

FREMONT ENVIRONMENTAL INC.

January 25, 2023

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

Subject: **Facility Closure Data Submittal**
 Armstrong 66N65W 2SESE Facility
 Facility ID: 450359
 SESE Sec. 2, T6N, R65W
 Weld County, Colorado
 Fremont Project No. C022-032
 Remediation # 20990

Dear Mr. Peterson:

As requested, Fremont Environmental Inc. (Fremont) personnel conducted facility abandonment activities at the Noble Energy Inc. (Noble) Armstrong 66N65W 2SESE facility. Details of the facility 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.

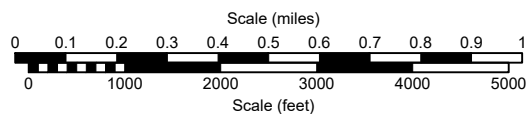
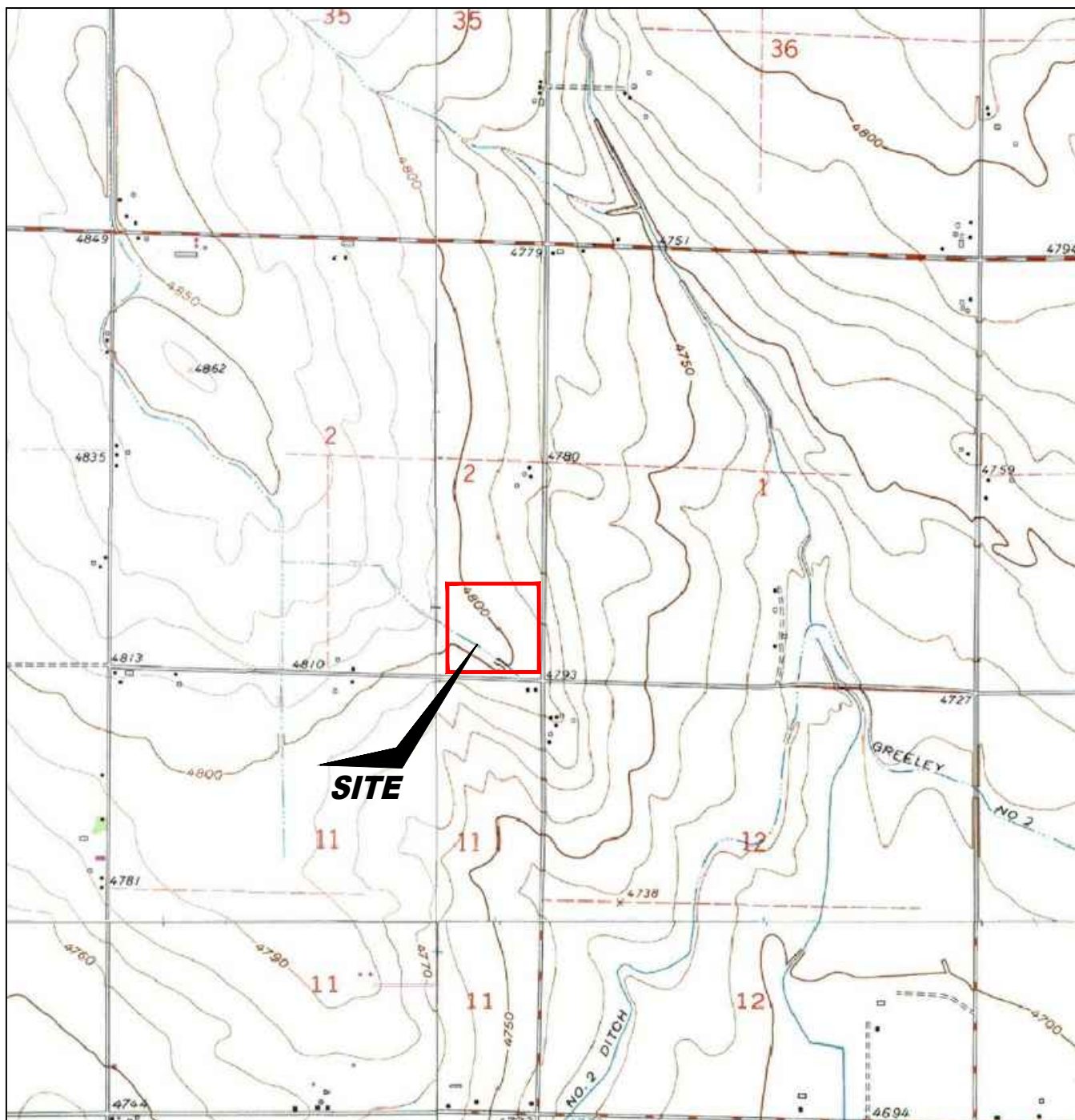


