TABLE 1
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY INC
PAPPENHEIM 2-32 TANK, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-174

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)
COGCC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500**		
COGCC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500**		
AST 1feet	06/21/2023	1	**140**	**560**	**300**	**840**	**200**	*<50*	**60**	**24000**	**36000**	**3900**
PWV E WALL 2feet	06/21/2023	2	**0.0034**	0.017	0.018	0.058	**0.019**	*<0.0050*	**0.011**	*<50*	120	*<50*
PWV FLOOR 5feet	06/21/2023	5	*<0.0020*	*<0.0050*	*<0.0050*	*<0.010*	*<0.0050*	*<0.0050*	*<0.0038*	*<50*	*<50*	*<50*
SEP DL 3feet	06/21/2023	3	**0.0044**	0.013	0.023	0.071	**0.056**	0.0061	**0.011**	3.5	*<50*	*<50*

Bold faced values exceed the COGCC 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

** 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
NOBLE ENERGY INC
PAPPENHEIM 2-32 TANK, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-174

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)
COGCC 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
COGCC 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
AST 1feet	06/21/2023	1	*<0.500*	*<0.500*	**2.22**	*<0.500*	0.238	0.161	1.28	*<0.500*	0.347	**8.25**	*<0.500*	0.859	**311**	**64.2**
PWV E WALL 2feet	06/21/2023	2	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	0.0223	*<0.00500*	*<0.00500*	**0.146**	**0.16**
PWV FLOOR 5feet	06/21/2023	5	*<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*
SEP DL 3feet	06/21/2023	3	*<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 COGCC 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

