FREMONT ENVIRONMENTAL INC.

February 8, 2023

Mr. Dan Peterson
Noble Energy Inc.
2115 117th Avenue
Greeley, CO 80634

Subject: **Flowline Closure Data Submittal**
Armstrong 2-16G5 Flowline
API # 05-123-18603
SESE Sec. 2, T6N, R65W
Weld County, Colorado
Fremont Project No. C022-032
Remediation #20986

Dear Mr. Peterson:

As requested, Fremont Environmental Inc. (Fremont) personnel conducted flowline abandonment activities at the Noble Energy Inc. (Noble) Armstrong 2-16G5 flowline. Details of the flowline abandonment activities are documented in the attached Closure Report. Groundwater was not encountered during decommissioning activities.

Please contact me at (303) 956-8714 if you require any additional information. Fremont appreciates the opportunity to provide this service.

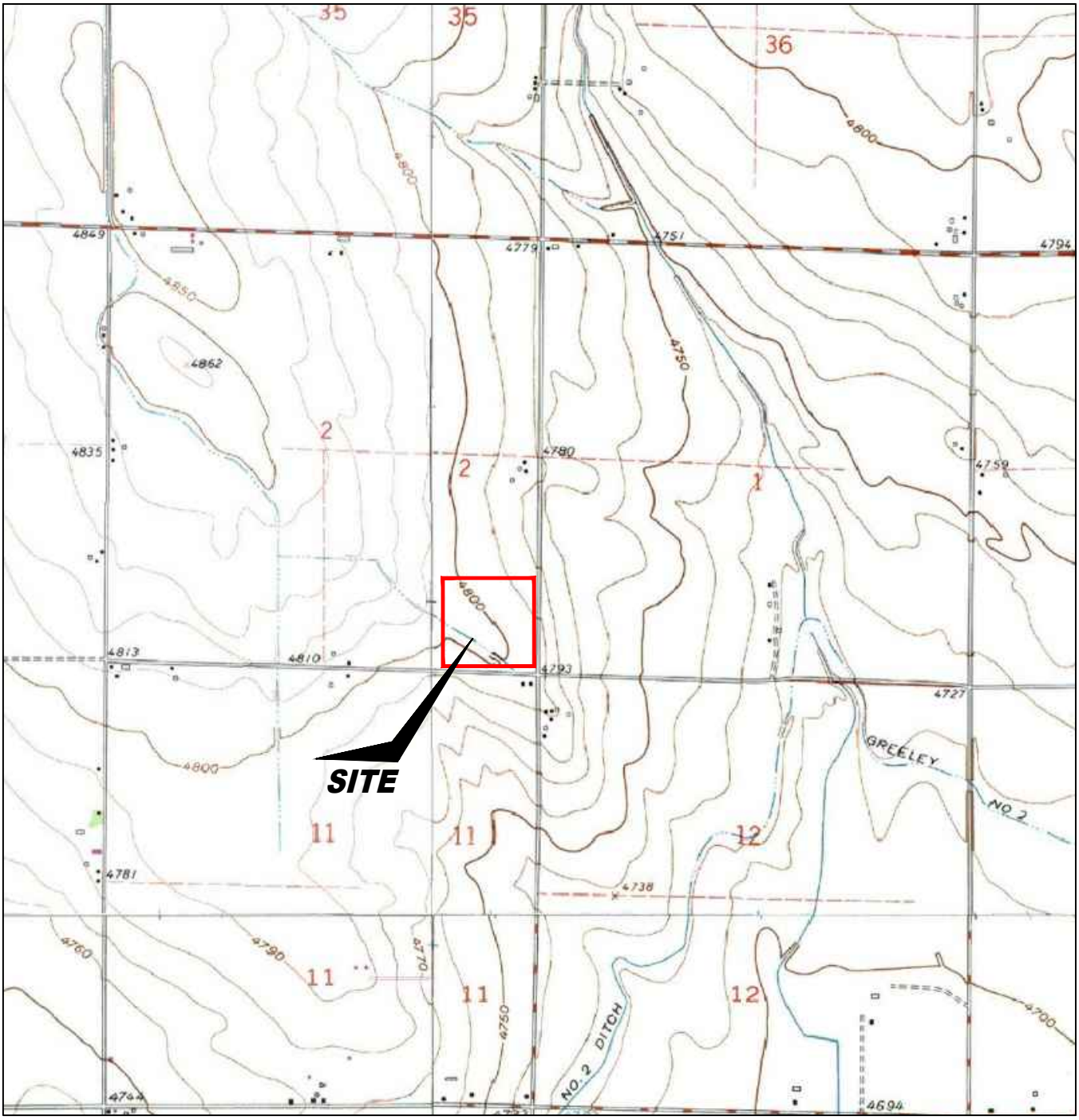
Sincerely,

FREMONT ENVIRONMENTAL INC.