Chris Lattes
Geologist

Attachments:

Figures
Tables
Facility Closure Checklist
Photos
Laboratory Reports

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



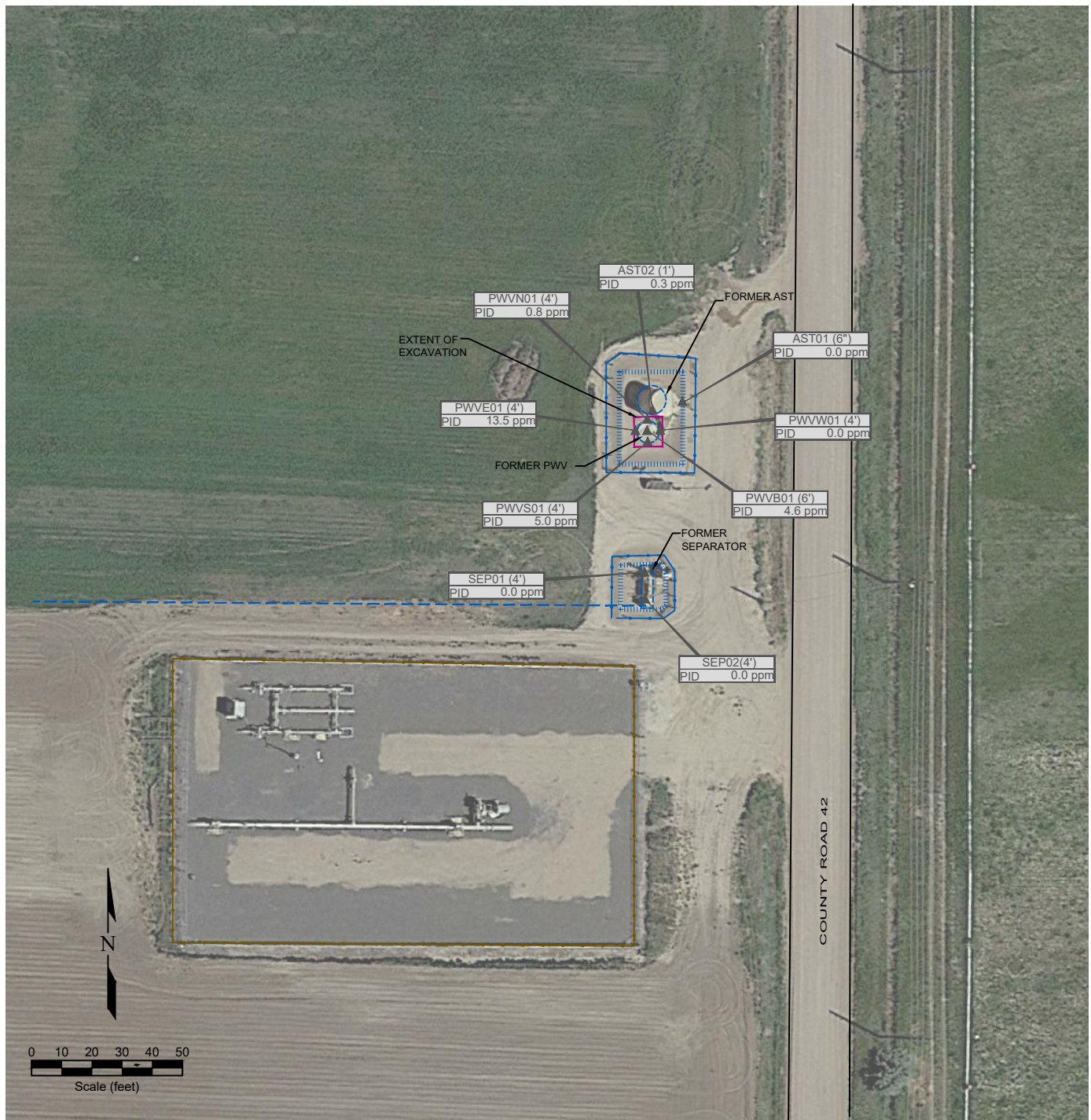
USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