TABLE 3

SUMMARY OF SOIL SUITABILITY FOR RECLAMATION

NOBLE ENERGY INC

PAPPENHEIM 2-32 TANK, WELD COUNTY, COLORADO

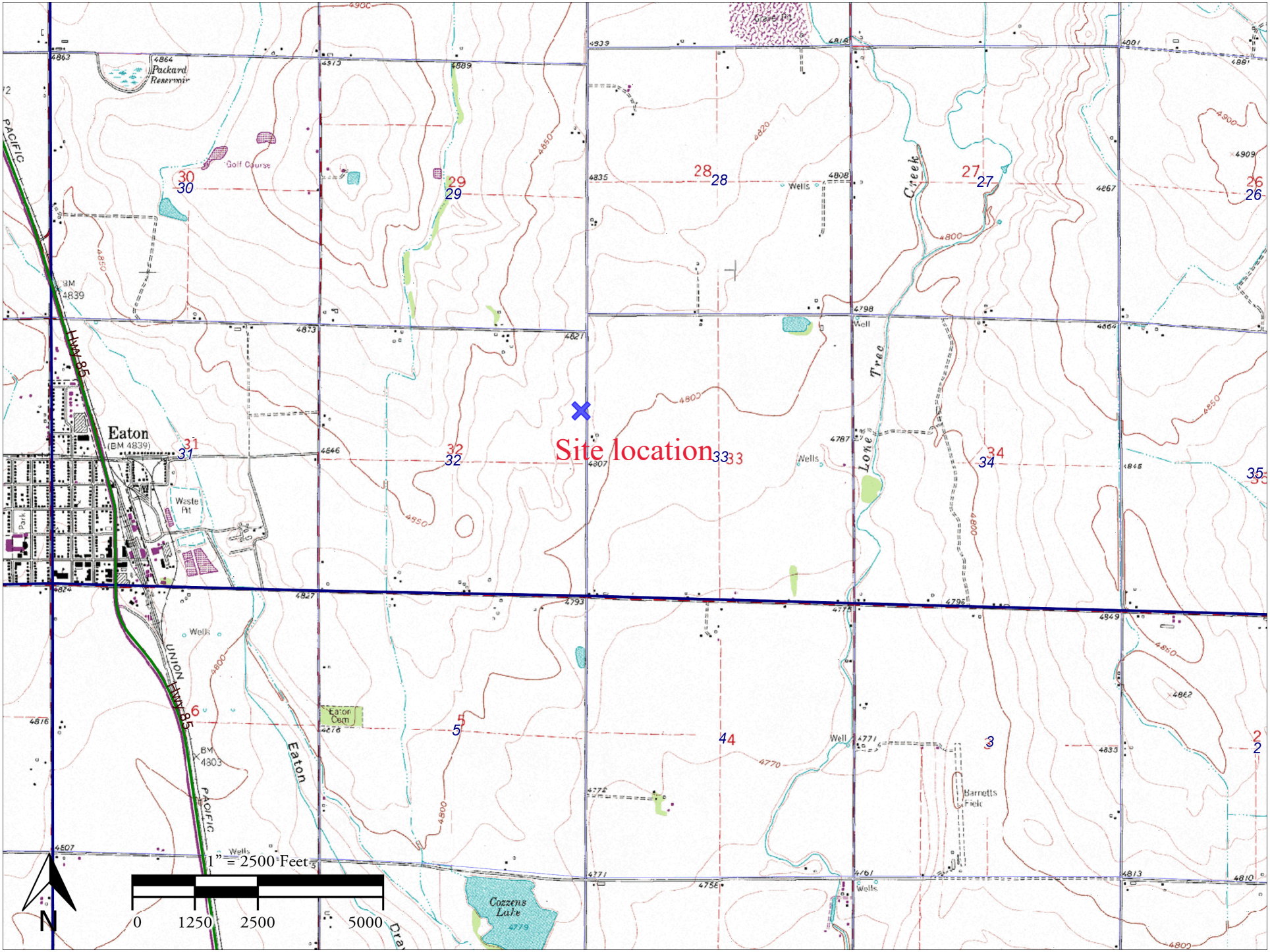
FREMONT PROJECT NO. C023-174

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
COGCC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
AST 1feet	06/21/2023	1	7.26	3.67	**23**	**16.7**
PWV E WALL 2feet	06/21/2023	2	7.53	2.82	0.349	0.159
PWV FLOOR 5feet	06/21/2023	5	7.74	1.74	**8.27**	0.195
SEP DL 3feet	06/21/2023	3	7.82	0.787	0.141	0.37

Bold faced values exceed the COGCC Table 915-1 concentrations

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

NA - Not analyzed


Site location
Eaton
(BM 4839)
Packard Reservoir
Golf Course
Waste Pit
Eaton Cem
Cozzens Lake
Barnetts Field
Lone Tree Creek
Eaton Creek
UNION
PACIFIC
Hwy 85
Wells
BM 4839
BM 4803
1" = 2500 Feet
0
1250
2500
5000
N

Pappenheim 02-32 Tankl

Site Name: Pappenheim 2-32 Tank
Date of Incident: 07/03/2023
API #/Facility #: 484103
Legal Description: SENE Sec: 32, T7N, R65W
Latitude/Longitude: PWV E Wall 2 feet 40.533897, -104.6780405, AST 1 feet 40.5339416, -104.678082, SEP DL 3 feet 40.534178, -104.6780886
Fremont No. C023-174
Remediation # 28282