Chris Lattes
Geologist

Attachments:
- Figures
- Tables
- Flowline Closure Checklist
- Photos
- Laboratory Reports

1759 REDWING LANE, BROOMFIELD, CO 80020
(303) 956-8714 (DIRECT)



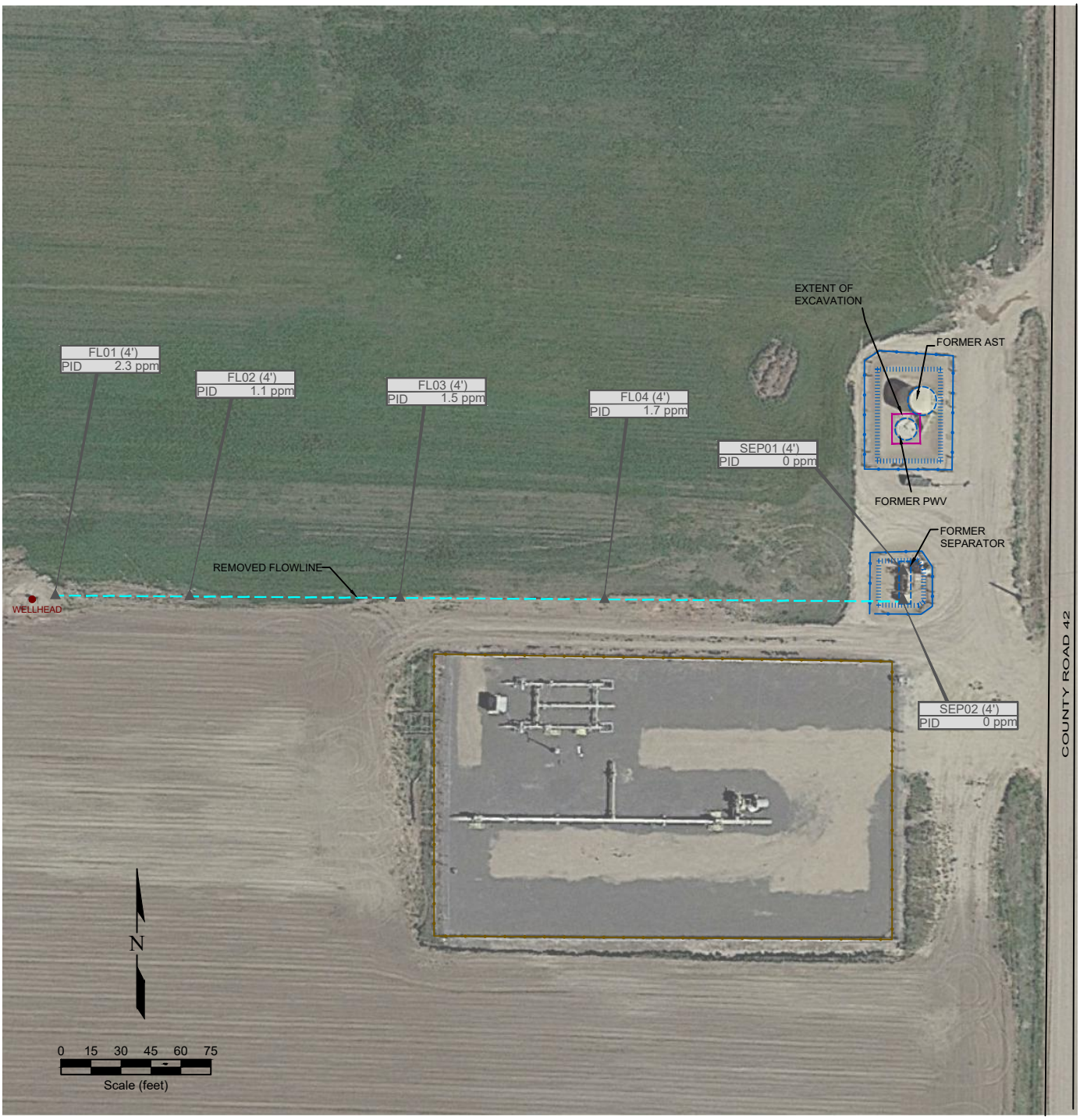
USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

Noble Energy, Inc. ~ Armstrong 2-16G5
SESE Sec. 2, T6N, R65W, 6th PM
Weld County, Colorado
40.510353°, -104.622366°

Project #	API #	Facility #
C022-032	**05-123-18603**	
Date	Remediation #	Filename
2/15/23	**20986**	**22032T1**