Noble Energy, Inc. ~ Armstrong-66N65W 2SESE
SESE Sec. 2, T6N, R65W, 6th PM
Weld County, Colorado
40.510406°, -104.620967°

Project # C022-032	API #	Facility # 430359
Date 2/15/23	Remediation # 20990	Filename 22032T





LEGEND

● WELL HEAD LOCATION	▲ ABOVE GROUND STORAGE TANK	FORMER FACILITY	--- FLOWLINE
PID READING LOCATION			--- FENCE LINE
			CONTAINMENT BERM
			--- CONTAINMENT WALL
			--- EXTENT OF EXCAVATION

FL01 PHOTO IONIZATION DETECTION READING (ppm)
PID 0.0 ppm
PID = photo ionization detection / ppm parts per million

Figure 2
SITE MAP

Noble Energy, Inc. ~ Armstrong-66N65W 2SESE
SESE Sec. 2, T6N, R65W, 6th PM
Weld County, Colorado
40.510406°, -104.620967°

Project No. C022-032	API #	Facility # 430359	
Date 2/15/23	Remediation # 20990	Filename 22032Q	

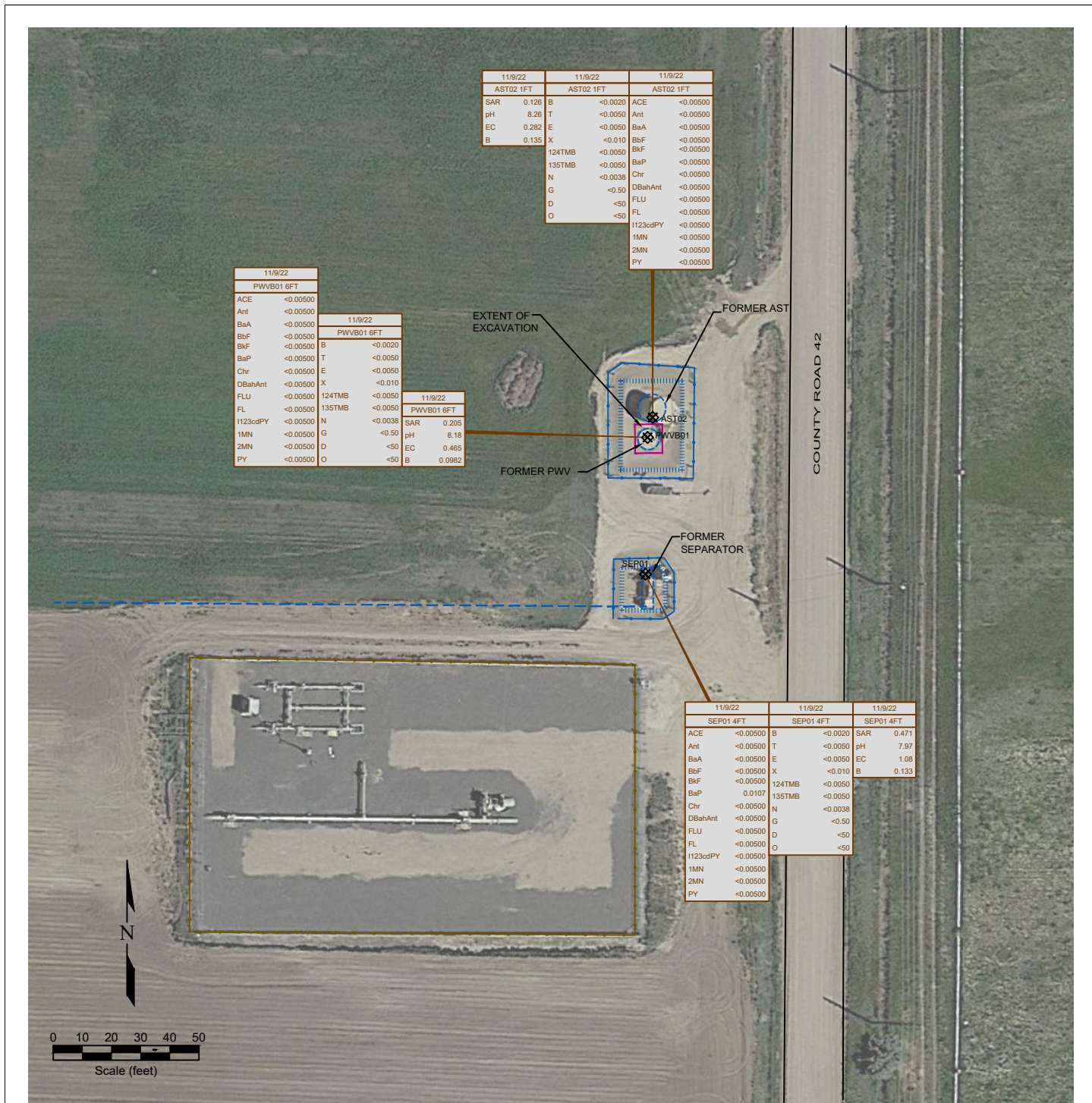


Figure 3
SOIL CHEMISTRY MAP

Noble Energy, Inc. ~ Armstrong-66N65W 2SESE
SESE Sec. 2, T6N, R65W, 6th PM
Weld County, Colorado
40.510406°, -104.620967°

Project No. C022-032	API #	Facility # 430359	
Date 2/8/23	Remediation # 20990	Filename 22032Q	

TABLE 1
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
ARMSTRONG 66N65W 2SESE, 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		
AST02@1'	11/09/2022	1'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
PWVB01@6'	11/09/2022	6'	<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 66N65W 2SESE, 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
AST02@1'	11/09/2022	1'	<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
PWVB01@6'	11/09/2022	6'	<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 SUITABILITY FOR RECLAMATION
NOBLE ENERGY INC.
ARMSTRONG 66N65W 2SESE, 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
AST02@1'	11/09/2022	1'	8.26	0.282	0.126	0.135
PWVB01@6'	11/09/2022	6'	8.18	0.465	0.205	0.0982
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)

Tank Battery Closure Checklist

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

Additional attachments (optional):		Pit Closure		Wellhead Closure		Flowline Closure	X	Partially Buried Vault Closure
Site Name & COGCC Facility Number: Armstrong 66N65W 2SESE, 450359		Date: 11/9/2022						Remediation Project #: 20990
Associated Wells: 05-123-18603		Age of Site: Unknown						Number of Photos Attached: See attached
Location: (GPS coordinates of southeaster berm) 40.510568, -104.620945								Estimated Facility Size (acres):
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) Good condition, no observed issues.								
USCS Soil Type: CL/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 or spills.								