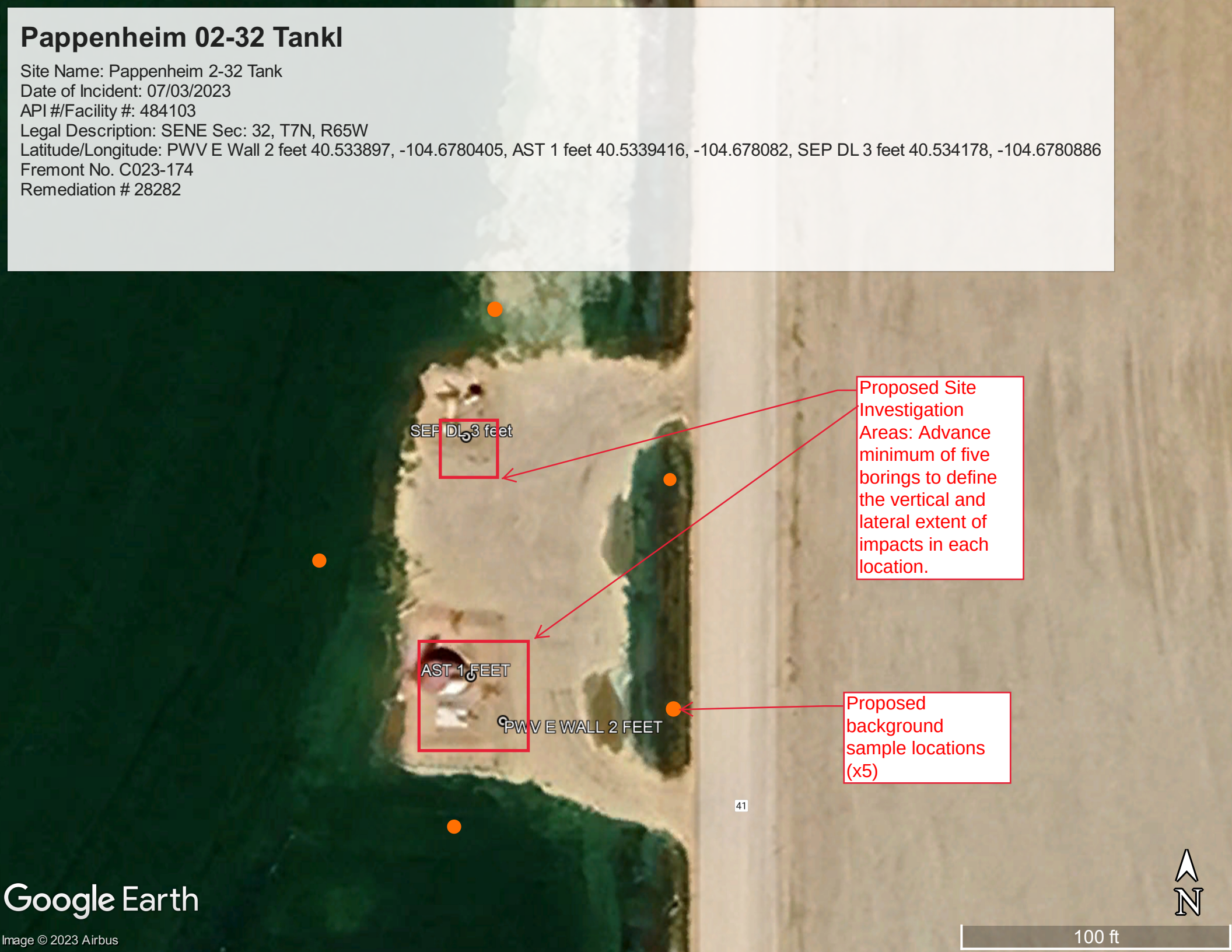


Photo Log

FREMONT ENVIRONMENTAL

Description:

1 - SEP DL 3 Feet, No visual staining or Odor

Photo Log

Description:

2 - PWV E Wall 2 Feet, No visual staining or slight HC odor

Photo Log

FREMONT ENVIRONMENTAL

Description:

3 - AST 1 Feet, HC staining and strong HC odor

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

July 03, 2023

Paul Henehan
Fremont Environmental
PO Box 1289
Wellington, CO 80549

RE: Noble - Pappenheim 02-32 Tank
Work Order #2306426

Enclosed are the results of analyses for samples received by Summit Scientific on 06/21/23 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott Sheely For Paul Shrewsbury
President

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PWV FLOOR 5feet	2306426-01	Soil	06/21/23 10:27	06/21/23 16:45
PWV E WALL 2feet	2306426-02	Soil	06/21/23 10:28	06/21/23 16:45
AST 1feet	2306426-03	Soil	06/21/23 10:06	06/21/23 16:45
SEP DL 3feet	2306426-04	Soil	06/21/23 10:34	06/21/23 16:45

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
2306426	

	Send Data To:	Send Invoice To:
Client: Fremont Enviormental	Project Manager: Paul Henehan	Company: Noble
Address:	E-Mail: Fremont Distribution List	Project Name/Location: Pappenheim 02-32 Tank
City/State/Zip:		AFE#:
Phone: 303-261-6246	Project Name: Pappenheim 02-32 Tank	PO/Billing Codes: UWRWE-A3114-ABN
Sampler Name: Stanley Gilbert	Project Number:	Contact: Mike Montoya

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	BTEX, TMBs, Naph.	TPH	PAH (915)	EC, SAR, Ph, Boron	Metals (915)	TDS, Chloride, Sulfate		HOLD	
1	PWV FLOOR 5 feet	6/21/23	10:27	2			X			X			X	X	X	X					
2	PWV F Wall 2 feet	"	10:28	"			"			"			"	"	"	"					
3	AST 1 feet	"	10:06	"			"			"			"	"	"	"					
4	SEP DL 3 feet	"	10:34	"			"			"			"	"	"	"					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by:	Date/Time:	Received by:	Date/Time:
[signature]	6/21/23 16:45	Summit North	6/21/23 16:45
[signature]	62123 1645	[signature]	62123 1645
Relinquished by:	Date/Time:	Received by:	Date/Time:

TAT Business Days	
Same Day	
1 Day	
2 Days	
3 Days	
Standard	X

Field DO	
Field EC	
Field ORP	
Field pH	
Field Temp.	
Field Turb.	