FREMONT ENVIRONMENTAL



LEGEND

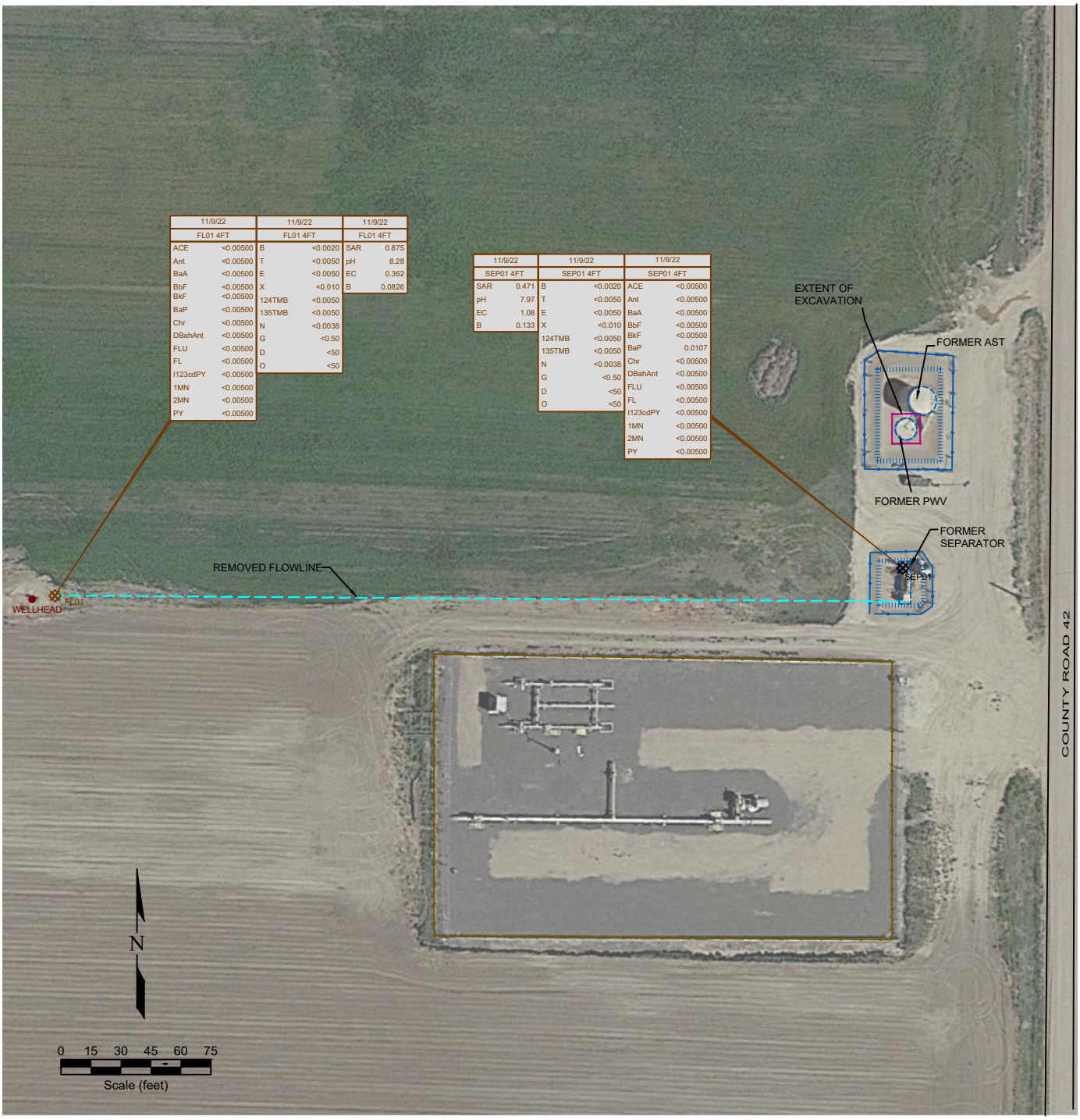
- WELL HEAD LOCATION
- PID READING LOCATION
- AST ABOVE GROUND STORAGE TANK
- FORMER FORMER FACILITY
- FL01 PID 0.0 ppm PHOTO IONIZATION DETECTION READING (ppm) PID = photo ionization detection / ppm parts per million
- FLOWLINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL
- EXTENT OF EXCAVATION

Figure 2
SITE MAP

Noble Energy, Inc. ~ Armstrong 2-16G5
SESE Sec. 2, T6N, R65W, 6th PM
Weld County, Colorado
40.510353°, -104.622366°

Project No.	API #	Facility #
C022-032	**05-123-18603**	
Date	Remediation #	Filename
2/15/23	**20986**	**22032Q**

FREMONT ENVIRONMENTAL



LEGEND

- WELL HEAD LOCATION
- SOIL SAMPLE LOCATION
- AST — ABOVE GROUND STORAGE TANK
- FORMER — FORMER FACILITY
- (NA) — NOT ANALYZED
- FLOWLINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL
- EXTENT OF EXCAVATION

03/24/2021	
N Wall @ 3'	
ACE	<0.005
Ant	<0.005
BaA	<0.005
BbF	<0.005
BkF	<0.005
BaP	<0.005
Chr	<0.005
DBahAnt	<0.005
FLU	<0.005
FL	<0.005
I 1,2,3cdPY	<0.005
1-MN	<0.005
2-MN	<0.005
PY	<0.005

DATE SAMPLED
SAMPLE ID and DEPTH (ft)
ACENAPHTHENE (mg/kg)
ANTHRACENE (mg/kg)
BENZO (A) ANTHRACENE (mg/kg)
BENZO (B) FLUORANTHENE (mg/kg)
BENZO (K) FLUORANTHENE(mg/kg)
BENZO (A) PYRENE (mg/kg)
CHRYSENE (mg/kg)
DIBENZ (A,H) ANTHRACENE (mg/kg)
FLUORANTHENE (mg/kg)
FLUORENE (mg/kg)
INDENO (1,2,3-CD) PYRENE(mg/kg)
1-METHYLNAPHTHALENE (mg/kg)
2-METHYLNAPHTHALENE (mg/kg)
PYRENE (mg/kg)

DATE	
ID and Depth	
B	<0.0020
T	<0.0050
E	<0.0050
X	<0.010
1,2,4-TB	<0.0050
1,3,5-TB	<0.0050
N	<0.010
G	<0.50
D	<50
O	<50