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 soil or impacted vegetation.								
Tanks								
Tank Contents	Crude							
Size (barrels)	300							
Age	Unknown							
Construction Material	Steel							
Tank type (AST/DRU, etc.)	AST							
Visual Integrity of Tank	Good condition							
Condition of tank footprint	Good condition							
PID Readings	0.3 ppm							
Soil impacts present at valves or hatches?	None observed							
PID Readings	0 ppm							
Sample taken? Location/ Sample ID#	See attached figure							
Photo Number(s)	See attached							
Other observations regarding tanks:								
Separators								
Separator size	Unknown							
Vertical or Horizontal	Horizontal							
Age	Unknown							
Soil impacts observed? If yes,	None observed							
PID Readings	0 ppm							
Sample taken? Location/ Sample ID#	See attached figure							
Photo Number(s)	See attached							
Other observations regarding separators								
Third Party Equipment								
Type								
Age								

Third Party														
Removal Date														
Sample taken?														
PID Readings														
Photo Number(s)														
Other Facility Equipment														
Equipment type														
Equipment Condition														
Age														
Soil impacts observed during														
PID Readings														
Sample taken?														
Photo Number(s)														
Other observations regarding other facility or third party equipment: Meter shed was removed from the location previously.														
Summary														
Was impacted soil identified? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - less than 10 cubic yards <input type="checkbox"/> Yes - more than 10 cubic yards														
Total number of samples field screened: 4					Total number of samples collected: 4									
Highest PID Reading: 0.3 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? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - not impacted or in contact with impacted soils <input type="checkbox"/> Yes - groundwater impacted and/or in contact with impacted soils														
Measured depth to groundwater:					Was remedial groundwater removal conducted? <input type="checkbox"/> Yes <input type="checkbox"/> No									
Date Groundwater was encountered:					Commencement date of removal:									
Sheen on groundwater? <input type="checkbox"/> Yes <input type="checkbox"/> No					Volume of groundwater removed prior to sampling:									
Free product observed? <input type="checkbox"/> Yes <input type="checkbox"/> 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:														

