

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

SUMMIT SCIENTIFIC

4653 Table Mountain Drive
Golden, CO 80403
303-277-9310

Lab ID	Page 1 of 1
2312184	

Send Data To:		Send Invoice To:
Client: Fremont Environmental, Inc.	Project Manager: Henehan	Company: DCE Inc.
Address: 8305 6th St.,	E-Mail: Fremont Distribution List	Project Name/Location:
City/State/Zip: Wellington, CO, 80549		AFE#:
Phone: 603-477-6907	Project Name: PDC - Gutterson	PO/Billing Codes:
Sampler Name: Ethan Black	Project Number:	Contact: Jason Davidson

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX, Naphthalene, TMBs	TPH (C6-C36)	PAH	SAR, EC, pH, Boron		TDS, Chloride, Sulfate
1	SS-01 Surf.	12/8/23		2			X						X	X	X	X	X	
2	SS-02 Surf.																	
3	SS-03 Surf.																	
4	SS-04 Surf.																	
5	SS-05 Surf.																	
6	SS-06 Surf.																	
7	SS-07 Surf.																	
8	BKG-1 Surf.																	
9	BKG-2 Surf.																	
10	BKG-3 Surf.																	
11	BKG-4 Surf.																	
12	BKG-5 Surf.																	
13																		
14																		
15																		

Relinquished by: Ethan Black	Date/Time: 12/8/23 1650	Received by: S2 - North Office	Date/Time: 12/8/23 1650	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: S2	Date/Time: 12/8/23 1650	Received by: [Signature]	Date/Time: 12/8/23 1650	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by: [Signature]	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
Temperature Upon Receipt: 13.7	Corrected Temperature: [Symbol]	IR gun #: 1	HNO3 lot #:	Standard	Field Turb.	

S₂

Sample Receipt Checklist

S2 Work Order# 2312184

Client: Fremont

Client Project ID: Poc - Guttersen

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

Airbill #:

Grid of boxes for shipping method selection

Matrix (Check all that apply)

Air

Soil/Solid

Water

Other

Temp (°C)

13.7

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? (1) NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Same day
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	no time stamps
Is the COC properly relinquished by the client w/ date and time recorded? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water - is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? (1) Note the type of preservative in the comments column - HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

AS

Custodian Printed Name

12/8/23

Date/Time

Small logo or mark in bottom right corner



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-01 Surf.
2312184-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0341	12/08/23	12/08/23	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	0.022	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.68	0.50		"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0325	81.3 %		50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0416	104 %		50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0378	94.4 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	490	50		mg/kg	1	BGL0342	12/08/23	12/08/23	EPA 8015M	
C28-C36 (ORO)	87	50		"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: o-Terphenyl</i>	14.3	115 %		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.



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-01 Surf.
2312184-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0344	12/09/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0405	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.0206	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	0.139	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0226	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.243	0.00500	"	"	"	"	"	"	E
2-Methylnaphthalene	0.576	0.0500	"	10	"	"	12/14/23	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0154	46.2 %	40-150		"	"	12/09/23	"	
Surrogate: Fluoranthene-d10	0.0209	62.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-01 Surf.
2312184-01 (Soil)

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Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.649	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	48.3	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.95	0.400	"	"	"	"	"	"	
Lead	3.37	0.200	"	"	"	"	"	"	
Nickel	1.57	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	6.19	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	15.5	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	3.79	0.0500	"	"	"	"	"	"	
Sodium	8.89	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.525	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Fremont Environmental
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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
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SS-01 Surf.
2312184-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.8		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.251	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.22		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-02 Surf.
2312184-02 (Soil)

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Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGL0341	12/08/23	12/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.0068	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	0.011	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.75	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0329	82.3 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0418	105 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0385	96.3 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1500	50	mg/kg	1	BGL0342	12/08/23	12/08/23	EPA 8015M	
C28-C36 (ORO)	220	50	"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	17.5	140 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
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SS-02 Surf.
2312184-02 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0344	12/09/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0840	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.0533	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	0.290	0.00500	"	"	"	"	"	"	E
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0788	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	2.42	0.250	"	50	"	"	12/14/23	"	
2-Methylnaphthalene	2.75	0.250	"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0258	77.4 %	40-150		"	"	12/09/23	"	
Surrogate: Fluoranthene-d10	0.0253	75.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

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SS-02 Surf.
2312184-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.754	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	41.0	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.29	0.400	"	"	"	"	"	"	
Lead	3.44	0.200	"	"	"	"	"	"	
Nickel	1.70	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	6.10	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	14.1	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	3.19	0.0500	"	"	"	"	"	"	
Sodium	8.18	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.512	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Fremont Environmental
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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

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SS-02 Surf.
2312184-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.4		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.278	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.30		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

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 01/15/24 09:52

SS-03 Surf.
2312184-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0341	12/08/23	12/09/23	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: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0334	83.4 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0423	106 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0399	99.8 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0342	12/08/23	12/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	14.4	115 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Fremont Environmental
 PO Box 1289
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Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

SS-03 Surf.
2312184-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0344	12/09/23	12/09/23	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: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0174	52.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0191	57.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-03 Surf.
2312184-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.787	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	40.2	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.19	0.400	"	"	"	"	"	"	
Lead	2.54	0.200	"	"	"	"	"	"	
Nickel	1.67	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	5.11	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	16.1	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	4.43	0.0500	"	"	"	"	"	"	
Sodium	11.3	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.643	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

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SS-03 Surf.
2312184-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.1		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.252	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.62		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-04 Surf.
2312184-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGL0341	12/08/23	12/09/23	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: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0356	89.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0421	105 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0388	97.0 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0342	12/08/23	12/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.4	82.9 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-04 Surf.
2312184-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0344	12/09/23	12/09/23	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	0.00579	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.00947	0.00500	"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0154	46.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0138	41.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-04 Surf.
2312184-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.796	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	37.4	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.21	0.400	"	"	"	"	"	"	
Lead	2.92	0.200	"	"	"	"	"	"	
Nickel	1.56	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	5.53	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	11.9	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	3.02	0.0500	"	"	"	"	"	"	
Sodium	7.97	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.534	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

SS-04 Surf.
2312184-04 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.9		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.203	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.76		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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PO Box 1289
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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-05 Surf.
2312184-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGL0341	12/08/23	12/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.049	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.0080	0.0050	"	"	"	"	"	"	
Naphthalene	0.093	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	2.2	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0343	85.8 %	50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0430	108 %	50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0370	92.6 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	230	50	mg/kg	1	BGL0342	12/08/23	12/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>	14.5	116 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-05 Surf.
2312184-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0344	12/09/23	12/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0117	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.0121	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	0.0645	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0124	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.143	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.329	0.00500	"	"	"	"	"	"	E

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0155	46.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0142	42.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental
PO Box 1289
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Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-05 Surf.
2312184-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.615	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	54.1	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.42	0.400	"	"	"	"	"	"	
Lead	2.87	0.200	"	"	"	"	"	"	
Nickel	1.08	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	3.84	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	17.3	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	4.13	0.0500	"	"	"	"	"	"	
Sodium	8.94	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.501	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Fremont Environmental
 PO Box 1289
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Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

SS-05 Surf.
2312184-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.5		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.572	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.13		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-06 Surf.
2312184-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0341	12/08/23	12/09/23	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	0.019	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.64	0.50		"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0317	79.3 %		50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0414	103 %		50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0376	94.1 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	710	50		mg/kg	1	BGL0342	12/08/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	80	50		"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<i>Surrogate: o-Terphenyl</i>	16.2	130 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project Number: [none]
Project Manager: Paul Henchan

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01/15/24 09:52

SS-06 Surf.
2312184-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0344	12/09/23	12/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	0.0514	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.0300	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0107	0.00500	"	"	"	"	"	"	
Fluorene	0.201	0.00500	"	"	"	"	"	"	E
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0379	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.568	0.00500	"	"	"	"	"	"	E
2-Methylnaphthalene	1.28	0.100	"	20	"	"	12/14/23	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0168	50.4 %	40-150		"	"	12/10/23	"	
Surrogate: Fluoranthene-d10	0.0193	58.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

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01/15/24 09:52

SS-06 Surf.
2312184-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.775	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	62.2	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.20	0.400	"	"	"	"	"	"	
Lead	2.86	0.200	"	"	"	"	"	"	
Nickel	1.50	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	5.47	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	24.2	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	6.23	0.0500	"	"	"	"	"	"	
Sodium	11.5	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/08/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.539	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

SS-06 Surf.
2312184-06 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.8		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.359	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.25		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

SS-07 Surf.
2312184-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGL0341	12/08/23	12/09/23	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: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0328	82.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0413	103 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0384	96.1 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	82	50	mg/kg	1	BGL0342	12/08/23	12/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.9	103 %	30-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

SS-07 Surf.
2312184-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.612	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	73.4	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.44	0.400	"	"	"	"	"	"	
Lead	3.44	0.200	"	"	"	"	"	"	
Nickel	1.03	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	5.59	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	79.1	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	6.05	0.0500	"	"	"	"	"	"	
Sodium	0.771	0.0500	"	"	"	"	"	"	

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Gutteresen
 Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

SS-07 Surf.
2312184-07 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0225	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.5		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.313	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.39		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Fremont Environmental
 PO Box 1289
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Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

SS-07 Surf.
2312184-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHA0047	01/02/24	01/03/24	EPA 8270D SIM	I-04
Anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Chrysene	ND	0.00500	"	"	"	"	"	"	I-04
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Fluorene	0.00597	0.00500	"	"	"	"	"	"	I-04
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	I-04
Pyrene	ND	0.00500	"	"	"	"	"	"	I-04
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	I-04
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	I-04

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0346	104 %	40-150		"	"	"	"	I-04
Surrogate: Fluoranthene-d10	0.0192	57.5 %	40-150		"	"	"	"	I-04

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

BKG-1 Surf.
2312184-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Barium	40.1	0.400	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	0.834	0.400	"	"	"	"	"	"	
Lead	2.55	0.200	"	"	"	"	"	"	
Nickel	0.702	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	2.90	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	16.1	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	3.95	0.0500	"	"	"	"	"	"	
Sodium	25.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Summit Scientific

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Fremont Environmental
 PO Box 1289
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Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

BKG-1 Surf.
2312184-08 (Soil)

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Calculated Analysis

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.49	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.0		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.568	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.11		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

BKG-1 Surf.
2312184-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.766	0.200	mg/kg dry	1	BHA0067	12/12/23	01/09/24	EPA 6020B	

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

BKG-2 Surf.
2312184-09 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Barium	34.4	0.400	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.15	0.400	"	"	"	"	"	"	
Lead	2.70	0.200	"	"	"	"	"	"	
Nickel	1.54	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	4.60	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	12.8	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	3.78	0.0500	"	"	"	"	"	"	
Sodium	9.42	0.0500	"	"	"	"	"	"	

Calculated Analysis

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

BKG-2 Surf.
2312184-09 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.595	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.0		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.182	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.64		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

BKG-2 Surf.
2312184-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.793	0.200	mg/kg dry	1	BHA0067	12/12/23	01/09/24	EPA 6020B	