DATE SAMPLED
SAMPLE ID and DEPTH (ft)
BENZENE (mg/kg)
TOLUENE (mg/kg)
ETHYLBENZENE (mg/kg)
TOTAL XYLENES (mg/kg)
1,2,4-TRIMETHYLBENZENE (mg/kg)
1,3,5-TRIMETHYLBENZENE (mg/kg)
NAPHTHALENE (mg/kg)
TPH-GRO (mg/kg)
TPH-DRO (mg/kg)
TPH-ORO (mg/kg)

01/22/21	
N Wall @ 1'	
SAR	53.76
pH	9.4
EC	3.34
BORON	5.4

DATE SAMPLED
SAMPLE ID & DEPTH (ft)
SAR (units)
pH (pH units)
EC (mmhos/cm)
BORON (mg/L)

Figure 3
SOIL CHEMISTRY MAP

Noble Energy, Inc. ~ Armstrong 2-16G5
SESE Sec. 2, T6N, R65W, 6th PM
Weld County, Colorado
40.510353°, -104.622366°

Project No.	API #	Facility #
C022-032	**05-123-18603**	
Date	Remediation #	Filename
2/8/23	**20986**	**22032Q**

FREMONT ENVIRONMENTAL

TABLE 1

SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA

NOBLE ENERGY INC.

ARMSTRONG 2-16G5, WELD COUNTY, COLORADO

FREMONT PROJECT NO. C022-032

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		
FL01@4'	11/09/2022	4'	*<0.0020*	*<0.0050*	*<0.0050*	*<0.010*	*<0.0050*	*<0.0050*	*<0.0038*	*<0.50*	*<50*	*<50*
SEP01@4'	11/09/2022	4'	*<0.0020*	*<0.0050*	*<0.0050*	*<0.010*	*<0.0050*	*<0.0050*	*<0.0038*	*<0.50*	*<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)

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

TABLE 2
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
ARMSTRONG 2-16G5, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C022-032

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
FL01@4'	11/09/2022	4'	*<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*
SEP01@4'	11/09/2022	4'	*<0.00500*	*<0.00500*	*<0.00500*	0.0107	*<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)

TABLE 3

SUMMARY OF SOIL SUITIBILITY FOR RECLAMATION

NOBLE ENERGY INC.

ARMSTRONG 2-16G5, WELD COUNTY, COLORADO

FREMONT PROJECT NO. C022-032

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
FL01@4'	11/09/2022	4'	8.28	0.362	0.875	0.0826
SEP01@4'	11/09/2022	4'	7.97	1.08	0.471	0.113

Bold faced values exceed the COGCC Table 915-1 concentrations

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

TABLE 4
SUMMARY OF POTHOLE FIELD OBSERVATIONS
NOBLE ENERGY INC.
ARMSTRONG 2-16G5, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C022-032

Location	Latitude	Longitude	PID Reading	Field Observations
SEP01@4'	40.510376	-104.620953	2.3	No observed impacts
FL01@4'	40.51038	-104.62231	2.3	No observed impacts
FL02@4'	40.51038	-104.622096	1.1	No observed impacts
FL03@4'	40.510374	-104.621757	1.5	No observed impacts
FL04@4'	40.510375	-104.621432	1.7	No observed impacts

TABLE 5
SUMMARY OF FLOW LINE CONDITION
NOBLE ENERGY INC.
ARMSTRONG 2-16G5, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C022-032

START	STOP	FOOTAGE	PIPE TYPE AND CONDITION
SEP01@4'	FL01@4'	133	2" Steel, good condition
FL01@4'	FL02@4'	90	2" Steel, good condition
FL02@4'	FL03@4'	93	2" Steel, good condition
FL03@4'	FL04@4'	59	2" Steel, good condition
		375	Total linear feet of flow line

Flowline Closure Checklist

COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure

Site Name & COGCC Facility Number:	*Date:*	*Remediation Project #:*
ARMSTRONG 2-16G5	11/9/2022	20986
Associated Wells:	*Age of Site:*	*Number of Photos Attached:*
05-123-18603	Unknown	See attached

Starting point: *(GPS coordinates and descriptions)*
40.510380°

End point: *(GPS coordinates and descriptions)*
-104.622310°

USCS Soil Type: SM/ML | *Estimated Depth to Groundwater:*

Hydrocarbon Impacted Soils / Spills: *(Note estimated size and if impact appears to be surficial or extends to an unknown depth)*

No observed hydrocarbon impacted soil.

Salt Crusted Soils or Impacted Vegetation: *(Note estimated size and if impact appears to be surficial or extends to an unknown depth)*

No observed salt crusted soils or impacted vegetation.

Flowlines

Flowline type	Wellhead Line							
Depth	4'							
Age	Unknown							
Length	375'							
Construction Material	2" steel							
Were flowlines pulled?	Yes							
Visual Integrity of lines	Good Condition							
Visual impacts if trenched	None observed							
PID Readings if trenched	0 to 2.3 ppm							
Sample taken? Location/Sample ID#	See attached							
Photo Number(s)	See attached							

Other observations regarding on loction flowlines:

Summary

Was impacted soil identified?
☑ No ☐ Yes - less than 10 cubic yards ☐ Yes - more than 10 cubic yards

Total number of samples field screened: 5	*Total number of samples collected:* 5
Highest PID Reading: 2.3 ppm	*Total number of samples submitted to lab for analysis:* 2

If more than 10 cubic yards of impacted soil were observed:

Vertical extent:	*Estimated spill volume:*
Lateral extent:	*Volume of soil removed:*

Is additional investigation required?