Buried or Partially Buried Vessel Closure Checklist

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

Additional attachments (optional):		Pit Closure		Wellhead Closure		Flowline Closure		Tank Battery Closure
Site Name & COGCC Facility Number: Armstrong 66N65W 2SESE, 450359		Date: 11/9/2022						Remediation Project #: 20990
Associated Wells: 05-123-18603		Age of Site: Unknown						Number of Photos Attached: See attached
Location: (GPS coordinates of vault or southeastern tank berm for multiple) 40.510568, -104.620945							Estimated Facility Size (acres):	
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) Good condition, no observed issues.								
USCS Soil Type: CL & SW/GW					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 or spills.								
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 soil or impacted vegetation.								
Buried or Partially Buried Vessels								
Tank Contents	Produced water							
Size (barrels)	50							
Age	Unknown							
Construction Material	Concrete							
Visual Integrity of Tank	Crushed on arrival							
Condition of tank	Good condition							
PID Readings	4.6 ppm							
Condition of dump line	Good condition							
PID Readings	0 to 13.5 ppm							
Sample taken? Location/Sample ID#	See attached figure							
Photo Number(s)	See attached							
Other observations regarding partially buried vessels:								
Summary								
Was impacted soil identified? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - less than 10 cubic yards <input type="checkbox"/> Yes - more than 10 cubic yards								
Total number of samples field screened: 5					Total number of samples collected: 5			
Highest PID Reading: 13.5 ppm					Total number of samples submitted to lab for analysis: 1			
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? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - not impacted or in contact with impacted soils <input type="checkbox"/> Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater:					Was remedial groundwater removal conducted? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Date Groundwater was encountered:					Commencement date of removal:			
Sheen on groundwater? <input type="checkbox"/> Yes <input type="checkbox"/> No					Volume of groundwater removed prior to sampling:			
Free product observed? <input type="checkbox"/> Yes <input type="checkbox"/> 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

DIRECTION
NW (T)