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

BKG-3 Surf.
2312184-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.880	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	51.7	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.45	0.400	"	"	"	"	"	"	
Lead	3.91	0.200	"	"	"	"	"	"	
Nickel	1.61	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	6.05	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	107	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	6.82	0.0500	"	"	"	"	"	"	
Sodium	0.635	0.0500	"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Gutteresen
 Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

BKG-3 Surf.
2312184-10 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0161	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.8		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.128	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.53		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

BKG-4 Surf.
2312184-11 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.855	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	170	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.77	0.400	"	"	"	"	"	"	
Lead	4.80	0.200	"	"	"	"	"	"	
Nickel	1.63	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	6.45	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	75.7	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	4.80	0.0500	"	"	"	"	"	"	
Sodium	0.542	0.0500	"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

BKG-4 Surf.
2312184-11 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0163	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.2		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.143	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.25		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

BKG-5 Surf.
2312184-12 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0372	12/11/23	12/13/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.797	0.200	mg/kg dry	1	BGL0409	12/12/23	12/14/23	EPA 6020B	
Barium	147	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.75	0.400	"	"	"	"	"	"	
Lead	4.13	0.200	"	"	"	"	"	"	
Nickel	1.47	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	6.40	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0397	12/11/23	12/11/23	EPA 7196A	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	36.5	0.0500	mg/L dry	1	BGL0343	12/08/23	12/13/23	EPA 6020B	
Magnesium	2.71	0.0500	"	"	"	"	"	"	
Sodium	0.0981	0.0500	"	"	"	"	"	"	

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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
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BKG-5 Surf.
2312184-12 (Soil)

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Calculated Analysis

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.00422	0.00100	units	1	BGL0478	12/13/23	12/13/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.6		%	1	BGL0418	12/12/23	12/12/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.318	0.0100	mmhos/cm	1	BGL0381	12/11/23	12/11/23	EPA 120.1	

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

Date Sampled: **12/08/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.45		pH Units	1	BGL0380	12/11/23	12/11/23	EPA 9045D	

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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
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Volatile Organic Compounds by EPA Method 8260B - Quality Control

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

Batch BGL0341 - EPA 5030 Soil MS

Blank (BGL0341-BLK1)

Prepared & Analyzed: 12/08/23

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>	0.0338		"	0.0400		84.5	50-150			
<i>Surrogate: Toluene-d8</i>	0.0428		"	0.0400		107	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0393		"	0.0400		98.2	50-150			

LCS (BGL0341-BS1)

Prepared & Analyzed: 12/08/23

Benzene	0.0965	0.0020	mg/kg	0.100		96.5	70-130			
Toluene	0.103	0.0050	"	0.100		103	70-130			
Ethylbenzene	0.0951	0.0050	"	0.100		95.1	70-130			
m,p-Xylene	0.198	0.010	"	0.200		98.9	70-130			
o-Xylene	0.0958	0.0050	"	0.100		95.8	70-130			
1,2,4-Trimethylbenzene	0.0928	0.0050	"	0.100		92.8	70-130			
1,3,5-Trimethylbenzene	0.0970	0.0050	"	0.100		97.0	70-130			
Naphthalene	0.0840	0.0038	"	0.100		84.0	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0320		"	0.0400		80.0	50-150			
<i>Surrogate: Toluene-d8</i>	0.0414		"	0.0400		104	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0397		"	0.0400		99.2	50-150			

Matrix Spike (BGL0341-MS1)

Source: 2312174-01

Prepared & Analyzed: 12/08/23

Benzene	0.0918	0.0020	mg/kg	0.100	ND	91.8	70-130			
Toluene	0.0982	0.0050	"	0.100	ND	98.2	70-130			
Ethylbenzene	0.0915	0.0050	"	0.100	ND	91.5	70-130			
m,p-Xylene	0.189	0.010	"	0.200	ND	94.4	70-130			
o-Xylene	0.0918	0.0050	"	0.100	ND	91.8	70-130			
1,2,4-Trimethylbenzene	0.0847	0.0050	"	0.100	ND	84.7	70-130			
1,3,5-Trimethylbenzene	0.0890	0.0050	"	0.100	ND	89.0	70-130			
Naphthalene	0.0733	0.0038	"	0.100	ND	73.3	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0325		"	0.0400		81.3	50-150			
<i>Surrogate: Toluene-d8</i>	0.0416		"	0.0400		104	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0388		"	0.0400		97.0	50-150			

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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

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Volatile Organic Compounds by EPA Method 8260B - Quality Control
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Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BGL0341 - EPA 5030 Soil MS

Matrix Spike Dup (BGL0341-MSD1)	Source: 2312174-01			Prepared & Analyzed: 12/08/23						
Benzene	0.0898	0.0020	mg/kg	0.100	ND	89.8	70-130	2.18	30	
Toluene	0.0972	0.0050	"	0.100	ND	97.2	70-130	0.983	30	
Ethylbenzene	0.0885	0.0050	"	0.100	ND	88.5	70-130	3.30	30	
m,p-Xylene	0.183	0.010	"	0.200	ND	91.6	70-130	3.10	30	
o-Xylene	0.0913	0.0050	"	0.100	ND	91.3	70-130	0.557	30	
1,2,4-Trimethylbenzene	0.0816	0.0050	"	0.100	ND	81.6	70-130	3.68	30	
1,3,5-Trimethylbenzene	0.0879	0.0050	"	0.100	ND	87.9	70-130	1.32	30	
Naphthalene	0.0700	0.0038	"	0.100	ND	70.0	70-130	4.56	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0335</i>		<i>"</i>	<i>0.0400</i>		<i>83.8</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0416</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.4</i>	<i>50-150</i>			

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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BGL0342 - EPA 3550A

Blank (BGL0342-BLK1)

Prepared: 12/08/23 Analyzed: 12/09/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: <i>o</i> -Terphenyl	10.4		"	12.5		83.2	30-150			

LCS (BGL0342-BS1)

Prepared: 12/08/23 Analyzed: 12/09/23

C10-C28 (DRO)	448	50	mg/kg	500		89.6	70-130			
Surrogate: <i>o</i> -Terphenyl	16.8		"	12.5		135	30-150			

Matrix Spike (BGL0342-MS1)

Source: 2312174-01

Prepared: 12/08/23 Analyzed: 12/09/23

C10-C28 (DRO)	380	50	mg/kg	500	28.2	70.4	70-130			
Surrogate: <i>o</i> -Terphenyl	13.4		"	12.5		107	30-150			

Matrix Spike Dup (BGL0342-MSD1)

Source: 2312174-01

Prepared: 12/08/23 Analyzed: 12/09/23

C10-C28 (DRO)	472	50	mg/kg	500	28.2	88.7	70-130	21.5	20	QR-02
Surrogate: <i>o</i> -Terphenyl	12.4		"	12.5		99.5	30-150			

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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

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01/15/24 09:52

PAH by EPA Method 8270D SIM - Quality Control

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

Batch BGL0344 - EPA 5030 Soil MS

Blank (BGL0344-BLK1)

Prepared & Analyzed: 12/09/23

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>0.0274</i>		"	<i>0.0333</i>		<i>82.3</i>		<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0314</i>		"	<i>0.0333</i>		<i>94.1</i>		<i>40-150</i>			

LCS (BGL0344-BS1)

Prepared & Analyzed: 12/09/23

Acenaphthene	0.0323	0.00500	mg/kg	0.0333	97.0	31-137
Anthracene	0.0304	0.00500	"	0.0333	91.3	30-120
Benzo (a) anthracene	0.0301	0.00500	"	0.0333	90.2	30-120
Benzo (a) pyrene	0.0306	0.00500	"	0.0333	91.8	30-120
Benzo (b) fluoranthene	0.0311	0.00500	"	0.0333	93.3	30-120
Benzo (k) fluoranthene	0.0326	0.00500	"	0.0333	97.8	30-120
Chrysene	0.0326	0.00500	"	0.0333	97.9	30-120
Dibenz (a,h) anthracene	0.0289	0.00500	"	0.0333	86.7	30-120
Fluoranthene	0.0313	0.00500	"	0.0333	93.8	30-120
Fluorene	0.0320	0.00500	"	0.0333	96.1	30-120
Indeno (1,2,3-cd) pyrene	0.0337	0.00500	"	0.0333	101	30-120
Pyrene	0.0336	0.00500	"	0.0333	101	35-142
1-Methylnaphthalene	0.0303	0.00500	"	0.0333	91.0	35-142
2-Methylnaphthalene	0.0275	0.00500	"	0.0333	82.5	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0313</i>		"	<i>0.0333</i>	<i>94.0</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0312</i>		"	<i>0.0333</i>	<i>93.7</i>	<i>40-150</i>

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Project: PDC - Gutttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

PAH by EPA Method 8270D SIM - Quality Control

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

Batch BGL0344 - EPA 5030 Soil MS

Matrix Spike (BGL0344-MS1)

Source: 2312041-01

Prepared & Analyzed: 12/09/23

Acenaphthene	0.0212	0.00500	mg/kg	0.0333	ND	63.6	31-137			
Anthracene	0.0207	0.00500	"	0.0333	ND	62.2	30-120			
Benzo (a) anthracene	0.0193	0.00500	"	0.0333	ND	58.0	30-120			
Benzo (a) pyrene	0.0218	0.00500	"	0.0333	ND	65.4	30-120			
Benzo (b) fluoranthene	0.0300	0.00500	"	0.0333	ND	89.9	30-120			
Benzo (k) fluoranthene	0.0295	0.00500	"	0.0333	ND	88.6	30-120			
Chrysene	0.0220	0.00500	"	0.0333	ND	65.9	30-120			
Dibenz (a,h) anthracene	0.0161	0.00500	"	0.0333	ND	48.2	30-120			
Fluoranthene	0.0203	0.00500	"	0.0333	ND	60.8	30-120			
Fluorene	0.0204	0.00500	"	0.0333	ND	61.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0144	0.00500	"	0.0333	ND	43.2	30-120			
Pyrene	0.0290	0.00500	"	0.0333	ND	86.9	35-142			
1-Methylnaphthalene	0.0204	0.00500	"	0.0333	ND	61.2	15-130			
2-Methylnaphthalene	0.0220	0.00500	"	0.0333	ND	66.1	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0203		"	0.0333		60.9	40-150			
Surrogate: Fluoranthene-d10	0.0193		"	0.0333		58.0	40-150			

Matrix Spike Dup (BGL0344-MSD1)

Source: 2312041-01

Prepared & Analyzed: 12/09/23

Acenaphthene	0.0236	0.00500	mg/kg	0.0333	ND	70.9	31-137	10.9	30
Anthracene	0.0246	0.00500	"	0.0333	ND	73.7	30-120	17.0	30
Benzo (a) anthracene	0.0227	0.00500	"	0.0333	ND	68.0	30-120	15.8	30
Benzo (a) pyrene	0.0245	0.00500	"	0.0333	ND	73.6	30-120	11.8	30
Benzo (b) fluoranthene	0.0334	0.00500	"	0.0333	ND	100	30-120	10.8	30
Benzo (k) fluoranthene	0.0323	0.00500	"	0.0333	ND	96.9	30-120	8.96	30
Chrysene	0.0247	0.00500	"	0.0333	ND	74.0	30-120	11.6	30
Dibenz (a,h) anthracene	0.0174	0.00500	"	0.0333	ND	52.1	30-120	7.78	30
Fluoranthene	0.0235	0.00500	"	0.0333	ND	70.4	30-120	14.6	30
Fluorene	0.0236	0.00500	"	0.0333	ND	70.9	30-120	14.8	30
Indeno (1,2,3-cd) pyrene	0.0167	0.00500	"	0.0333	ND	50.0	30-120	14.7	30
Pyrene	0.0318	0.00500	"	0.0333	ND	95.4	35-142	9.34	30
1-Methylnaphthalene	0.0247	0.00500	"	0.0333	ND	74.1	15-130	19.0	50
2-Methylnaphthalene	0.0244	0.00500	"	0.0333	ND	73.1	15-130	10.0	50
Surrogate: 2-Methylnaphthalene-d10	0.0239		"	0.0333		71.6	40-150		
Surrogate: Fluoranthene-d10	0.0230		"	0.0333		68.9	40-150		

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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

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 BHA0047 - EPA 5030 Soil MS

Blank (BHA0047-BLK1)

Prepared: 01/02/24 Analyzed: 01/03/24

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>0.0149</i>		"	<i>0.0333</i>		<i>44.7</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0184</i>		"	<i>0.0333</i>		<i>55.2</i>	<i>40-150</i>			

LCS (BHA0047-BS1)

Prepared: 01/02/24 Analyzed: 01/03/24

Acenaphthene	0.0279	0.00500	mg/kg	0.0333		83.8	31-137			
Anthracene	0.0271	0.00500	"	0.0333		81.2	30-120			
Benzo (a) anthracene	0.0251	0.00500	"	0.0333		75.3	30-120			
Benzo (a) pyrene	0.0268	0.00500	"	0.0333		80.3	30-120			
Benzo (b) fluoranthene	0.0253	0.00500	"	0.0333		76.0	30-120			
Benzo (k) fluoranthene	0.0261	0.00500	"	0.0333		78.2	30-120			
Chrysene	0.0261	0.00500	"	0.0333		78.4	30-120			
Dibenz (a,h) anthracene	0.0251	0.00500	"	0.0333		75.2	30-120			
Fluoranthene	0.0289	0.00500	"	0.0333		86.8	30-120			
Fluorene	0.0294	0.00500	"	0.0333		88.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0159	0.00500	"	0.0333		47.7	30-120			
Pyrene	0.0255	0.00500	"	0.0333		76.5	35-142			
1-Methylnaphthalene	0.0269	0.00500	"	0.0333		80.6	35-142			
2-Methylnaphthalene	0.0264	0.00500	"	0.0333		79.2	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0242</i>		"	<i>0.0333</i>		<i>72.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0294</i>		"	<i>0.0333</i>		<i>88.1</i>	<i>40-150</i>			

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

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 BHA0047 - EPA 5030 Soil MS

Matrix Spike (BHA0047-MS1)

Source: 2312507-01

Prepared: 01/02/24 Analyzed: 01/03/24

Acenaphthene	0.0171	0.00500	mg/kg	0.0333	ND	51.4	31-137			
Anthracene	0.0163	0.00500	"	0.0333	ND	49.0	30-120			
Benzo (a) anthracene	0.0183	0.00500	"	0.0333	ND	54.8	30-120			
Benzo (a) pyrene	0.0137	0.00500	"	0.0333	ND	41.1	30-120			
Benzo (b) fluoranthene	0.0162	0.00500	"	0.0333	ND	48.7	30-120			
Benzo (k) fluoranthene	0.0149	0.00500	"	0.0333	ND	44.6	30-120			
Chrysene	0.0209	0.00500	"	0.0333	ND	62.7	30-120			
Dibenz (a,h) anthracene	0.0146	0.00500	"	0.0333	ND	43.9	30-120			
Fluoranthene	0.0167	0.00500	"	0.0333	ND	50.0	30-120			
Fluorene	0.0177	0.00500	"	0.0333	ND	53.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0161	0.00500	"	0.0333	ND	48.4	30-120			
Pyrene	0.0189	0.00500	"	0.0333	ND	56.8	35-142			
1-Methylnaphthalene	0.0183	0.00500	"	0.0333	ND	54.9	15-130			
2-Methylnaphthalene	0.0198	0.00500	"	0.0333	ND	59.4	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.1	40-150			
Surrogate: Fluoranthene-d10	0.0142		"	0.0333		42.6	40-150			

Matrix Spike Dup (BHA0047-MSD1)

Source: 2312507-01

Prepared: 01/02/24 Analyzed: 01/03/24

Acenaphthene	0.0196	0.00500	mg/kg	0.0333	ND	58.9	31-137	13.7	30
Anthracene	0.0187	0.00500	"	0.0333	ND	56.2	30-120	13.8	30
Benzo (a) anthracene	0.0188	0.00500	"	0.0333	ND	56.5	30-120	3.04	30
Benzo (a) pyrene	0.0171	0.00500	"	0.0333	ND	51.3	30-120	22.1	30
Benzo (b) fluoranthene	0.0192	0.00500	"	0.0333	ND	57.6	30-120	16.7	30
Benzo (k) fluoranthene	0.0159	0.00500	"	0.0333	ND	47.6	30-120	6.39	30
Chrysene	0.0279	0.00500	"	0.0333	ND	83.8	30-120	28.8	30
Dibenz (a,h) anthracene	0.0163	0.00500	"	0.0333	ND	49.0	30-120	11.0	30
Fluoranthene	0.0199	0.00500	"	0.0333	ND	59.8	30-120	17.8	30
Fluorene	0.0206	0.00500	"	0.0333	ND	61.8	30-120	15.4	30
Indeno (1,2,3-cd) pyrene	0.0177	0.00500	"	0.0333	ND	53.2	30-120	9.46	30
Pyrene	0.0245	0.00500	"	0.0333	ND	73.5	35-142	25.5	30
1-Methylnaphthalene	0.0263	0.00500	"	0.0333	ND	78.9	15-130	35.9	50
2-Methylnaphthalene	0.0272	0.00500	"	0.0333	ND	81.5	15-130	31.3	50
Surrogate: 2-Methylnaphthalene-d10	0.0264		"	0.0333		79.1	40-150		
Surrogate: Fluoranthene-d10	0.0158		"	0.0333		47.5	40-150		

Summit Scientific

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



Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

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

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

Batch BGL0372 - EPA 3050B

Blank (BGL0372-BLK1)

Prepared: 12/11/23 Analyzed: 12/13/23

Boron ND 2.00 mg/L

LCS (BGL0372-BS1)

Prepared: 12/11/23 Analyzed: 12/13/23

Boron 5.16 2.00 mg/L 5.00 103 80-120

Duplicate (BGL0372-DUP1)

Source: 2312007-01

Prepared: 12/11/23 Analyzed: 12/13/23

Boron 0.0619 2.00 mg/L 0.0967 43.8 20 QR-01

Matrix Spike (BGL0372-MS1)

Source: 2312007-01

Prepared: 12/11/23 Analyzed: 12/13/23

Boron 5.14 2.00 mg/L 5.00 0.0967 101 75-125

Matrix Spike Dup (BGL0372-MSD1)

Source: 2312007-01

Prepared: 12/11/23 Analyzed: 12/13/23

Boron 5.50 2.00 mg/L 5.00 0.0967 108 75-125 6.88 25

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Gutttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BGL0409 - EPA 3050B

Blank (BGL0409-BLK1)

Prepared: 12/12/23 Analyzed: 12/14/23

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	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							

LCS (BGL0409-BS1)

Prepared: 12/12/23 Analyzed: 12/14/23

Arsenic	39.1	0.200	mg/kg wet	40.0	97.8	80-120
Barium	34.4	0.400	"	40.0	86.1	80-120
Cadmium	1.75	0.200	"	2.00	87.7	80-120
Copper	40.6	0.400	"	40.0	101	80-120
Lead	17.9	0.200	"	20.0	89.7	80-120
Nickel	39.8	0.400	"	40.0	99.5	80-120
Silver	1.80	0.0200	"	2.00	90.2	80-120
Zinc	39.7	0.400	"	40.0	99.2	80-120
Selenium	4.59	0.260	"	4.00	115	80-120

Duplicate (BGL0409-DUP1)

Source: 2312134-01

Prepared: 12/12/23 Analyzed: 12/14/23

Arsenic	0.516	0.200	mg/kg dry	0.529	2.38	20
Barium	35.2	0.400	"	33.8	4.06	20
Cadmium	0.0298	0.200	"	0.0331	10.5	20
Copper	0.747	0.400	"	0.884	16.9	20
Lead	8.84	0.200	"	8.90	0.695	20
Nickel	0.928	0.400	"	1.01	8.74	20
Silver	0.0116	0.0200	"	0.0120	3.51	20
Zinc	3.58	0.400	"	4.01	11.3	20
Selenium	ND	0.260	"	ND		20

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

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 BGL0409 - EPA 3050B

Matrix Spike (BGL0409-MS1)	Source: 2312134-01			Prepared: 12/12/23		Analyzed: 12/14/23					
Arsenic	16.6	0.200	mg/kg dry	41.4	0.529	38.7	75-125				QM-07
Barium	76.2	0.400	"	41.4	33.8	102	75-125				
Cadmium	1.97	0.200	"	2.07	0.0331	93.5	75-125				
Copper	17.7	0.400	"	41.4	0.884	40.6	75-125				QM-07
Lead	27.9	0.200	"	20.7	8.90	91.9	75-125				
Nickel	17.9	0.400	"	41.4	1.01	40.7	75-125				QM-07
Silver	1.93	0.0200	"	2.07	0.0120	92.7	75-125				
Zinc	20.0	0.400	"	41.4	4.01	38.7	75-125				QM-07
Selenium	4.67	0.260	"	4.14	ND	113	75-125				

Matrix Spike Dup (BGL0409-MSD1)	Source: 2312134-01			Prepared: 12/12/23		Analyzed: 12/14/23					
Arsenic	16.5	0.200	mg/kg dry	41.4	0.529	38.5	75-125	0.627	25		QM-07
Barium	76.9	0.400	"	41.4	33.8	104	75-125	0.941	25		
Cadmium	1.96	0.200	"	2.07	0.0331	93.2	75-125	0.274	25		
Copper	17.4	0.400	"	41.4	0.884	40.0	75-125	1.56	25		QM-07
Lead	28.2	0.200	"	20.7	8.90	93.3	75-125	1.01	25		
Nickel	17.6	0.400	"	41.4	1.01	40.0	75-125	1.81	25		QM-07
Silver	1.95	0.0200	"	2.07	0.0120	93.6	75-125	0.939	25		
Zinc	20.3	0.400	"	41.4	4.01	39.3	75-125	1.15	25		QM-07
Selenium	4.49	0.260	"	4.14	ND	108	75-125	4.00	25		

Batch BHA0067 - EPA 3050B

Blank (BHA0067-BLK1)				Prepared: 01/03/24		Analyzed: 01/09/24					
Arsenic	ND	0.200	mg/kg wet								

LCS (BHA0067-BS1)				Prepared: 01/03/24		Analyzed: 01/09/24					
Arsenic	40.8	0.200	mg/kg wet	40.0		102	80-120				

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

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 BHA0067 - EPA 3050B

Duplicate (BHA0067-DUP1)		Source: 2312078-01			Prepared: 01/03/24 Analyzed: 01/09/24						
Arsenic	0.452	0.200	mg/kg wet		0.456			0.705	20		
Matrix Spike (BHA0067-MS1)		Source: 2312078-01			Prepared: 01/03/24 Analyzed: 01/09/24						
Arsenic	17.4	0.200	mg/kg wet	40.0	0.456	42.3	75-125				QM-07
Matrix Spike Dup (BHA0067-MSD1)		Source: 2312078-01			Prepared: 01/03/24 Analyzed: 01/09/24						
Arsenic	17.6	0.200	mg/kg wet	40.0	0.456	42.9	75-125	1.40	25		QM-07

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

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 BGL0397 - 3060A Mod

Blank (BGL0397-BLK1)

Prepared & Analyzed: 12/11/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGL0397-BS1)

Prepared & Analyzed: 12/11/23

Chromium, Hexavalent 24.6 0.30 mg/kg wet 25.0 98.4 80-120

Duplicate (BGL0397-DUP1)

Source: 2312079-01

Prepared & Analyzed: 12/11/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGL0397-MS1)

Source: 2312079-01

Prepared & Analyzed: 12/11/23

Chromium, Hexavalent 22.6 0.30 mg/kg dry 27.2 ND 83.2 75-125

Matrix Spike Dup (BGL0397-MSD1)

Source: 2312079-01

Prepared & Analyzed: 12/11/23

Chromium, Hexavalent 22.3 0.30 mg/kg dry 27.2 ND 82.0 75-125 1.45 20

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

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 BGL0343 - General Preparation

Blank (BGL0343-BLK1)

Prepared: 12/08/23 Analyzed: 12/12/23

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

LCS (BGL0343-BS1)

Prepared: 12/08/23 Analyzed: 12/12/23

Calcium	5.41	0.0500	mg/L wet	5.00		108	70-130			
Magnesium	5.40	0.0500	"	5.00		108	70-130			
Sodium	5.42	0.0500	"	5.00		108	70-130			

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

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 BGL0418 - General Preparation

Duplicate (BGL0418-DUP1)

Source: 2312180-01

Prepared & Analyzed: 12/12/23

% Solids	90.3	%		89.9		0.522	20
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Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

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			%REC	Limits	RPD	Limit	

Batch BGL0381 - General Preparation

Blank (BGL0381-BLK1)

Prepared & Analyzed: 12/11/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGL0381-BS1)

Prepared & Analyzed: 12/11/23

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

Duplicate (BGL0381-DUP1)

Source: 2312133-01

Prepared & Analyzed: 12/11/23

Specific Conductance (EC) 1.68 0.0100 mmhos/cm 1.68 0.00 20

Summit Scientific

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



Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 09:52

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

Summit Scientific

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

Batch BGL0380 - General Preparation

LCS (BGL0380-BS1)

Prepared & Analyzed: 12/11/23

pH	9.05		pH Units	9.18		98.6	95-105		
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Duplicate (BGL0380-DUP1)

Source: 2312133-01

Prepared & Analyzed: 12/11/23

pH	7.73		pH Units		7.73			0.00	20
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Batch BHA0148 - General Preparation

LCS (BHA0148-BS1)

Prepared & Analyzed: 01/04/24

pH	9.20		pH Units	9.18		100	95-105		
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Duplicate (BHA0148-DUP1)

Source: 2311074-05

Prepared & Analyzed: 01/04/24

pH	8.42		pH Units		8.37			0.596	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.



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 09:52

Notes and Definitions

- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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.
- 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

January 15, 2024

Paul Henchan
Fremont Environmental
PO Box 1289
Wellington, CO 80549
RE: PDC - Gutteresen
Work Order #2312271

Enclosed are the results of analyses for samples received by Summit Scientific on 12/14/23 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial "J" and a long, sweeping underline.

Jacob Wood For Paul Shrewsbury
President



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-01 0.25FT	2312271-01	Soil	12/14/23 00:00	12/14/23 16:30
SS-02 0.25FT	2312271-02	Soil	12/14/23 00:00	12/14/23 16:30
SS-05 0.25FT	2312271-03	Soil	12/14/23 00:00	12/14/23 16:30
SS-06 0.25FT	2312271-04	Soil	12/14/23 00:00	12/14/23 16:30

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

4653 Table Mountain Drive
Golden, CO 80403
303-277-9310

Lab ID	Page 1 of 1
2312271	

Client: Fremont Environmental, Inc.	Send Data To:	Send Invoice To:
Address: 8305 6th St.,	Project Manager: Henehan	Company: PDE, Inc.
City/State/Zip: Wellington, CO, 80549	E-Mail: Fremont Distribution List	Project Name/Location:
Phone: 603-477-6907	Project Name: PDC - Gultersen	AFE#:
Sampler Name: Ethan Black	Project Number:	PO/Billing Codes:
		Contact: Jason Davidson

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested						Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX, Naphthalene, TMBs	TPH (C6-C36)	PAH	SAR, EC, pH, Boron	TDS, Chloride, Sulfate	
1	SS-01 0.25 FT	12/14/23		2			X			X			X	X	X	X		
2	SS-02 0.25 FT																	
3	SS-05 0.25 FT																	
4	SS-06 0.25 FT																	
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

Relinquished by: Ethan Black	Date/Time: 12/14/23 1614	Received by: S2 - North Office	Date/Time: 12/14/23 1616	TAT Business Days	Field DO	Notes:
				Same Day <input checked="" type="checkbox"/>	Field EC	
Relinquished by: S2	Date/Time: 12/14/23 1630	Received by: [Signature]	Date/Time: 12/14/23 1630	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 11.4	Corrected Temperature: 9	IR gun #:	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2312271

Client: Fremont

Client Project ID: Poc - Guttersen

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

Airbill #: _____

Matrix (Check all that apply)

Air

Soil/Solid

Water

Other

Temp (°C)

11.4

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>on 705</u>
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Same day</u>
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>no time stamps</u>
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pff 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"/>	
<u>Additional Comments (if any):</u>				

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

AS

Custodian Printed Name

12/14/23

Date/Time

2 2 2 2 2



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-01 0.25FT
2312271-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0571	12/14/23	12/14/23	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: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0415	104 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0411	103 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0409	102 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	54	50		mg/kg	1	BGL0576	12/14/23	12/14/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	9.93	79.5 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-01 0.25FT
2312271-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzo (a) anthracene	ND	0.00500	mg/kg	1	BGL0591	12/15/23	12/16/23	EPA 8270D SIM	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluorene	0.0306	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	0.167	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	0.151	0.00500	"	"	"	"	"	"	

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0158	47.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0180	54.0 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0592	12/15/23	12/20/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	80.1	0.400	mg/kg dry	1	BGL0613	12/15/23	12/21/23	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	5.51	0.400	"	"	"	"	"	"	
Lead	6.04	0.200	"	"	"	"	"	"	
Nickel	3.61	0.400	"	"	"	"	"	"	
Silver	0.0243	0.0200	"	"	"	"	"	"	
Zinc	17.6	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-01 0.25FT
2312271-01 (Soil)

Summit Scientific

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0716	12/19/23	12/20/23	EPA 7196A	

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

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	26.3	0.0500	mg/L dry	1	BGL0573	12/14/23	12/19/23	EPA 6020B	
Magnesium	9.10	0.0500	"	"	"	"	"	"	
Sodium	84.9	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	3.64	0.00100	units	1	BGL0754	12/20/23	12/20/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	93.8		%	1	BGL0660	12/18/23	12/19/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.702	0.0100	mmhos/cm	1	BGL0581	12/15/23	12/15/23	EPA 120.1	

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

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Fremont Environmental
 PO Box 1289
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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

SS-01 0.25FT
2312271-01 (Soil)

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

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.11		pH Units	1	BGL0580	12/15/23	12/15/23	EPA 9045D	

Summit Scientific



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PO Box 1289
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Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-01 0.25FT
2312271-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Acenaphthene	ND	0.00500	mg/kg	1	BHA0047	01/02/24	01/03/24	EPA 8270D SIM	I-04
Anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	I-04
Pyrene	ND	0.00500	"	"	"	"	"	"	I-04

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 2-Methylnaphthalene-d10	0.0322	96.6 %	40-150		"	"	"	"	I-04
Surrogate: Fluoranthene-d10	0.0184	55.3 %	40-150		"	"	"	"	I-04

Total Metals by EPA 6020B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.751	0.200	mg/kg dry	1	BHA0067	12/15/23	01/09/24	EPA 6020B	

Summit Scientific

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Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-02 0.25FT
2312271-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGL0571	12/14/23	12/14/23	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: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0417	104 %	50-150	"	"	"	"	"	
Surrogate: Toluene-d8	0.0402	101 %	50-150	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0412	103 %	50-150	"	"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGL0576	12/14/23	12/14/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	8.24	65.9 %	30-150	"	"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

SS-02 0.25FT
2312271-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGL0591	12/15/23	12/16/23	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: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0158	47.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0135	40.5 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGL0592	12/15/23	12/20/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-02 0.25FT
2312271-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	170	0.400	mg/kg dry	1	BGL0613	12/15/23	12/21/23	EPA 6020B	
Cadmium	0.312	0.200	"	"	"	"	"	"	
Copper	7.40	0.400	"	"	"	"	"	"	
Lead	11.4	0.200	"	"	"	"	"	"	
Nickel	5.30	0.400	"	"	"	"	"	"	
Silver	0.0741	0.0200	"	"	"	"	"	"	
Zinc	23.1	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: 12/14/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0716	12/19/23	12/20/23	EPA 7196A	

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

Date Sampled: 12/14/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	55.8	0.0500	mg/L dry	1	BGL0573	12/14/23	12/19/23	EPA 6020B	
Magnesium	19.7	0.0500	"	"	"	"	"	"	
Sodium	16.8	0.0500	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: 12/14/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.492	0.00100	units	1	BGL0754	12/20/23	12/20/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 12/14/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.3		%	1	BGL0660	12/18/23	12/19/23	Calculation	

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

SS-02 0.25FT
2312271-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/14/23 00:00**

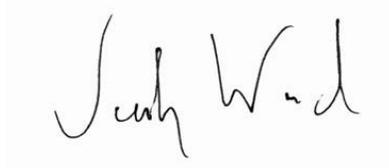
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.610	0.0100	mmhos/cm	1	BGL0581	12/15/23	12/15/23	EPA 120.1	

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

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.93		pH Units	1	BGL0580	12/15/23	12/15/23	EPA 9045D	

Summit Scientific



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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

SS-02 0.25FT
2312271-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	0.950	0.200	mg/kg dry	1	BHA0067	12/15/23	01/09/24	EPA 6020B	

Summit Scientific



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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-05 0.25FT
2312271-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0571	12/14/23	12/14/23	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: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0390	97.6 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0408	102 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0389	97.4 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0576	12/14/23	12/14/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	8.21	65.7 %		30-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-05 0.25FT
2312271-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0592	12/15/23	12/20/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Barium	172	0.400	mg/kg dry	1	BGL0613	12/15/23	12/21/23	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	3.74	0.400	"	"	"	"	"	"	
Lead	4.15	0.200	"	"	"	"	"	"	
Nickel	2.07	0.400	"	"	"	"	"	"	
Silver	0.0270	0.0200	"	"	"	"	"	"	
Zinc	12.3	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0716	12/19/23	12/20/23	EPA 7196A	

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

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	77.7	0.0500	mg/L dry	1	BGL0573	12/14/23	12/19/23	EPA 6020B	
Magnesium	15.4	0.0500	"	"	"	"	"	"	
Sodium	61.7	0.0500	"	"	"	"	"	"	

Calculated Analysis

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-05 0.25FT
2312271-03 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.67	0.00100	units	1	BGL0754	12/20/23	12/20/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.7		%	1	BGL0660	12/18/23	12/19/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.989	0.0100	mmhos/cm	1	BGL0581	12/15/23	12/15/23	EPA 120.1	

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

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.00		pH Units	1	BGL0580	12/15/23	12/15/23	EPA 9045D	

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Fremont Environmental
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Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

SS-05 0.25FT
2312271-03 (Soil)

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PAH by EPA Method 8270D SIM

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHA0047	01/02/24	01/03/24	EPA 8270D SIM	I-04
Anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Chrysene	ND	0.00500	"	"	"	"	"	"	I-04
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Fluorene	ND	0.00500	"	"	"	"	"	"	I-04
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	I-04
Pyrene	ND	0.00500	"	"	"	"	"	"	I-04
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	I-04
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	I-04

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0345	103 %	40-150		"	"	"	"	I-04
Surrogate: Fluoranthene-d10	0.0211	63.4 %	40-150		"	"	"	"	I-04

Total Metals by EPA 6020B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.832	0.200	mg/kg dry	1	BHA0067	12/15/23	01/09/24	EPA 6020B	

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Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-06 0.25FT
2312271-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGL0571	12/14/23	12/15/23	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: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0401	100 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0422	106 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0393	98.2 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGL0576	12/14/23	12/14/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	7.78	62.3 %		30-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-06 0.25FT
2312271-04 (Soil)

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Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGL0592	12/15/23	12/20/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Barium	165	0.400	mg/kg dry	1	BGL0613	12/15/23	12/21/23	EPA 6020B	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	4.98	0.400	"	"	"	"	"	"	
Lead	5.36	0.200	"	"	"	"	"	"	
Nickel	2.49	0.400	"	"	"	"	"	"	
Silver	0.0405	0.0200	"	"	"	"	"	"	
Zinc	15.5	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGL0716	12/19/23	12/20/23	EPA 7196A	

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

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	126	0.0500	mg/L dry	1	BGL0573	12/14/23	12/19/23	EPA 6020B	
Magnesium	26.0	0.0500	"	"	"	"	"	"	
Sodium	78.1	0.0500	"	"	"	"	"	"	

Calculated Analysis

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Fremont Environmental
 PO Box 1289
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Project: PDC - Gutteresen
 Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

SS-06 0.25FT
2312271-04 (Soil)

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Calculated Analysis

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.65	0.00100	units	1	BGL0754	12/20/23	12/20/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.8		%	1	BGL0660	12/18/23	12/19/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.42	0.0100	mmhos/cm	1	BGL0581	12/15/23	12/15/23	EPA 120.1	

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

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.96		pH Units	1	BGL0580	12/15/23	12/15/23	EPA 9045D	

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PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

SS-06 0.25FT
2312271-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHA0047	01/02/24	01/03/24	EPA 8270D SIM	I-04
Anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Chrysene	ND	0.00500	"	"	"	"	"	"	I-04
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	I-04
Fluoranthene	ND	0.00500	"	"	"	"	"	"	I-04
Fluorene	ND	0.00500	"	"	"	"	"	"	I-04
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	I-04
Pyrene	ND	0.00500	"	"	"	"	"	"	I-04
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	I-04
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	I-04

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0393	118 %	40-150		"	"	"	"	I-04
Surrogate: Fluoranthene-d10	0.0212	63.6 %	40-150		"	"	"	"	I-04

Total Metals by EPA 6020B

Date Sampled: **12/14/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.942	0.200	mg/kg dry	1	BHA0067	12/15/23	01/09/24	EPA 6020B	

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

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 BGL0571 - EPA 5030 Soil MS

Blank (BGL0571-BLK1)

Prepared: 12/14/23 Analyzed: 12/15/23

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>	0.0399		"	0.0400		99.7	50-150			
<i>Surrogate: Toluene-d8</i>	0.0402		"	0.0400		100	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0406		"	0.0400		101	50-150			

LCS (BGL0571-BS1)

Prepared: 12/14/23 Analyzed: 12/15/23

Benzene	0.0951	0.0020	mg/kg	0.100		95.1	70-130			
Toluene	0.0902	0.0050	"	0.100		90.2	70-130			
Ethylbenzene	0.0910	0.0050	"	0.100		91.0	70-130			
m,p-Xylene	0.180	0.010	"	0.200		89.8	70-130			
o-Xylene	0.0849	0.0050	"	0.100		84.9	70-130			
1,2,4-Trimethylbenzene	0.0789	0.0050	"	0.100		78.9	70-130			
1,3,5-Trimethylbenzene	0.0826	0.0050	"	0.100		82.6	70-130			
Naphthalene	0.0775	0.0038	"	0.100		77.5	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0397		"	0.0400		99.2	50-150			
<i>Surrogate: Toluene-d8</i>	0.0407		"	0.0400		102	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0397		"	0.0400		99.2	50-150			

Matrix Spike (BGL0571-MS1)

Source: 2312271-01

Prepared: 12/14/23 Analyzed: 12/15/23

Benzene	0.0844	0.0020	mg/kg	0.100	ND	84.4	70-130			
Toluene	0.0777	0.0050	"	0.100	ND	77.7	70-130			
Ethylbenzene	0.0880	0.0050	"	0.100	ND	88.0	70-130			
m,p-Xylene	0.166	0.010	"	0.200	ND	83.0	70-130			
o-Xylene	0.0801	0.0050	"	0.100	ND	80.1	70-130			
1,2,4-Trimethylbenzene	0.0655	0.0050	"	0.100	ND	65.5	70-130			QM-07
1,3,5-Trimethylbenzene	0.0737	0.0050	"	0.100	ND	73.7	70-130			
Naphthalene	0.0697	0.0038	"	0.100	ND	69.7	70-130			QM-07
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0418		"	0.0400		105	50-150			
<i>Surrogate: Toluene-d8</i>	0.0415		"	0.0400		104	50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0475		"	0.0400		119	50-150			

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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

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 BGL0571 - EPA 5030 Soil MS

Matrix Spike Dup (BGL0571-MSD1)	Source: 2312271-01			Prepared: 12/14/23 Analyzed: 12/15/23						
Benzene	0.0827	0.0020	mg/kg	0.100	ND	82.7	70-130	2.01	30	
Toluene	0.0756	0.0050	"	0.100	ND	75.6	70-130	2.74	30	
Ethylbenzene	0.0950	0.0050	"	0.100	ND	95.0	70-130	7.64	30	
m,p-Xylene	0.179	0.010	"	0.200	ND	89.3	70-130	7.31	30	
o-Xylene	0.0871	0.0050	"	0.100	ND	87.1	70-130	8.40	30	
1,2,4-Trimethylbenzene	0.0699	0.0050	"	0.100	ND	69.9	70-130	6.56	30	QM-07
1,3,5-Trimethylbenzene	0.0749	0.0050	"	0.100	ND	74.9	70-130	1.61	30	
Naphthalene	0.0736	0.0038	"	0.100	ND	73.6	70-130	5.36	30	
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0400		99.5	50-150			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0512		"	0.0400		128	50-150			

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Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BGL0576 - EPA 3550A

Blank (BGL0576-BLK1)

Prepared: 12/14/23 Analyzed: 12/15/23

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	12.8		"	12.5		103		30-150			

LCS (BGL0576-BS1)

Prepared: 12/14/23 Analyzed: 12/15/23

C10-C28 (DRO)	424	50	mg/kg	500		84.8		70-130			
Surrogate: <i>o</i> -Terphenyl	11.5		"	12.5		92.3		30-150			

Matrix Spike (BGL0576-MS1)

Source: 2312271-01

Prepared: 12/14/23 Analyzed: 12/15/23

C10-C28 (DRO)	484	50	mg/kg	500	54.3	85.8		70-130			
Surrogate: <i>o</i> -Terphenyl	9.20		"	12.5		73.6		30-150			

Matrix Spike Dup (BGL0576-MSD1)

Source: 2312271-01

Prepared: 12/14/23 Analyzed: 12/15/23

C10-C28 (DRO)	507	50	mg/kg	500	54.3	90.6		70-130	4.79	20	
Surrogate: <i>o</i> -Terphenyl	9.63		"	12.5		77.1		30-150			

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

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 BGL0591 - EPA 5030 Soil MS

Blank (BGL0591-BLK1)

Prepared: 12/15/23 Analyzed: 12/16/23

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>	0.0225		"	0.0333		67.5	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0297		"	0.0333		89.0	40-150			

LCS (BGL0591-BS1)

Prepared: 12/15/23 Analyzed: 12/16/23

Acenaphthene	0.0301	0.00500	mg/kg	0.0333		90.4	31-137			
Anthracene	0.0310	0.00500	"	0.0333		93.1	30-120			
Benzo (a) anthracene	0.0244	0.00500	"	0.0333		73.3	30-120			
Benzo (a) pyrene	0.0270	0.00500	"	0.0333		81.0	30-120			
Benzo (b) fluoranthene	0.0276	0.00500	"	0.0333		82.8	30-120			
Benzo (k) fluoranthene	0.0286	0.00500	"	0.0333		85.8	30-120			
Chrysene	0.0320	0.00500	"	0.0333		95.9	30-120			
Dibenz (a,h) anthracene	0.0397	0.00500	"	0.0333		119	30-120			
Fluoranthene	0.0313	0.00500	"	0.0333		93.9	30-120			
Fluorene	0.0315	0.00500	"	0.0333		94.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0368	0.00500	"	0.0333		110	30-120			
Pyrene	0.0346	0.00500	"	0.0333		104	35-142			
1-Methylnaphthalene	0.0312	0.00500	"	0.0333		93.7	35-142			
2-Methylnaphthalene	0.0289	0.00500	"	0.0333		86.7	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.0313		"	0.0333		94.0	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0313		"	0.0333		93.8	40-150			

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

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 BGL0591 - EPA 5030 Soil MS

Matrix Spike (BGL0591-MS1)

Source: 2312101-06

Prepared: 12/15/23 Analyzed: 12/16/23

Acenaphthene	0.0171	0.00500	mg/kg	0.0333	ND	51.3	31-137			
Anthracene	0.0182	0.00500	"	0.0333	ND	54.7	30-120			
Benzo (a) anthracene	0.0151	0.00500	"	0.0333	ND	45.2	30-120			
Benzo (a) pyrene	0.0170	0.00500	"	0.0333	ND	51.1	30-120			
Benzo (b) fluoranthene	0.0150	0.00500	"	0.0333	ND	45.1	30-120			
Benzo (k) fluoranthene	0.0188	0.00500	"	0.0333	ND	56.4	30-120			
Chrysene	0.0164	0.00500	"	0.0333	ND	49.2	30-120			
Dibenz (a,h) anthracene	0.0184	0.00500	"	0.0333	ND	55.4	30-120			
Fluoranthene	0.0174	0.00500	"	0.0333	ND	52.3	30-120			
Fluorene	0.0179	0.00500	"	0.0333	ND	53.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0162	0.00500	"	0.0333	ND	48.7	30-120			
Pyrene	0.0191	0.00500	"	0.0333	ND	57.2	35-142			
1-Methylnaphthalene	0.0184	0.00500	"	0.0333	ND	55.2	15-130			
2-Methylnaphthalene	0.0152	0.00500	"	0.0333	ND	45.5	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0170		"	0.0333		51.0	40-150			
Surrogate: Fluoranthene-d10	0.0175		"	0.0333		52.5	40-150			

Matrix Spike Dup (BGL0591-MSD1)

Source: 2312101-06

Prepared: 12/15/23 Analyzed: 12/16/23

Acenaphthene	0.0154	0.00500	mg/kg	0.0333	ND	46.2	31-137	10.4	30	
Anthracene	0.0161	0.00500	"	0.0333	ND	48.4	30-120	12.2	30	
Benzo (a) anthracene	0.0148	0.00500	"	0.0333	ND	44.4	30-120	1.93	30	
Benzo (a) pyrene	0.0152	0.00500	"	0.0333	ND	45.5	30-120	11.8	30	
Benzo (b) fluoranthene	0.0138	0.00500	"	0.0333	ND	41.3	30-120	8.81	30	
Benzo (k) fluoranthene	0.0169	0.00500	"	0.0333	ND	50.8	30-120	10.4	30	
Chrysene	0.0185	0.00500	"	0.0333	ND	55.6	30-120	12.2	30	
Dibenz (a,h) anthracene	0.0133	0.00500	"	0.0333	ND	40.0	30-120	32.1	30	QR-02
Fluoranthene	0.0218	0.00500	"	0.0333	ND	65.4	30-120	22.3	30	
Fluorene	0.0155	0.00500	"	0.0333	ND	46.5	30-120	14.3	30	
Indeno (1,2,3-cd) pyrene	0.0156	0.00500	"	0.0333	ND	46.8	30-120	3.90	30	
Pyrene	0.0150	0.00500	"	0.0333	ND	45.0	35-142	23.9	30	
1-Methylnaphthalene	0.0138	0.00500	"	0.0333	ND	41.3	15-130	28.8	50	
2-Methylnaphthalene	0.0305	0.00500	"	0.0333	ND	91.5	15-130	67.1	50	QR-02
Surrogate: 2-Methylnaphthalene-d10	0.0166		"	0.0333		49.7	40-150			
Surrogate: Fluoranthene-d10	0.0152		"	0.0333		45.5	40-150			

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

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 BHA0047 - EPA 5030 Soil MS

Blank (BHA0047-BLK1)

Prepared: 01/02/24 Analyzed: 01/03/24

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>0.0149</i>		"	<i>0.0333</i>		<i>44.7</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0184</i>		"	<i>0.0333</i>		<i>55.2</i>	<i>40-150</i>			

LCS (BHA0047-BS1)

Prepared: 01/02/24 Analyzed: 01/03/24

Acenaphthene	0.0279	0.00500	mg/kg	0.0333		83.8	31-137			
Anthracene	0.0271	0.00500	"	0.0333		81.2	30-120			
Benzo (a) anthracene	0.0251	0.00500	"	0.0333		75.3	30-120			
Benzo (a) pyrene	0.0268	0.00500	"	0.0333		80.3	30-120			
Benzo (b) fluoranthene	0.0253	0.00500	"	0.0333		76.0	30-120			
Benzo (k) fluoranthene	0.0261	0.00500	"	0.0333		78.2	30-120			
Chrysene	0.0261	0.00500	"	0.0333		78.4	30-120			
Dibenz (a,h) anthracene	0.0251	0.00500	"	0.0333		75.2	30-120			
Fluoranthene	0.0289	0.00500	"	0.0333		86.8	30-120			
Fluorene	0.0294	0.00500	"	0.0333		88.3	30-120			
Indeno (1,2,3-cd) pyrene	0.0159	0.00500	"	0.0333		47.7	30-120			
Pyrene	0.0255	0.00500	"	0.0333		76.5	35-142			
1-Methylnaphthalene	0.0269	0.00500	"	0.0333		80.6	35-142			
2-Methylnaphthalene	0.0264	0.00500	"	0.0333		79.2	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0242</i>		"	<i>0.0333</i>		<i>72.6</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0294</i>		"	<i>0.0333</i>		<i>88.1</i>	<i>40-150</i>			

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

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 BHA0047 - EPA 5030 Soil MS

Matrix Spike (BHA0047-MS1)

Source: 2312507-01

Prepared: 01/02/24 Analyzed: 01/03/24

Acenaphthene	0.0171	0.00500	mg/kg	0.0333	ND	51.4	31-137			
Anthracene	0.0163	0.00500	"	0.0333	ND	49.0	30-120			
Benzo (a) anthracene	0.0183	0.00500	"	0.0333	ND	54.8	30-120			
Benzo (a) pyrene	0.0137	0.00500	"	0.0333	ND	41.1	30-120			
Benzo (b) fluoranthene	0.0162	0.00500	"	0.0333	ND	48.7	30-120			
Benzo (k) fluoranthene	0.0149	0.00500	"	0.0333	ND	44.6	30-120			
Chrysene	0.0209	0.00500	"	0.0333	ND	62.7	30-120			
Dibenz (a,h) anthracene	0.0146	0.00500	"	0.0333	ND	43.9	30-120			
Fluoranthene	0.0167	0.00500	"	0.0333	ND	50.0	30-120			
Fluorene	0.0177	0.00500	"	0.0333	ND	53.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0161	0.00500	"	0.0333	ND	48.4	30-120			
Pyrene	0.0189	0.00500	"	0.0333	ND	56.8	35-142			
1-Methylnaphthalene	0.0183	0.00500	"	0.0333	ND	54.9	15-130			
2-Methylnaphthalene	0.0198	0.00500	"	0.0333	ND	59.4	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0167		"	0.0333		50.1	40-150			
Surrogate: Fluoranthene-d10	0.0142		"	0.0333		42.6	40-150			

Matrix Spike Dup (BHA0047-MSD1)

Source: 2312507-01

Prepared: 01/02/24 Analyzed: 01/03/24

Acenaphthene	0.0196	0.00500	mg/kg	0.0333	ND	58.9	31-137	13.7	30
Anthracene	0.0187	0.00500	"	0.0333	ND	56.2	30-120	13.8	30
Benzo (a) anthracene	0.0188	0.00500	"	0.0333	ND	56.5	30-120	3.04	30
Benzo (a) pyrene	0.0171	0.00500	"	0.0333	ND	51.3	30-120	22.1	30
Benzo (b) fluoranthene	0.0192	0.00500	"	0.0333	ND	57.6	30-120	16.7	30
Benzo (k) fluoranthene	0.0159	0.00500	"	0.0333	ND	47.6	30-120	6.39	30
Chrysene	0.0279	0.00500	"	0.0333	ND	83.8	30-120	28.8	30
Dibenz (a,h) anthracene	0.0163	0.00500	"	0.0333	ND	49.0	30-120	11.0	30
Fluoranthene	0.0199	0.00500	"	0.0333	ND	59.8	30-120	17.8	30
Fluorene	0.0206	0.00500	"	0.0333	ND	61.8	30-120	15.4	30
Indeno (1,2,3-cd) pyrene	0.0177	0.00500	"	0.0333	ND	53.2	30-120	9.46	30
Pyrene	0.0245	0.00500	"	0.0333	ND	73.5	35-142	25.5	30
1-Methylnaphthalene	0.0263	0.00500	"	0.0333	ND	78.9	15-130	35.9	50
2-Methylnaphthalene	0.0272	0.00500	"	0.0333	ND	81.5	15-130	31.3	50
Surrogate: 2-Methylnaphthalene-d10	0.0264		"	0.0333		79.1	40-150		
Surrogate: Fluoranthene-d10	0.0158		"	0.0333		47.5	40-150		

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

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 BGL0592 - EPA 3050B

Blank (BGL0592-BLK1)

Prepared: 12/15/23 Analyzed: 12/20/23

Boron ND 2.00 mg/L

LCS (BGL0592-BS1)

Prepared: 12/15/23 Analyzed: 12/20/23

Boron 5.38 2.00 mg/L 5.00 108 80-120

Duplicate (BGL0592-DUP1)

Source: 2312159-01

Prepared: 12/15/23 Analyzed: 12/20/23

Boron 1.24 2.00 mg/L 1.16 6.73 20

Matrix Spike (BGL0592-MS1)

Source: 2312159-01

Prepared: 12/15/23 Analyzed: 12/20/23

Boron 6.48 2.00 mg/L 5.00 1.16 106 75-125

Matrix Spike Dup (BGL0592-MSD1)

Source: 2312159-01

Prepared: 12/15/23 Analyzed: 12/20/23

Boron 6.24 2.00 mg/L 5.00 1.16 102 75-125 3.76 25

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BGL0613 - EPA 3050B

Blank (BGL0613-BLK1)

Prepared: 12/15/23 Analyzed: 12/21/23

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	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
Selenium	ND	0.260	"							

LCS (BGL0613-BS1)

Prepared: 12/15/23 Analyzed: 12/21/23

Arsenic	34.4	0.200	mg/kg wet	40.0	86.0	80-120
Barium	34.2	0.400	"	40.0	85.5	80-120
Cadmium	1.75	0.200	"	2.00	87.5	80-120
Copper	36.6	0.400	"	40.0	91.5	80-120
Lead	17.2	0.200	"	20.0	85.9	80-120
Nickel	35.8	0.400	"	40.0	89.6	80-120
Silver	1.60	0.0200	"	2.00	80.0	80-120
Zinc	33.8	0.400	"	40.0	84.5	80-120
Selenium	3.58	0.260	"	4.00	89.5	80-120

Duplicate (BGL0613-DUP1)

Source: 2312196-01

Prepared: 12/15/23 Analyzed: 12/21/23

Arsenic	1.65	0.200	mg/kg dry	1.73	4.99	20
Barium	37.6	0.400	"	44.4	16.6	20
Cadmium	0.128	0.200	"	0.141	10.0	20
Copper	3.14	0.400	"	2.90	7.88	20
Lead	5.19	0.200	"	6.35	20.0	20
Nickel	3.20	0.400	"	2.97	7.34	20
Silver	0.0182	0.0200	"	0.0203	11.0	20
Zinc	12.8	0.400	"	12.0	6.02	20
Selenium	ND	0.260	"	ND		20

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

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 BGL0613 - EPA 3050B

Matrix Spike (BGL0613-MS1)

Source: 2312196-01

Prepared: 12/15/23 Analyzed: 12/21/23

Arsenic	24.1	0.200	mg/kg dry	42.2	1.73	53.0	75-125				QM-07
Barium	85.0	0.400	"	42.2	44.4	96.3	75-125				
Cadmium	1.67	0.200	"	2.11	0.141	72.2	75-125				QM-07
Copper	27.6	0.400	"	42.2	2.90	58.4	75-125				QM-07
Lead	21.2	0.200	"	21.1	6.35	70.4	75-125				QM-07
Nickel	26.3	0.400	"	42.2	2.97	55.3	75-125				QM-07
Silver	1.42	0.0200	"	2.11	0.0203	66.2	75-125				QM-07
Zinc	36.4	0.400	"	42.2	12.0	57.6	75-125				QM-07
Selenium	2.90	0.260	"	4.22	ND	68.7	75-125				QM-07

Matrix Spike Dup (BGL0613-MSD1)

Source: 2312196-01

Prepared: 12/15/23 Analyzed: 12/21/23

Arsenic	24.1	0.200	mg/kg dry	42.2	1.73	53.0	75-125	0.0245	25		QM-07
Barium	89.3	0.400	"	42.2	44.4	107	75-125	4.97	25		
Cadmium	1.73	0.200	"	2.11	0.141	75.0	75-125	3.54	25		
Copper	26.4	0.400	"	42.2	2.90	55.7	75-125	4.17	25		QM-07
Lead	22.4	0.200	"	21.1	6.35	76.1	75-125	5.45	25		
Nickel	25.5	0.400	"	42.2	2.97	53.4	75-125	3.01	25		QM-07
Silver	1.45	0.0200	"	2.11	0.0203	67.9	75-125	2.50	25		QM-07
Zinc	36.2	0.400	"	42.2	12.0	57.1	75-125	0.536	25		QM-07
Selenium	2.99	0.260	"	4.22	ND	70.7	75-125	2.84	25		QM-07

Batch BHA0067 - EPA 3050B

Blank (BHA0067-BLK1)

Prepared: 01/03/24 Analyzed: 01/09/24

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	"								
Silver	ND	0.0200	"								
Zinc	ND	0.400	"								
Selenium	ND	0.260	"								

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

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 BHA0067 - EPA 3050B

LCS (BHA0067-BS1)

Prepared: 01/03/24 Analyzed: 01/09/24

Arsenic	40.8	0.200	mg/kg wet	40.0		102	80-120			
Barium	38.3	0.400	"	40.0		95.7	80-120			
Cadmium	1.84	0.200	"	2.00		92.1	80-120			
Copper	43.5	0.400	"	40.0		109	80-120			
Lead	18.7	0.200	"	20.0		93.6	80-120			
Nickel	42.5	0.400	"	40.0		106	80-120			
Silver	1.84	0.0200	"	2.00		92.1	80-120			
Zinc	39.5	0.400	"	40.0		98.7	80-120			
Selenium	4.16	0.260	"	4.00		104	80-120			

Duplicate (BHA0067-DUP1)

Source: 2312078-01

Prepared: 01/03/24 Analyzed: 01/09/24

Arsenic	0.452	0.200	mg/kg wet		0.456			0.705	20	
Barium	32.2	0.400	"		29.8			7.79	20	
Cadmium	0.0604	0.200	"		0.0576			4.75	20	
Copper	2.54	0.400	"		2.92			13.7	20	
Lead	21.4	0.200	"		28.4			28.0	20	QR-04
Nickel	1.37	0.400	"		1.01			30.3	20	QR-01
Silver	0.0132	0.0200	"		0.0128			3.08	20	
Zinc	9.27	0.400	"		9.39			1.26	20	
Selenium	ND	0.260	"		ND				20	

Matrix Spike (BHA0067-MS1)

Source: 2312078-01

Prepared: 01/03/24 Analyzed: 01/09/24

Arsenic	17.4	0.200	mg/kg wet	40.0	0.456	42.3	75-125			QM-07
Barium	73.9	0.400	"	40.0	29.8	110	75-125			
Cadmium	1.98	0.200	"	2.00	0.0576	96.0	75-125			
Copper	21.4	0.400	"	40.0	2.92	46.3	75-125			QM-07
Lead	51.7	0.200	"	20.0	28.4	117	75-125			
Nickel	19.1	0.400	"	40.0	1.01	45.3	75-125			QM-07
Silver	1.85	0.0200	"	2.00	0.0128	91.6	75-125			
Zinc	27.6	0.400	"	40.0	9.39	45.5	75-125			QM-07
Selenium	5.01	0.260	"	4.00	ND	125	75-125			

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.



Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

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 BHA0067 - EPA 3050B

Matrix Spike Dup (BHA0067-MSD1)	Source: 2312078-01			Prepared: 01/03/24 Analyzed: 01/09/24							
Arsenic	17.6	0.200	mg/kg wet	40.0	0.456	42.9	75-125	1.40	25		QM-07
Barium	74.8	0.400	"	40.0	29.8	112	75-125	1.21	25		
Cadmium	1.95	0.200	"	2.00	0.0576	94.5	75-125	1.55	25		
Copper	21.5	0.400	"	40.0	2.92	46.5	75-125	0.484	25		QM-07
Lead	51.9	0.200	"	20.0	28.4	118	75-125	0.432	25		
Nickel	19.3	0.400	"	40.0	1.01	45.6	75-125	0.646	25		QM-07
Silver	1.85	0.0200	"	2.00	0.0128	92.0	75-125	0.433	25		
Zinc	27.7	0.400	"	40.0	9.39	45.7	75-125	0.275	25		QM-07
Selenium	5.01	0.260	"	4.00	ND	125	75-125	0.136	25		

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

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 BGL0716 - 3060A Mod

Blank (BGL0716-BLK1)

Prepared: 12/19/23 Analyzed: 12/20/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGL0716-BS1)

Prepared: 12/19/23 Analyzed: 12/20/23

Chromium, Hexavalent 24.0 0.30 mg/kg wet 25.0 96.0 80-120

Duplicate (BGL0716-DUP1)

Source: 2312267-01

Prepared: 12/19/23 Analyzed: 12/20/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGL0716-MS1)

Source: 2312267-01

Prepared: 12/19/23 Analyzed: 12/20/23

Chromium, Hexavalent 29.2 0.30 mg/kg dry 29.6 ND 98.6 75-125

Matrix Spike Dup (BGL0716-MSD1)

Source: 2312267-01

Prepared: 12/19/23 Analyzed: 12/20/23

Chromium, Hexavalent 29.1 0.30 mg/kg dry 29.6 ND 98.2 75-125 0.406 20

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

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 BGL0573 - General Preparation

Blank (BGL0573-BLK1)

Prepared: 12/14/23 Analyzed: 12/19/23

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

LCS (BGL0573-BS1)

Prepared: 12/14/23 Analyzed: 12/19/23

Calcium	4.29	0.0500	mg/L wet	5.00	85.8	70-130				
Magnesium	4.95	0.0500	"	5.00	99.0	70-130				
Sodium	4.95	0.0500	"	5.00	99.0	70-130				

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

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 BGL0660 - General Preparation

Duplicate (BGL0660-DUP1)	Source: 2312165-01	Prepared: 12/18/23	Analyzed: 12/19/23
% Solids	84.5	%	84.5
			0.0657
			20

Summit Scientific



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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

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 BGL0581 - General Preparation

Blank (BGL0581-BLK1)

Prepared & Analyzed: 12/15/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BGL0581-BS1)

Prepared & Analyzed: 12/15/23

Specific Conductance (EC) 0.152 0.0100 mmhos/cm 0.150 102 95-105

Duplicate (BGL0581-DUP1)

Source: 2312271-01

Prepared & Analyzed: 12/15/23

Specific Conductance (EC) 0.698 0.0100 mmhos/cm 0.702 0.500 20

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 01/15/24 10:15

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 BGL0580 - General Preparation

LCS (BGL0580-BS1)

Prepared & Analyzed: 12/15/23

pH 9.17 pH Units 9.18 99.9 95-105

Duplicate (BGL0580-DUP1)

Source: 2312271-01

Prepared & Analyzed: 12/15/23

pH 8.10 pH Units 8.11 0.123 20

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
01/15/24 10:15

Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- I-04 Sample was analyzed out of recommended holding time per clients request.
- 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

February 26, 2024

Paul Henchan
Fremont Environmental
PO Box 1289
Wellington, CO 80549
RE: PDC - Gutteresen
Work Order #2402350

Enclosed are the results of analyses for samples received by Summit Scientific on 02/20/24 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial "J" and a long, sweeping underline.

Jacob Wood For Paul Shrewsbury
President



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
02/26/24 08:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-01 0.25FT (2)	2402350-01	Soil	02/20/24 00:00	02/20/24 16:30
SS-04 SURF (2)	2402350-02	Soil	02/20/24 00:00	02/20/24 16:30

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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

4653 Table Mountain Drive
Golden, CO 80403
303-277-9310

Lab ID	Page 1 of 1
2402350	

Client: Fremont Environmental, Inc.	Send Data To:	Send Invoice To:
Address: 8305 6th St.	Project Manager: Henshan	Company: PDE, Inc
City/State/Zip: Wellington, CO, 80549	E-Mail: Chewon-Dist_List PDC Dist. List, Julio-Dist_List	Project Name/Location:
Phone: 603-477-6907	Project Name: PDC - Gutterson	AFEN:
Sampler Name: Ethan Black	Project Number:	PO/Billing Codes:
		Contact: Jason Davidson

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested					Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX, Naphthalene, TMBs	TPH (C6-C96)	PAH	SAR, EE, (pH) Boron		Metals (Table 915-1)
1	SP-01 0.25FT (2)	2/20/24		2														
2	SS-04 SURF (2)	2/20/24		2			X							X				
3							X							X				
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

Relinquished by: Ethan Black	Date/Time: 2/20/24 1757	Received by: S2 - North Office	Date/Time: 2/20/24 1757	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: S2	Date/Time: 2/20/24 1630	Received by: [Signature]	Date/Time: 2/20/24 1630	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by: [Signature]	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
Temperature Upon Receipt: 12.1	Corrected Temperature: 9	IR gun #:	HNO3 lot #:	Standard	Field Turb.	

S₂

Sample Receipt Checklist

S2 Work Order# 2402350

Client: Fremont Client Project ID: ROC - Gutteresen

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

[] [] [] [] []

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

Temp (°C) 12.1 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? (1) NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			on ice
If custody seals are present, are they intact? (1)	-			
Are samples due within 48 hours present?	-			2 days
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen		-		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	su			no sample times
Is the COC properly relinquished by the client w/ date and time recorded? (1)	-			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation (excluding cooling)? (1) Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2? (1) Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				
(1) If NO, then contact the client before proceeding with analysis and note in case narrative.				

AS

Custodian Printed Name

2/20/24
Date/Time



Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 02/26/24 08:59

SS-01 0.25FT (2)
2402350-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/20/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHB0656	02/20/24	02/20/24	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: **02/20/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0446	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0363	90.7 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0385	96.2 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **02/20/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHB0657	02/20/24	02/20/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **02/20/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	10.6	84.8 %	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.



Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 02/26/24 08:59

SS-01 0.25FT (2)
2402350-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **02/20/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHB0675	02/21/24	02/22/24	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: **02/20/24 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0260	78.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0221	66.2 %	40-150		"	"	"	"	

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 02/26/24 08:59

SS-04 SURF (2)
2402350-02 (Soil)

Summit Scientific

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

Date Sampled: **02/20/24 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
pH	8.62		pH Units	1	BHB0687	02/21/24	02/22/24	EPA 9045D	

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
02/26/24 08:59

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 BHB0656 - EPA 5030 Soil MS

Blank (BHB0656-BLK1)

Prepared & Analyzed: 02/20/24

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>	0.0427		"	0.0400		107		50-150			
<i>Surrogate: Toluene-d8</i>	0.0373		"	0.0400		93.3		50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0379		"	0.0400		94.8		50-150			

LCS (BHB0656-BS1)

Prepared & Analyzed: 02/20/24

Benzene	0.0970	0.0020	mg/kg	0.100		97.0		70-130			
Toluene	0.114	0.0050	"	0.100		114		70-130			
Ethylbenzene	0.120	0.0050	"	0.100		120		70-130			
m,p-Xylene	0.245	0.010	"	0.200		122		70-130			
o-Xylene	0.118	0.0050	"	0.100		118		70-130			
1,2,4-Trimethylbenzene	0.114	0.0050	"	0.100		114		70-130			
1,3,5-Trimethylbenzene	0.115	0.0050	"	0.100		115		70-130			
Naphthalene	0.108	0.0038	"	0.100		108		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0383		"	0.0400		95.8		50-150			
<i>Surrogate: Toluene-d8</i>	0.0365		"	0.0400		91.2		50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0373		"	0.0400		93.2		50-150			

Matrix Spike (BHB0656-MS1)

Source: 2402347-01

Prepared & Analyzed: 02/20/24

Benzene	0.475	0.0020	mg/kg	0.100	0.417	58.0		70-130			QM-07
Toluene	2.67	0.0050	"	0.100	2.40	271		70-130			QM-05
Ethylbenzene	0.251	0.0050	"	0.100	0.183	67.5		70-130			QM-07
m,p-Xylene	2.59	0.010	"	0.200	2.71	NR		70-130			QM-05
o-Xylene	0.564	0.0050	"	0.100	0.517	47.0		70-130			QM-07
1,2,4-Trimethylbenzene	0.569	0.0050	"	0.100	0.516	52.2		70-130			QM-07
1,3,5-Trimethylbenzene	0.504	0.0050	"	0.100	0.464	40.2		70-130			QM-07
Naphthalene	0.118	0.0038	"	0.100	0.0219	96.5		70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0225		"	0.0400		56.2		50-150			
<i>Surrogate: Toluene-d8</i>	0.0477		"	0.0400		119		50-150			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0361		"	0.0400		90.3		50-150			

Summit Scientific

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 02/26/24 08:59

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 BHB0656 - EPA 5030 Soil MS

Matrix Spike Dup (BHB0656-MSD1)	Source: 2402347-01			Prepared & Analyzed: 02/20/24						
Benzene	0.449	0.0020	mg/kg	0.100	0.417	32.0	70-130	5.63	30	QM-07
Toluene	1.96	0.0050	"	0.100	2.40	NR	70-130	30.6	30	QM-05
Ethylbenzene	0.183	0.0050	"	0.100	0.183	NR	70-130	31.3	30	QM-07
m,p-Xylene	1.50	0.010	"	0.200	2.71	NR	70-130	53.4	30	QM-05
o-Xylene	0.348	0.0050	"	0.100	0.517	NR	70-130	47.5	30	QM-05
1,2,4-Trimethylbenzene	0.274	0.0050	"	0.100	0.516	NR	70-130	69.9	30	QM-05
1,3,5-Trimethylbenzene	0.247	0.0050	"	0.100	0.464	NR	70-130	68.5	30	QM-05
Naphthalene	0.101	0.0038	"	0.100	0.0219	78.8	70-130	16.2	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0277</i>		<i>"</i>	<i>0.0400</i>		<i>69.3</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0386</i>		<i>"</i>	<i>0.0400</i>		<i>96.4</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0407</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>50-150</i>			

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 02/26/24 08:59

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BHB0657 - EPA 3550A

Blank (BHB0657-BLK1)

Prepared & Analyzed: 02/20/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	18.5		"	12.5		148		30-150			

LCS (BHB0657-BS1)

Prepared & Analyzed: 02/20/24

C10-C28 (DRO)	396	50	mg/kg	500		79.3		70-130			
Surrogate: <i>o</i> -Terphenyl	16.0		"	12.5		128		30-150			

Matrix Spike (BHB0657-MS1)

Source: 2402347-01

Prepared & Analyzed: 02/20/24

C10-C28 (DRO)	410	50	mg/kg	500	25.3	77.0		70-130			
Surrogate: <i>o</i> -Terphenyl	11.0		"	12.5		88.3		30-150			

Matrix Spike Dup (BHB0657-MSD1)

Source: 2402347-01

Prepared: 02/20/24 Analyzed: 02/21/24

C10-C28 (DRO)	437	50	mg/kg	500	25.3	82.3		70-130	6.30	20	
Surrogate: <i>o</i> -Terphenyl	15.3		"	12.5		123		30-150			

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Gutteresen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
02/26/24 08:59

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 BHB0675 - EPA 5030 Soil MS

Blank (BHB0675-BLK1)

Prepared & Analyzed: 02/21/24

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>0.0334</i>		<i>"</i>	<i>0.0333</i>		<i>100</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0313</i>		<i>"</i>	<i>0.0333</i>		<i>93.9</i>		<i>40-150</i>		

LCS (BHB0675-BS1)

Prepared & Analyzed: 02/21/24

Acenaphthene	0.0337	0.00500	mg/kg	0.0333	101	31-137
Anthracene	0.0318	0.00500	"	0.0333	95.5	30-120
Benzo (a) anthracene	0.0315	0.00500	"	0.0333	94.4	30-120
Benzo (a) pyrene	0.0328	0.00500	"	0.0333	98.5	30-120
Benzo (b) fluoranthene	0.0334	0.00500	"	0.0333	100	30-120
Benzo (k) fluoranthene	0.0333	0.00500	"	0.0333	99.8	30-120
Chrysene	0.0334	0.00500	"	0.0333	100	30-120
Dibenz (a,h) anthracene	0.0331	0.00500	"	0.0333	99.4	30-120
Fluoranthene	0.0329	0.00500	"	0.0333	98.8	30-120
Fluorene	0.0328	0.00500	"	0.0333	98.3	30-120
Indeno (1,2,3-cd) pyrene	0.0245	0.00500	"	0.0333	73.5	30-120
Pyrene	0.0336	0.00500	"	0.0333	101	35-142
1-Methylnaphthalene	0.0350	0.00500	"	0.0333	105	35-142
2-Methylnaphthalene	0.0341	0.00500	"	0.0333	102	35-142
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0285</i>		<i>"</i>	<i>0.0333</i>	<i>85.6</i>	<i>40-150</i>
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0335</i>		<i>"</i>	<i>0.0333</i>	<i>100</i>	<i>40-150</i>

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
02/26/24 08:59

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 BHB0675 - EPA 5030 Soil MS

Matrix Spike (BHB0675-MS1)	Source: 2402298-01			Prepared & Analyzed: 02/21/24						
Acenaphthene	0.0278	0.00500	mg/kg	0.0333	ND	83.5	31-137			
Anthracene	0.0258	0.00500	"	0.0333	ND	77.4	30-120			
Benzo (a) anthracene	0.0265	0.00500	"	0.0333	ND	79.5	30-120			
Benzo (a) pyrene	0.0265	0.00500	"	0.0333	ND	79.5	30-120			
Benzo (b) fluoranthene	0.0279	0.00500	"	0.0333	ND	83.6	30-120			
Benzo (k) fluoranthene	0.0271	0.00500	"	0.0333	ND	81.4	30-120			
Chrysene	0.0276	0.00500	"	0.0333	ND	82.8	30-120			
Dibenz (a,h) anthracene	0.0272	0.00500	"	0.0333	ND	81.5	30-120			
Fluoranthene	0.0270	0.00500	"	0.0333	ND	80.9	30-120			
Fluorene	0.0271	0.00500	"	0.0333	ND	81.4	30-120			
Indeno (1,2,3-cd) pyrene	0.0199	0.00500	"	0.0333	ND	59.8	30-120			
Pyrene	0.0285	0.00500	"	0.0333	ND	85.4	35-142			
1-Methylnaphthalene	0.0271	0.00500	"	0.0333	ND	81.2	15-130			
2-Methylnaphthalene	0.0290	0.00500	"	0.0333	ND	86.9	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0254</i>		<i>"</i>	<i>0.0333</i>		<i>76.1</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0275</i>		<i>"</i>	<i>0.0333</i>		<i>82.5</i>	<i>40-150</i>			

Matrix Spike Dup (BHB0675-MSD1)	Source: 2402298-01			Prepared & Analyzed: 02/21/24						
Acenaphthene	0.0230	0.00500	mg/kg	0.0333	ND	69.0	31-137	19.0	30	
Anthracene	0.0201	0.00500	"	0.0333	ND	60.2	30-120	25.0	30	
Benzo (a) anthracene	0.0220	0.00500	"	0.0333	ND	65.9	30-120	18.7	30	
Benzo (a) pyrene	0.0226	0.00500	"	0.0333	ND	67.7	30-120	16.0	30	
Benzo (b) fluoranthene	0.0240	0.00500	"	0.0333	ND	72.1	30-120	14.9	30	
Benzo (k) fluoranthene	0.0252	0.00500	"	0.0333	ND	75.7	30-120	7.33	30	
Chrysene	0.0239	0.00500	"	0.0333	ND	71.6	30-120	14.5	30	
Dibenz (a,h) anthracene	0.0239	0.00500	"	0.0333	ND	71.7	30-120	12.8	30	
Fluoranthene	0.0233	0.00500	"	0.0333	ND	69.8	30-120	14.7	30	
Fluorene	0.0230	0.00500	"	0.0333	ND	69.1	30-120	16.4	30	
Indeno (1,2,3-cd) pyrene	0.0168	0.00500	"	0.0333	ND	50.4	30-120	17.1	30	
Pyrene	0.0234	0.00500	"	0.0333	ND	70.1	35-142	19.6	30	
1-Methylnaphthalene	0.0232	0.00500	"	0.0333	ND	69.6	15-130	15.4	50	
2-Methylnaphthalene	0.0216	0.00500	"	0.0333	ND	64.8	15-130	29.2	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0214</i>		<i>"</i>	<i>0.0333</i>		<i>64.1</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0236</i>		<i>"</i>	<i>0.0333</i>		<i>70.8</i>	<i>40-150</i>			

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Fremont Environmental
 PO Box 1289
 Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
 Project Manager: Paul Henchan

Reported:
 02/26/24 08:59

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

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

Batch BHB0687 - General Preparation

LCS (BHB0687-BS1)

Prepared: 02/21/24 Analyzed: 02/22/24

pH	9.16	pH Units	9.18	99.8	95-105
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Duplicate (BHB0687-DUP1)

Source: 2402023-09

Prepared: 02/21/24 Analyzed: 02/22/24

pH	8.33	pH Units	8.43	1.19	20
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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: PDC - Guttersen

Project Number: [none]
Project Manager: Paul Henchan

Reported:
02/26/24 08:59

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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