Was groundwater encountered during the investigation?
☑ No ☐ Yes - not impacted or in contact with impacted soils ☐ Yes - groundwater impacted and/or in contact with impacted soils

Measured depth to groundwater:	*Was remedial groundwater removal conducted?* Yes ☐ No ☐
Date Groundwater was encountered:	*Commencement date of removal:*
Sheen on groundwater? ☐ Yes ☐ No	*Volume of groundwater removed prior to sampling:*
Free product observed? ☐ Yes ☐ No	*Volume of groundwater removed post sampling:*
Total number of samples collected:	*Total Volume of groundwater removed:*
Total number of samples submitted to lab for analysis:	

Photo Log

Description:

FL01@4'

Photo Log

Description:

FL02@4'

Photo Log

Description:

FL03@4'

Photo Log

Description:

FL04@4'

Photo Log

Description:

Former separator location Facing S

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 16, 2022

Paul Henehan
Fremont Environmental
PO Box 1289
Wellington, CO 80549

RE: Armstrong 66N65W 2SESE
Work Order #2211169

Enclosed are the results of analyses for samples received by Summit Scientific on 11/09/22 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mikayla Axtell For Paul Shrewsbury
President

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PWVB01@6'	2211169-01	Soil	11/09/22 00:00	11/09/22 16:00
AST02@1'	2211169-03	Soil	11/09/22 00:00	11/09/22 16:00
SEP01@4'	2211169-04	Soil	11/09/22 00:00	11/09/22 16:00
FL01@4'	2211169-05	Soil	11/09/22 00:00	11/09/22 16:00

Summit Scientific

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

Summit Scientific

S_2

2211169

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

Client: Fremont Environmental
Project Manager: Paul Henehan
Address:
E-Mail: Fremont Distribution List: PaulH, EthanB, JeffG and ChrisL. @fremontenv.com
City/State/Zip:
Bill to Noble
Phone:
Project Name: Armstrong 66N65W 2SESE
Sampler Name: Chris Lattes
Project Number:

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	TPH, BTEX, TMBs, Naph.	PAH (915)	EC, SAR, pH, Boron	Metals (915)	TDS, Chloride, Sulfate			HOLD	
1	PWVB01@6'	11/9/22		2			X			X			X	X	X						
2	PWVE01@4'	"		2			X			X		GL	X							X	HOLD
3	AST02@1'	"		2			X			X			X	X	X						
4	SE01@4'	↓		2			X			X			X	X	X						
5	FL01@4'	11/9/22		2			X			X			X	X	X						
6																					
7																					
8																					
9																					
10																					

Relinquished by:	Date/Time:	Received by:	Date/Time:
Chris Lattes	11/9/22 13:30	S2	11/9/22 13:30
S2	11922 1600		11922 1600

Turn Around Time (Check)
Same Day ___ 72 hours
24 hours ___ Standard X
48 hours ___
Sample Integrity:
Temperature Upon Receipt: 8.2
Samples Intact: Yes No

Notes:
FL01@4' from associated WH/FL Armstrong 2-16G5

S2

Sample Receipt Checklist

S2 Work Order# 2211169

Client: Fremont Client Project ID: Armstrong CoCoNCoSW 2SESE

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

	–			

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

Temp (°C) [8.2] 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.				

[signature] 11-9-22 1600

Custodian Printed Name **Date/Time**

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

PWVB01@6'

2211169-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFK0270	11/10/22	11/12/22	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: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*80.1 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*109 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.4 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0272	11/10/22	11/11/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*97.6 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

PWVB01@6'

2211169-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFK0355	11/14/22	11/14/22	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: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*78.2 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*63.6 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0982**	0.0100	mg/L	1	BFK0311	11/11/22	11/13/22	EPA 6020B	

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

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Summit Scientific

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S2

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

PWVB01@6'

2211169-01 (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	**56.1**	0.0561	mg/L dry	1	BFK0336	11/12/22	11/14/22	EPA 6020B	
Magnesium	**19.0**	0.0561	"	"	"	"	"	"	
Sodium	**6.96**	0.0561	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.205**	0.00100	units	1	BFK0397	11/15/22	11/15/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**89.1**		%	1	BFK0326	11/12/22	11/12/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.465**	0.0100	mmhos/cm	1	BFK0348	11/13/22	11/13/22	EPA 120.1	

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

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.18**		pH Units	1	BFK0346	11/13/22	11/13/22	EPA 9045D	

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

AST02@1'

2211169-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFK0270	11/10/22	11/12/22	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: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*84.0 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*110 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.9 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0272	11/10/22	11/11/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*98.9 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

AST02@1'

2211169-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFK0355	11/14/22	11/14/22	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: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*84.7 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*61.1 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.135**	0.0100	mg/L	1	BFK0311	11/11/22	11/13/22	EPA 6020B	

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

Date Sampled: **11/09/22 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: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

AST02@1'

2211169-03 (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	**51.1**	0.0592	mg/L dry	1	BFK0336	11/12/22	11/14/22	EPA 6020B	
Magnesium	**13.8**	0.0592	"	"	"	"	"	"	
Sodium	**3.94**	0.0592	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.126**	0.00100	units	1	BFK0397	11/15/22	11/15/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**84.5**		%	1	BFK0326	11/12/22	11/12/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.282**	0.0100	mmhos/cm	1	BFK0348	11/13/22	11/13/22	EPA 120.1	