40.51031°N
104.62081°W

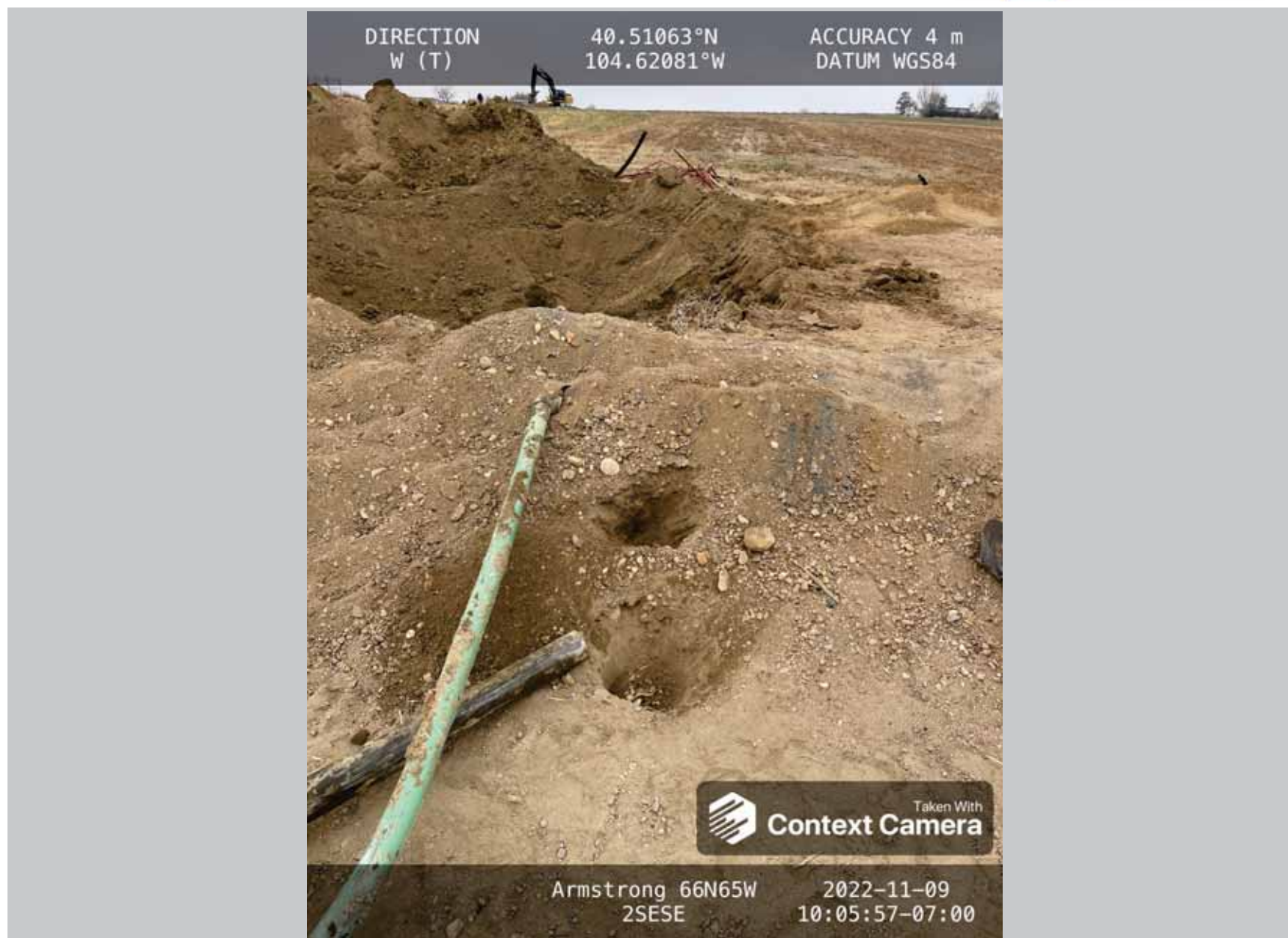
ACCURACY 5 m
DATUM WGS84



Description:

Site Overview Facing NW

Photo Log



Description:

AST01@6"

Photo Log



Description:

AST02@1'

Photo Log

DIRECTION
N (T)