Notes:

Temperature Upon Receipt: 11.0 | Corrected Temperature: 0 | IR gun #: | HNO3 lot #:

S2

Sample Receipt Checklist

S2 Work Order# 2306426

Client: Fremont Client Project ID: Rappenheim 02-32 TANK

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

[ ] [–] [ ] [ ] [ ]

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

Temp (°C) [11.0] Thermometer # [1]

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? (1) **NOTE:** If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	–			on ice
If custody seals are present, are they intact? (1)	–			
Are samples due within 48 hours present?		–		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe^{2+}), Hexavalent Chromium (Cr^{6+}, Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen		–		
Is a chain-of-custody (COC) form present and filled out Completely? (1)	–			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	–			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (1)	✓			
Does the COC agree with the number and type of sample bottles received? (1)	✓			
Do the sample IDs on the bottle labels match the COC? (1)	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)?** (1) Note the type of preservative in the comments column – HCl, H_2SO_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

6/21/23
Date/Time

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

PWV FLOOR 5feet

2306426-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGF0810	06/22/23	06/23/23	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: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0457	*114 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0419	*105 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0418	*104 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

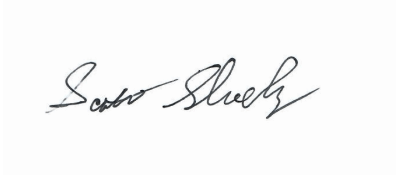
Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGF0812	06/22/23	06/22/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.0	*96.3 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM



Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

PWV FLOOR 5feet

2306426-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGF0781	06/22/23	06/23/23	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: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0209	*62.6 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0279	*83.7 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.195**	0.0100	mg/L	1	BGF0854	06/23/23	06/27/23	EPA 6020B	

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

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

PWV FLOOR 5feet

2306426-01 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**447**	0.0598	mg/L dry	1	BGF0901	06/26/23	06/29/23	EPA 6020B	
Magnesium	**172**	0.0598	"	"	"	"	"	"	
Sodium	**812**	0.0598	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**8.27**	0.00100	units	1	BGF1135	06/30/23	06/30/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**83.7**		%	1	BGF0804	06/22/23	06/22/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**1.74**	0.0100	mmhos/cm	1	BGF0972	06/27/23	06/27/23	EPA 120.1	

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

Date Sampled: **06/21/23 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.74**		pH Units	1	BGF0973	06/27/23	06/27/23	EPA 9045D	

Summit Scientific

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

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

PWV E WALL 2feet

2306426-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**0.0034**	0.0020	mg/kg	1	BGF0810	06/22/23	06/23/23	EPA 8260B	
Toluene	**0.017**	0.0050	"	"	"	"	"	"	
Ethylbenzene	**0.018**	0.0050	"	"	"	"	"	"	
Xylenes (total)	**0.058**	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	**0.019**	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	**0.011**	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0450	*112 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0425	*106 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0420	*105 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	**120**	50	mg/kg	1	BGF0812	06/22/23	06/22/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.3	*98.7 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

PWV E WALL 2feet

2306426-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGF0781	06/22/23	06/23/23	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	**0.0223**	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	**0.146**	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	**0.160**	0.00500	"	"	"	"	"	"	

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0237	*71.2 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0245	*73.4 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.159**	0.0100	mg/L	1	BGF0854	06/23/23	06/27/23	EPA 6020B	

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

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

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: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

PWV E WALL 2feet

2306426-02 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**282**	0.0592	mg/L dry	1	BGF0901	06/26/23	06/29/23	EPA 6020B	
Magnesium	**23.4**	0.0592	"	"	"	"	"	"	
Sodium	**22.7**	0.0592	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.349**	0.00100	units	1	BGF1135	06/30/23	06/30/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**84.4**		%	1	BGF0804	06/22/23	06/22/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**2.82**	0.0100	mmhos/cm	1	BGF0972	06/27/23	06/27/23	EPA 120.1	

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

Date Sampled: **06/21/23 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.53**		pH Units	1	BGF0973	06/27/23	06/27/23	EPA 9045D	

Summit Scientific

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Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

AST 1feet

2306426-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**140**	20	mg/kg	10000	BGF0810	06/22/23	06/23/23	EPA 8260B	
Toluene	**560**	50	"	"	"	"	"	"	
Ethylbenzene	**300**	50	"	"	"	"	"	"	
Xylenes (total)	**840**	100	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	**200**	50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	50	"	"	"	"	"	"	R-01
Naphthalene	**60**	38	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	**24000**	5000	"	"	"	"	"	"	