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

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.26**		pH Units	1	BFK0346	11/13/22	11/13/22	EPA 9045D	

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

SEP01@4'

2211169-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFK0270	11/10/22	11/12/22	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: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*78.2 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*110 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0272	11/10/22	11/11/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*92.9 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

SEP01@4'

2211169-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFK0355	11/14/22	11/14/22	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	**0.0107**	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: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*84.4 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*58.0 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.113**	0.0100	mg/L	1	BFK0311	11/11/22	11/13/22	EPA 6020B	

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

Date Sampled: **11/09/22 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: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

SEP01@4'

2211169-04 (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	**143**	0.0593	mg/L dry	1	BFK0336	11/12/22	11/14/22	EPA 6020B	
Magnesium	**50.3**	0.0593	"	"	"	"	"	"	
Sodium	**25.7**	0.0593	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.471**	0.00100	units	1	BFK0397	11/15/22	11/15/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**84.4**		%	1	BFK0326	11/12/22	11/12/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**1.08**	0.0100	mmhos/cm	1	BFK0348	11/13/22	11/13/22	EPA 120.1	

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

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.97**		pH Units	1	BFK0346	11/13/22	11/13/22	EPA 9045D	

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

FL01@4'

2211169-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BFK0270	11/10/22	11/12/22	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: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*78.2 %*	*50-150*		"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.3 %*	*50-150*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BFK0272	11/10/22	11/11/22	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*96.1 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

S2

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

FL01@4'

2211169-05 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BFK0355	11/14/22	11/14/22	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: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*79.4 %*	*40-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*64.6 %*	*40-150*		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	**0.0826**	0.0100	mg/L	1	BFK0311	11/11/22	11/13/22	EPA 6020B	

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

Date Sampled: **11/09/22 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: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

FL01@4'

2211169-05 (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	**34.8**	0.0586	mg/L dry	1	BFK0336	11/12/22	11/14/22	EPA 6020B	
Magnesium	**5.88**	0.0586	"	"	"	"	"	"	
Sodium	**21.2**	0.0586	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	**0.875**	0.00100	units	1	BFK0397	11/15/22	11/15/22	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**85.4**		%	1	BFK0326	11/12/22	11/12/22	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.362**	0.0100	mmhos/cm	1	BFK0348	11/13/22	11/13/22	EPA 120.1	

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

Date Sampled: **11/09/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**8.28**		pH Units	1	BFK0346	11/13/22	11/13/22	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 BFK0270 - EPA 5030 Soil MS										
Blank (BFK0270-BLK1)				Prepared: 11/10/22 Analyzed: 11/12/22						
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	*0.0316*		*"*	*0.0400*		*79.0*	*50-150*			
Surrogate: Toluene-d8	*0.0418*		*"*	*0.0400*		*105*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0400*		*"*	*0.0400*		*100*	*50-150*			
LCS (BFK0270-BS1)				Prepared: 11/10/22 Analyzed: 11/12/22						
Benzene	0.0745	0.0020	mg/kg	0.0750		99.3	70-130			
Toluene	0.0744	0.0050	"	0.0750		99.2	70-130			
Ethylbenzene	0.0737	0.0050	"	0.0750		98.3	70-130			
m,p-Xylene	0.152	0.010	"	0.150		101	70-130			
o-Xylene	0.0798	0.0050	"	0.0750		106	70-130			
1,2,4-Trimethylbenzene	0.0862	0.0050	"	0.0750		115	70-130			
1,3,5-Trimethylbenzene	0.0852	0.0050	"	0.0750		114	70-130			
Naphthalene	0.0866	0.0038	"	0.0750		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0306*		*"*	*0.0400*		*76.4*	*50-150*			
Surrogate: Toluene-d8	*0.0466*		*"*	*0.0400*		*116*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0388*		*"*	*0.0400*		*96.9*	*50-150*			
Matrix Spike (BFK0270-MS1)	**Source: 2211156-01**			Prepared: 11/10/22 Analyzed: 11/12/22						
Benzene	0.0674	0.0020	mg/kg	0.0750	ND	89.8	70-130			
Toluene	0.0701	0.0050	"	0.0750	ND	93.5	70-130			
Ethylbenzene	0.0702	0.0050	"	0.0750	ND	93.6	70-130			
m,p-Xylene	0.148	0.010	"	0.150	ND	98.3	70-130			
o-Xylene	0.0768	0.0050	"	0.0750	ND	102	70-130			
1,2,4-Trimethylbenzene	0.0860	0.0050	"	0.0750	ND	115	70-130			
1,3,5-Trimethylbenzene	0.0831	0.0050	"	0.0750	ND	111	70-130			
Naphthalene	0.102	0.0038	"	0.0750	0.0194	110	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0314*		*"*	*0.0400*		*78.6*	*50-150*			
Surrogate: Toluene-d8	*0.0438*		*"*	*0.0400*		*109*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0394*		*"*	*0.0400*		*98.6*	*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 BFK0270 - EPA 5030 Soil MS										
Matrix Spike Dup (BFK0270-MSD1)	**Source: 2211156-01**			Prepared: 11/10/22 Analyzed: 11/12/22						
Benzene	0.0732	0.0020	mg/kg	0.0750	ND	97.6	70-130	8.32	30	
Toluene	0.0725	0.0050	"	0.0750	ND	96.6	70-130	3.32	30	
Ethylbenzene	0.0727	0.0050	"	0.0750	ND	97.0	70-130	3.53	30	
m,p-Xylene	0.153	0.010	"	0.150	ND	102	70-130	3.71	30	
o-Xylene	0.0795	0.0050	"	0.0750	ND	106	70-130	3.49	30	
1,2,4-Trimethylbenzene	0.0876	0.0050	"	0.0750	ND	117	70-130	1.87	30	
1,3,5-Trimethylbenzene	0.0852	0.0050	"	0.0750	ND	114	70-130	2.46	30	
Naphthalene	0.102	0.0038	"	0.0750	0.0194	110	70-130	0.00	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0325*		*"*	*0.0400*		*81.3*	*50-150*			
Surrogate: Toluene-d8	*0.0473*		*"*	*0.0400*		*118*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*0.0394*		*"*	*0.0400*		*98.6*	*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 BFK0272 - EPA 3550A										
Blank (BFK0272-BLK1)				Prepared & Analyzed: 11/10/22						
C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	*11.1*		*"*	*12.5*		*88.8*	*30-150*			
LCS (BFK0272-BS1)				Prepared & Analyzed: 11/10/22						
C10-C28 (DRO)	398	50	mg/kg	500		79.7	70-130			
Surrogate: o-Terphenyl	*10.7*		*"*	*12.5*		*85.7*	*30-150*			
Matrix Spike (BFK0272-MS1)	**Source: 2211156-01**			Prepared & Analyzed: 11/10/22						
C10-C28 (DRO)	394	50	mg/kg	500	25.9	73.7	70-130			
Surrogate: o-Terphenyl	*10.2*		*"*	*12.5*		*81.6*	*30-150*			
Matrix Spike Dup (BFK0272-MSD1)	**Source: 2211156-01**			Prepared & Analyzed: 11/10/22						
C10-C28 (DRO)	392	50	mg/kg	500	25.9	73.1	70-130	0.718	20	
Surrogate: o-Terphenyl	*9.07*		*"*	*12.5*		*72.6*	*30-150*			