40.51056°N
104.62094°W

ACCURACY 5 m
DATUM WGS84



Taken With
Context Camera

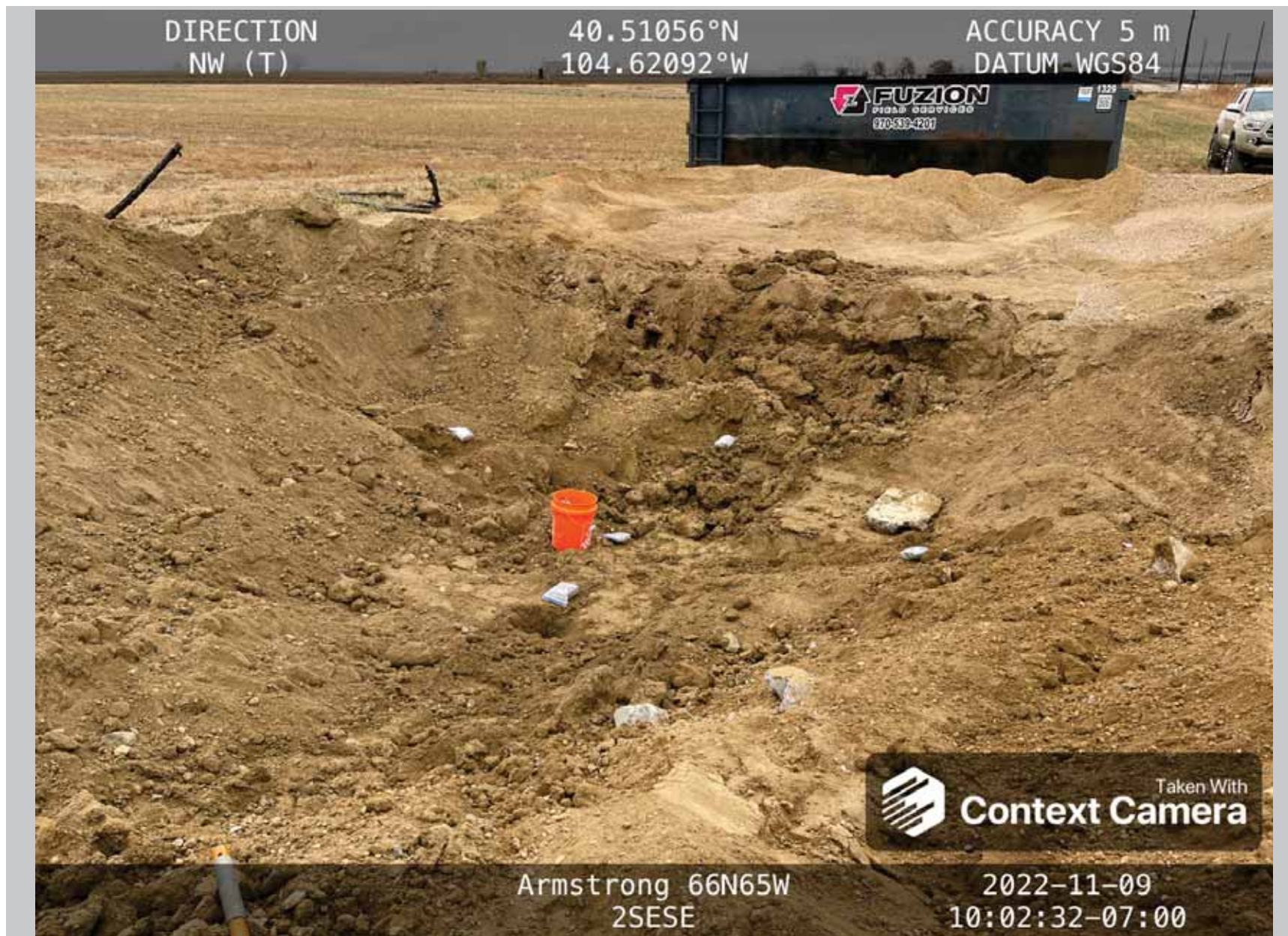
Armstrong 66N65W
2SESE

2022-11-09
10:02:24-07:00

Description:

PWV Excavation Facing N

Photo Log



Description:

PWV Excavation Facing NW

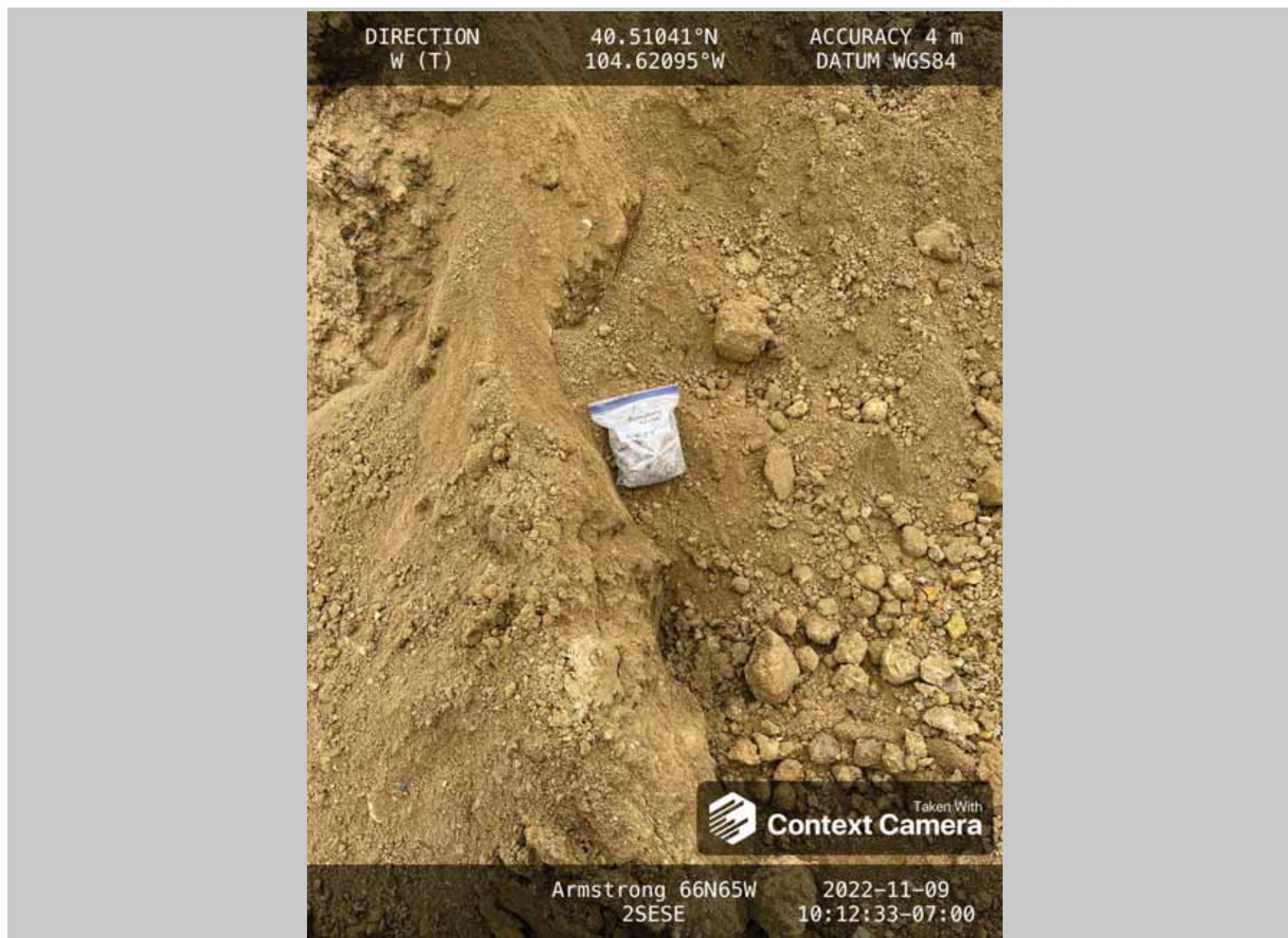
Photo Log



Description:

Separator Excavation

Photo Log



Description:

SEP01@4'

Photo Log



Description:

SEP02@4'

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 16, 2022

Paul Henchan
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 Henchan

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

S₂

2211169

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

Page 1 of 1

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:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested										Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	TPH, BTEX, TMSs, 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			X							X	HOLD		
3	AST02@1'	↓		2			X			X			X	X	X								
4	SE001@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:	Turn Around Time	(Check)	Notes: FL01@4' from associated WH/FL Armstrong 2-1665
Chris Lattes	11/9/22 13:30	S2	11/9/22 13:30	Same Day	72 hours	
				24 hours	Standard	
				48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
S2	11/9/22 1000	[Signature]	11/9/22 1000	Temperature Upon Receipt:	8.2	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact:	Yes No	

S₂

Sample Receipt Checklist

S2 Work Order# 2201169Client: Fremont Client Project ID: Armstrong Col/NCSW ZSESE

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

	-			
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Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 8.2Thermometer # 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"/>	on ICE
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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 type="checkbox"/>	<input checked="" 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"/>	
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.

 Custodian Printed Name

11-9-22 1600
 Date/Time



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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

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: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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
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Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

PWVB01@6'
2211169-01 (Soil)

Summit Scientific

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

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	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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

PAH by EPA Method 8270D SIM

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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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Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

AST02@1'
2211169-03 (Soil)

Summit Scientific

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

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	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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

PAH by EPA Method 8270D SIM

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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 Henchan

Reported:
11/16/22 08:58

SEP01@4'
2211169-04 (Soil)

Summit Scientific

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

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	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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

PAH by EPA Method 8270D SIM

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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 Henchan

Reported:
11/16/22 08:58

FL01@4'
2211169-05 (Soil)

Summit Scientific

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

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	

Summit Scientific

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PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 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			

Summit Scientific

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Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

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

Batch 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	
<hr/>										
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			

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch 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

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BFK0355 - EPA 5030 Soil MS

Matrix Spike (BKF0355-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 (BKF0355-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				

Summit Scientific

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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

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

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

Batch 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

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

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

Summit Scientific

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

Summit Scientific

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PO Box 1289
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Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

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

Summit Scientific

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

Batch BFK0326 - General Preparation

Duplicate (BFK0326-DUP1)		Source: 2211168-01		Prepared & Analyzed: 11/12/22						
% Solids	85.6		%		85.3			0.314	20	

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

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

Summit Scientific

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

Batch 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

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

Reported:
11/16/22 08:58

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

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

Batch BFK0346 - General Preparation

LCS (BFK0346-BS1)

Prepared & Analyzed: 11/13/22

pH	8.99	pH Units	9.18	97.9	95-105
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Duplicate (BFK0346-DUP1)

Source: 2210524-02

Prepared & Analyzed: 11/13/22

pH	8.28	pH Units	8.29	0.121	20
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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Armstrong 66N65W 2SESE

Project Number: [none]
Project Manager: Paul Henchan

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