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0415	*104 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0422	*105 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0434	*109 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	**36000**	250	mg/kg	5	BGF0812	06/22/23	06/23/23	EPA 8015M	
C28-C36 (ORO)	**3900**	250	"	"	"	"	"	"	

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	58.9	*471 %*	*30-150*		"	"	"	"	*S-02*

PAH by EPA Method 8270D SIM

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

AST 1feet

2306426-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.500	mg/kg	100	BGF0781	06/22/23	06/23/23	EPA 8270D SIM	
Anthracene	ND	0.500	"	"	"	"	"	"	
Benzo (a) anthracene	**2.22**	0.500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.238**	0.0500	"	10	"	"	06/23/23	"	
Benzo (k) fluoranthene	**0.161**	0.0500	"	"	"	"	"	"	
Chrysene	**1.28**	0.500	"	100	"	"	06/23/23	"	
Dibenz (a,h) anthracene	ND	0.500	"	"	"	"	"	"	
Fluoranthene	**0.347**	0.0500	"	10	"	"	06/23/23	"	
Fluorene	**8.25**	0.500	"	100	"	"	06/23/23	"	
Indeno (1,2,3-cd) pyrene	ND	0.500	"	"	"	"	"	"	
Pyrene	**0.859**	0.0500	"	10	"	"	06/23/23	"	
1-Methylnaphthalene	**311**	0.500	"	100	"	"	06/23/23	"	E
2-Methylnaphthalene	**64.2**	0.500	"	"	"	"	"	"	E

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.00	*%*	*40-150*		"	"	*06/23/23*	"	*S-06*
Surrogate: Fluoranthene-d10	0.00	*%*	*40-150*		"	"	"	"	*S-06*

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**16.7**	0.0100	mg/L	1	BGF0854	06/23/23	06/27/23	EPA 6020B	

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

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

AST 1feet

2306426-03 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**22.9**	0.0630	mg/L dry	1	BGF0901	06/26/23	06/29/23	EPA 6020B	
Magnesium	**6.18**	0.0630	"	"	"	"	"	"	
Sodium	**481**	0.0630	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**23.0**	0.00100	units	1	BGF1135	06/30/23	06/30/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**79.3**		%	1	BGF0804	06/22/23	06/22/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**3.67**	0.0100	mmhos/cm	1	BGF0972	06/27/23	06/27/23	EPA 120.1	

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

Date Sampled: **06/21/23 10:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.26**		pH Units	1	BGF0973	06/27/23	06/27/23	EPA 9045D	

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

SEP DL 3feet

2306426-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**0.0044**	0.0020	mg/kg	1	BGF0810	06/22/23	06/23/23	EPA 8260B	
Toluene	**0.013**	0.0050	"	"	"	"	"	"	
Ethylbenzene	**0.023**	0.0050	"	"	"	"	"	"	
Xylenes (total)	**0.071**	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	**0.056**	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	**0.0061**	0.0050	"	"	"	"	"	"	
Naphthalene	**0.011**	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	**3.5**	0.50	"	"	"	"	"	"	

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0448	*112 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8	0.0418	*105 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0420	*105 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGF0812	06/22/23	06/23/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	12.3	*98.4 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

SEP DL 3feet

2306426-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGF0781	06/22/23	06/23/23	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: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0158	*47.4 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0190	*56.9 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.370**	0.0100	mg/L	1	BGF0854	06/23/23	06/27/23	EPA 6020B	

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

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - Pappenheim 02-32 Tank Project Number: UWRWE-A3114-ABN Project Manager: Paul Henehan	**Reported:** 07/03/23 12:48

SEP DL 3feet

2306426-04 (Soil)

Summit Scientific

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**60.6**	0.0596	mg/L dry	1	BGF0901	06/26/23	06/29/23	EPA 6020B	
Magnesium	**12.4**	0.0596	"	"	"	"	"	"	
Sodium	**4.62**	0.0596	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.141**	0.00100	units	1	BGF1135	06/30/23	06/30/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**83.9**		%	1	BGF0804	06/22/23	06/22/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.787**	0.0100	mmhos/cm	1	BGF0972	06/27/23	06/27/23	EPA 120.1	

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

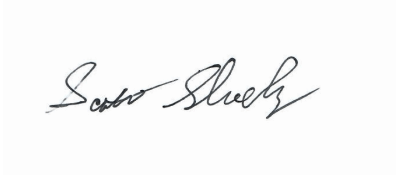
Date Sampled: **06/21/23 10:34**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.82**		pH Units	1	BGF0973	06/27/23	06/27/23	EPA 9045D	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0810 - EPA 5030 Soil MS										
Blank (BGF0810-BLK1)				Prepared & Analyzed: 06/22/23						
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	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0441*		*"*	*0.0400*		*110*	*50-150*			
Surrogate: Toluene-d8	*0.0421*		*"*	*0.0400*		*105*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0425*		*"*	*0.0400*		*106*	*50-150*			
LCS (BGF0810-BS1)				Prepared & Analyzed: 06/22/23						
Benzene	0.0944	0.0020	mg/kg	0.125		75.5	70-130			
Toluene	0.124	0.0050	"	0.125		99.2	70-130			
Ethylbenzene	0.148	0.0050	"	0.125		118	70-130			
m,p-Xylene	0.306	0.010	"	0.250		122	70-130			
o-Xylene	0.141	0.0050	"	0.125		113	70-130			
1,2,4-Trimethylbenzene	0.156	0.0050	"	0.125		125	70-130			
1,3,5-Trimethylbenzene	0.155	0.0050	"	0.125		124	70-130			
Naphthalene	0.146	0.0038	"	0.125		117	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0430*		*"*	*0.0400*		*107*	*50-150*			
Surrogate: Toluene-d8	*0.0413*		*"*	*0.0400*		*103*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0405*		*"*	*0.0400*		*101*	*50-150*			
Matrix Spike (BGF0810-MS1)		**Source: 2306389-01**		Prepared & Analyzed: 06/22/23						
Benzene	0.0956	0.0020	mg/kg	0.125	ND	76.5	70-130			
Toluene	0.126	0.0050	"	0.125	ND	101	70-130			
Ethylbenzene	0.142	0.0050	"	0.125	ND	113	70-130			
m,p-Xylene	0.303	0.010	"	0.250	ND	121	70-130			
o-Xylene	0.141	0.0050	"	0.125	ND	113	70-130			
1,2,4-Trimethylbenzene	0.155	0.0050	"	0.125	ND	124	70-130			
1,3,5-Trimethylbenzene	0.154	0.0050	"	0.125	ND	123	70-130			
Naphthalene	0.154	0.0038	"	0.125	ND	123	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0453*		*"*	*0.0400*		*113*	*50-150*			
Surrogate: Toluene-d8	*0.0426*		*"*	*0.0400*		*106*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0411*		*"*	*0.0400*		*103*	*50-150*			



Volatile Organic Compounds by EPA Method 8260B - Quality Control

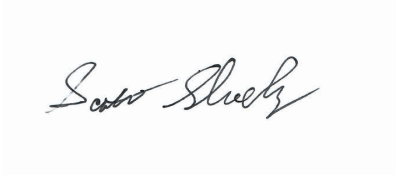
Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0810 - EPA 5030 Soil MS										
Matrix Spike Dup (BGF0810-MSD1)	**Source: 2306389-01**			Prepared & Analyzed: 06/22/23						
Benzene	0.0943	0.0020	mg/kg	0.125	ND	75.4	70-130	1.39	30	
Toluene	0.127	0.0050	"	0.125	ND	102	70-130	0.616	30	
Ethylbenzene	0.151	0.0050	"	0.125	ND	121	70-130	6.36	30	
m,p-Xylene	0.311	0.010	"	0.250	ND	125	70-130	2.80	30	
o-Xylene	0.144	0.0050	"	0.125	ND	115	70-130	2.19	30	
1,2,4-Trimethylbenzene	0.154	0.0050	"	0.125	ND	123	70-130	0.659	30	
1,3,5-Trimethylbenzene	0.155	0.0050	"	0.125	ND	124	70-130	0.892	30	
Naphthalene	0.155	0.0038	"	0.125	ND	124	70-130	0.331	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0436*		*"*	*0.0400*		*109*	*50-150*			
Surrogate: Toluene-d8	*0.0420*		*"*	*0.0400*		*105*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0408*		*"*	*0.0400*		*102*	*50-150*			

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0812 - EPA 3550A										
Blank (BGF0812-BLK1)				Prepared & Analyzed: 06/22/23						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*12.0*		*"*	*12.5*		*95.7*	*30-150*			
LCS (BGF0812-BS1)				Prepared & Analyzed: 06/22/23						
C10-C28 (DRO)	660	50	mg/kg	500		132	70-130			QLCS-01
Surrogate: o-Terphenyl	*11.9*		*"*	*12.5*		*95.4*	*30-150*			
Matrix Spike (BGF0812-MS1)	**Source: 2306389-01**			Prepared & Analyzed: 06/22/23						
C10-C28 (DRO)	667	50	mg/kg	500	26.2	128	70-130			
Surrogate: o-Terphenyl	*12.1*		*"*	*12.5*		*96.5*	*30-150*			
Matrix Spike Dup (BGF0812-MSD1)	**Source: 2306389-01**			Prepared & Analyzed: 06/22/23						
C10-C28 (DRO)	675	50	mg/kg	500	26.2	130	70-130	1.21	20	
Surrogate: o-Terphenyl	*11.7*		*"*	*12.5*		*93.9*	*30-150*			



PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0781 - EPA 5030 Soil MS										
Blank (BGF0781-BLK1)				Prepared: 06/22/23 Analyzed: 06/23/23						
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	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0289*		*"*	*0.0333*		*86.8*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0372*		*"*	*0.0333*		*112*	*40-150*			
LCS (BGF0781-BS1)				Prepared: 06/22/23 Analyzed: 06/23/23						
Acenaphthene	0.0377	0.00500	mg/kg	0.0333		113	31-137			
Anthracene	0.0384	0.00500	"	0.0333		115	30-120			
Benzo (a) anthracene	0.0360	0.00500	"	0.0333		108	30-120			
Benzo (a) pyrene	0.0374	0.00500	"	0.0333		112	30-120			
Benzo (b) fluoranthene	0.0371	0.00500	"	0.0333		111	30-120			
Benzo (k) fluoranthene	0.0356	0.00500	"	0.0333		107	30-120			
Chrysene	0.0385	0.00500	"	0.0333		116	30-120			
Dibenz (a,h) anthracene	0.0390	0.00500	"	0.0333		117	30-120			
Fluoranthene	0.0381	0.00500	"	0.0333		114	30-120			
Fluorene	0.0371	0.00500	"	0.0333		111	30-120			
Indeno (1,2,3-cd) pyrene	0.0378	0.00500	"	0.0333		113	30-120			
Pyrene	0.0397	0.00500	"	0.0333		119	35-142			
1-Methylnaphthalene	0.0243	0.00500	"	0.0333		73.0	35-142			
2-Methylnaphthalene	0.0296	0.00500	"	0.0333		88.7	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0280*		*"*	*0.0333*		*83.9*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0399*		*"*	*0.0333*		*120*	*40-150*			

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PAH by EPA Method 8270D SIM - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0781 - EPA 5030 Soil MS										
Matrix Spike (BGF0781-MS1)	**Source: 2306426-01**			Prepared: 06/22/23 Analyzed: 06/23/23						
Acenaphthene	0.0146	0.00500	mg/kg	0.0333	ND	43.9	31-137			
Anthracene	0.0137	0.00500	"	0.0333	ND	41.1	30-120			
Benzo (a) anthracene	0.0151	0.00500	"	0.0333	ND	45.4	30-120			
Benzo (a) pyrene	0.0156	0.00500	"	0.0333	ND	46.7	30-120			
Benzo (b) fluoranthene	0.0174	0.00500	"	0.0333	ND	52.2	30-120			
Benzo (k) fluoranthene	0.0134	0.00500	"	0.0333	ND	40.1	30-120			
Chrysene	0.0172	0.00500	"	0.0333	ND	51.7	30-120			
Dibenz (a,h) anthracene	0.0142	0.00500	"	0.0333	ND	42.7	30-120			
Fluoranthene	0.0136	0.00500	"	0.0333	ND	40.7	30-120			
Fluorene	0.0155	0.00500	"	0.0333	ND	46.5	30-120			
Indeno (1,2,3-cd) pyrene	0.0185	0.00500	"	0.0333	ND	55.4	30-120			
Pyrene	0.0193	0.00500	"	0.0333	ND	58.0	35-142			
1-Methylnaphthalene	0.0144	0.00500	"	0.0333	ND	43.1	15-130			
2-Methylnaphthalene	0.0143	0.00500	"	0.0333	ND	43.0	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0138*		*"*	*0.0333*		*41.4*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0141*		*"*	*0.0333*		*42.4*	*40-150*			
Matrix Spike Dup (BGF0781-MSD1)	**Source: 2306426-01**			Prepared: 06/22/23 Analyzed: 06/23/23						
Acenaphthene	0.0153	0.00500	mg/kg	0.0333	ND	46.0	31-137	4.84	30	
Anthracene	0.0160	0.00500	"	0.0333	ND	47.9	30-120	15.3	30	
Benzo (a) anthracene	0.0156	0.00500	"	0.0333	ND	46.9	30-120	3.26	30	
Benzo (a) pyrene	0.0137	0.00500	"	0.0333	ND	41.1	30-120	12.7	30	
Benzo (b) fluoranthene	0.0163	0.00500	"	0.0333	ND	49.0	30-120	6.20	30	
Benzo (k) fluoranthene	0.0158	0.00500	"	0.0333	ND	47.4	30-120	16.7	30	
Chrysene	0.0148	0.00500	"	0.0333	ND	44.3	30-120	15.5	30	
Dibenz (a,h) anthracene	0.0141	0.00500	"	0.0333	ND	42.2	30-120	1.19	30	
Fluoranthene	0.0146	0.00500	"	0.0333	ND	43.8	30-120	7.46	30	
Fluorene	0.0153	0.00500	"	0.0333	ND	45.9	30-120	1.30	30	
Indeno (1,2,3-cd) pyrene	0.0178	0.00500	"	0.0333	ND	53.3	30-120	3.80	30	
Pyrene	0.0149	0.00500	"	0.0333	ND	44.8	35-142	25.6	30	
1-Methylnaphthalene	0.0159	0.00500	"	0.0333	ND	47.8	15-130	10.4	50	
2-Methylnaphthalene	0.0135	0.00500	"	0.0333	ND	40.6	15-130	5.60	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0144*		*"*	*0.0333*		*43.1*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0160*		*"*	*0.0333*		*47.9*	*40-150*			

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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.

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

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0854 - EPA 3050B										
Blank (BGF0854-BLK1)				Prepared: 06/23/23 Analyzed: 06/27/23						
Boron	ND	0.0100	mg/L							
LCS (BGF0854-BS1)				Prepared: 06/23/23 Analyzed: 06/27/23						
Boron	4.99	0.0100	mg/L	5.00		99.9	80-120			
Duplicate (BGF0854-DUP1)		**Source: 2306426-01**		Prepared: 06/23/23 Analyzed: 06/27/23						
Boron	0.186	0.0100	mg/L		0.195			4.80	20	
Matrix Spike (BGF0854-MS1)		**Source: 2306426-01**		Prepared: 06/23/23 Analyzed: 06/27/23						
Boron	4.93	0.0100	mg/L	5.00	0.195	94.6	75-125			
Matrix Spike Dup (BGF0854-MSD1)		**Source: 2306426-01**		Prepared: 06/23/23 Analyzed: 06/27/23						
Boron	5.25	0.0100	mg/L	5.00	0.195	101	75-125	6.27	25	

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0901 - General Preparation										
Blank (BGF0901-BLK1)				Prepared: 06/26/23 Analyzed: 06/29/23						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BGF0901-BS1)				Prepared: 06/26/23 Analyzed: 06/29/23						
Calcium	4.82	0.0500	mg/L wet	5.00		96.3	70-130			
Magnesium	4.74	0.0500	"	5.00		94.9	70-130			
Sodium	4.92	0.0500	"	5.00		98.4	70-130			

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

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0804 - General Preparation										
Duplicate (BGF0804-DUP1)		**Source: 2306400-40**		Prepared & Analyzed: 06/22/23						
% Solids	90.7		%		88.5			2.48	20	

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0972 - General Preparation										
Blank (BGF0972-BLK1)				Prepared & Analyzed: 06/27/23						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BGF0972-BS1)				Prepared & Analyzed: 06/27/23						
Specific Conductance (EC)	0.154	0.0100	mmhos/cm	0.150		103	95-105			
Duplicate (BGF0972-DUP1)	**Source: 2306394-01**			Prepared & Analyzed: 06/27/23						
Specific Conductance (EC)	0.866	0.0100	mmhos/cm		0.899			3.81	20	

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

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGF0973 - General Preparation										
LCS (BGF0973-BS1)				Prepared & Analyzed: 06/27/23						
pH	9.01		pH Units	9.18		98.1	95-105			
Duplicate (BGF0973-DUP1)		**Source: 2306394-01**		Prepared & Analyzed: 06/27/23						
pH	7.89		pH Units		7.89			0.00	20	

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interferences.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
QLCS-01	The spike recovery was outside acceptance limits for this analyte indicating a potential high bias. The corresponding samples did not exhibit concentrations above reporting level for this analyte. Data quality is not affected.
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