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

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 BFK0355 - EPA 5030 Soil MS										
Blank (BFK0355-BLK1)				Prepared & Analyzed: 11/14/22						
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	*0.0410*		*"*	*0.0333*		*123*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0317*		*"*	*0.0333*		*95.1*	*40-150*			
LCS (BFK0355-BS1)				Prepared & Analyzed: 11/14/22						
Acenaphthene	0.0392	0.00500	mg/kg	0.0333		117	31-137			
Anthracene	0.0367	0.00500	"	0.0333		110	30-120			
Benzo (a) anthracene	0.0326	0.00500	"	0.0333		97.7	30-120			
Benzo (a) pyrene	0.0369	0.00500	"	0.0333		111	30-120			
Benzo (b) fluoranthene	0.0390	0.00500	"	0.0333		117	30-120			
Benzo (k) fluoranthene	0.0383	0.00500	"	0.0333		115	30-120			
Chrysene	0.0320	0.00500	"	0.0333		95.9	30-120			
Dibenz (a,h) anthracene	0.0363	0.00500	"	0.0333		109	30-120			
Fluoranthene	0.0380	0.00500	"	0.0333		114	30-120			
Fluorene	0.0376	0.00500	"	0.0333		113	30-120			
Indeno (1,2,3-cd) pyrene	0.0348	0.00500	"	0.0333		104	30-120			
Pyrene	0.0327	0.00500	"	0.0333		98.0	35-142			
1-Methylnaphthalene	0.0323	0.00500	"	0.0333		96.8	35-142			
2-Methylnaphthalene	0.0328	0.00500	"	0.0333		98.3	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0345*		*"*	*0.0333*		*103*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0402*		*"*	*0.0333*		*121*	*40-150*			

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

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 BFK0355 - EPA 5030 Soil MS										
Matrix Spike (BFK0355-MS1)	**Source: 2211169-01**			Prepared & Analyzed: 11/14/22						
Acenaphthene	0.0284	0.00500	mg/kg	0.0333	ND	85.3	31-137			
Anthracene	0.0238	0.00500	"	0.0333	ND	71.5	30-120			
Benzo (a) anthracene	0.0228	0.00500	"	0.0333	ND	68.4	30-120			
Benzo (a) pyrene	0.0271	0.00500	"	0.0333	ND	81.2	30-120			
Benzo (b) fluoranthene	0.0264	0.00500	"	0.0333	ND	79.3	30-120			
Benzo (k) fluoranthene	0.0264	0.00500	"	0.0333	ND	79.2	30-120			
Chrysene	0.0231	0.00500	"	0.0333	ND	69.2	30-120			
Dibenz (a,h) anthracene	0.0255	0.00500	"	0.0333	ND	76.5	30-120			
Fluoranthene	0.0237	0.00500	"	0.0333	ND	71.1	30-120			
Fluorene	0.0253	0.00500	"	0.0333	ND	75.8	30-120			
Indeno (1,2,3-cd) pyrene	0.0246	0.00500	"	0.0333	ND	73.8	30-120			
Pyrene	0.0235	0.00500	"	0.0333	ND	70.6	35-142			
1-Methylnaphthalene	0.0213	0.00500	"	0.0333	ND	63.8	15-130			
2-Methylnaphthalene	0.0213	0.00500	"	0.0333	ND	64.0	15-130			
Surrogate: 2-Methylnaphthalene-d10	*0.0223*		*"*	*0.0333*		*66.8*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0241*		*"*	*0.0333*		*72.4*	*40-150*			
Matrix Spike Dup (BFK0355-MSD1)	**Source: 2211169-01**			Prepared & Analyzed: 11/14/22						
Acenaphthene	0.0314	0.00500	mg/kg	0.0333	ND	94.3	31-137	9.97	30	
Anthracene	0.0272	0.00500	"	0.0333	ND	81.5	30-120	13.1	30	
Benzo (a) anthracene	0.0250	0.00500	"	0.0333	ND	74.9	30-120	9.09	30	
Benzo (a) pyrene	0.0291	0.00500	"	0.0333	ND	87.3	30-120	7.20	30	
Benzo (b) fluoranthene	0.0287	0.00500	"	0.0333	ND	86.1	30-120	8.19	30	
Benzo (k) fluoranthene	0.0285	0.00500	"	0.0333	ND	85.4	30-120	7.63	30	
Chrysene	0.0244	0.00500	"	0.0333	ND	73.2	30-120	5.59	30	
Dibenz (a,h) anthracene	0.0259	0.00500	"	0.0333	ND	77.8	30-120	1.68	30	
Fluoranthene	0.0256	0.00500	"	0.0333	ND	76.7	30-120	7.59	30	
Fluorene	0.0271	0.00500	"	0.0333	ND	81.4	30-120	7.19	30	
Indeno (1,2,3-cd) pyrene	0.0253	0.00500	"	0.0333	ND	76.0	30-120	2.96	30	
Pyrene	0.0238	0.00500	"	0.0333	ND	71.4	35-142	1.11	30	
1-Methylnaphthalene	0.0251	0.00500	"	0.0333	ND	75.3	15-130	16.6	50	
2-Methylnaphthalene	0.0256	0.00500	"	0.0333	ND	76.8	15-130	18.2	50	
Surrogate: 2-Methylnaphthalene-d10	*0.0265*		*"*	*0.0333*		*79.6*	*40-150*			
Surrogate: Fluoranthene-d10	*0.0263*		*"*	*0.0333*		*78.8*	*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.

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFK0311 - EPA 3050B										
Blank (BFK0311-BLK1)				Prepared: 11/11/22 Analyzed: 11/13/22						
Boron	ND	0.0100	mg/L							
LCS (BFK0311-BS1)				Prepared: 11/11/22 Analyzed: 11/13/22						
Boron	5.04	0.0100	mg/L	5.00		101	80-120			
Duplicate (BFK0311-DUP1)		**Source: 2211146-01**		Prepared: 11/11/22 Analyzed: 11/13/22						
Boron	0.668	0.0100	mg/L		0.653			2.19	20	
Matrix Spike (BFK0311-MS1)		**Source: 2211146-01**		Prepared: 11/11/22 Analyzed: 11/13/22						
Boron	4.96	0.0100	mg/L	5.00	0.653	86.1	75-125			
Matrix Spike Dup (BFK0311-MSD1)		**Source: 2211146-01**		Prepared: 11/11/22 Analyzed: 11/13/22						
Boron	5.89	0.0100	mg/L	5.00	0.653	105	75-125	17.2	25	

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

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 BFK0336 - General Preparation										
Blank (BFK0336-BLK1)				Prepared: 11/12/22 Analyzed: 11/14/22						
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							
LCS (BFK0336-BS1)				Prepared: 11/12/22 Analyzed: 11/14/22						
Calcium	4.79	0.0500	mg/L wet	5.00		95.9	70-130			
Magnesium	5.19	0.0500	"	5.00		104	70-130			
Sodium	5.26	0.0500	"	5.00		105	70-130			

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFK0326 - General Preparation										
Duplicate (BFK0326-DUP1)	**Source: 2211168-01**			Prepared & Analyzed: 11/12/22						
% Solids	85.6		%		85.3			0.314	20	

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

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 BFK0348 - General Preparation										
Blank (BFK0348-BLK1)				Prepared & Analyzed: 11/13/22						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BFK0348-BS1)				Prepared & Analyzed: 11/13/22						
Specific Conductance (EC)	0.158	0.0100	mmhos/cm	0.150		105	95-105			
Duplicate (BFK0348-DUP1)		**Source: 2210524-02**		Prepared & Analyzed: 11/13/22						
Specific Conductance (EC)	2.89	0.0100	mmhos/cm		2.87			0.486	20	

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

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

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BFK0346 - General Preparation										
LCS (BFK0346-BS1)				Prepared & Analyzed: 11/13/22						
pH	8.99		pH Units	9.18		97.9	95-105			
Duplicate (BFK0346-DUP1)		**Source: 2210524-02**		Prepared & Analyzed: 11/13/22						
pH	8.28		pH Units		8.29			0.121	20	

Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Armstrong 66N65W 2SESE Project Number: [none] Project Manager: Paul Henehan	**Reported:** 11/16/22 08:58

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference