

# **FREMONT ENVIRONMENTAL INC.**

March 1, 2023

Mr. James Hix  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, CO 80203

Subject:       **Flowline Closure Data Submittal**  
                  Nordman Trust 42-20X (Flowline)  
                  API # 05-039-06541  
                  SENE, Section 20 T6S R64W Meridian 6  
                  Elbert County, Colorado  
                  Facility #209636, Remediation #20882

Dear Mr. Hix:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted sampling activities for the Petroshare Nordman Trust 42-20X flowline. The flowline sampling was completed on November 3, 2022.

Contamination was identified on site as discussed below.

Flowline sampling identified petroleum contamination in excess of Table 915-1 protection of groundwater (POG) soil screening limits (SSL) including 1,2,4 Trimethylbenzene, Naphthalene, and total petroleum hydrocarbons (TPH) were observed in the flowline adjacent to the wellhead. The contaminated soil was left in place as discussed in the attached Flow Line Closure Checklist. Approximately 825 feet of flowline was removed from the site.

Inorganic contamination was also identified during the removal of the flowline. Arsenic and barium were observed in excess of their Residential SSL. The background sample also indicated elevated levels of arsenic and therefore, can be attributed to native concentrations and disregarded.

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.**

Nick Larimer  
Project Manager

Attachments:  
    Facility Closure Checklist  
    Tables  
    Figures

**1759 REDWING LANE, BROOMFIELD, CO 80020  
(720)252-7191 (DIRECT)**

Photos  
Laboratory Reports

# 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: Nordman Trust 42-20X, 209686		Date: November 3 2022			Remediation Project #: 20822			
Associated Wells: 05-039-06541		Age of Site: Spud Date - 9/2/1985			Number of Photos Attached: 2			
Starting point: (GPS coordinates and descriptions) Wellhead- (39.515475, -104.572007)								
End point: (GPS coordinates and descriptions) Tank Battery flow line termination - FLS1-4.5' ~ (39.5142291°N, 104.5745665°W)								
USCS Soil Type: SM					Estimated Depth to Groundwater: Not Encountered estimated >100'			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) yes, adjacent to wellhead, soil staining and odor present adjacent to wellhead. Historical .								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed								
Flowlines								
Flowline type	Crude							
Depth	Approx 4' bgs							
Age	Spud 1985							
Length	825'							
Construction Material	Steel							
Were flowlines pulled?	Yes							
Visual Integrity of lines	Minor surface rust							
Visual impacts if trenched	none, except adjacent to wellhead							
PID Readings if trenched	FLN1-3.5 124.6							
Sample taken? Location/Sample ID#	Yes/y211149-01 to y211149-03							
Photo Number(s)	FL1 to FL2							
Other observations regarding on location flowlines: Pump jack remains on site, flow line intersects wellhead along the western side of the wellhead where contamination was observed during WH C&C completed 12/17/21								
Summary								
Was impacted soil identified? No                      Yes - less than 10 cubic yards <input checked="" type="checkbox"/> Yes - more than 10 cubic yards								
Total number of samples field screened: 12					Total number of samples collected: 2			
Highest PID Reading: FLN1-3.5 - 124.6					Total number of samples submitted to lab for analysis: 2			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent: Unknown					Estimated spill volume: Historical (unknown)			
Lateral extent: Unknown					Volume of soil removed: Left in place			
Is additional investigation required? Yes								
Was groundwater encountered during the investigation? <input checked="" type="checkbox"/> No                      Yes - not impacted or in contact with impacted soils                      Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater: NA					Was remedial groundwater removal conducted? Yes <input checked="" type="checkbox"/> No			
Date Groundwater was encountered: NA					Commencement date of removal: NA			
Sheen on groundwater? Yes <input checked="" type="checkbox"/> No					Volume of groundwater removed prior to sampling: NA			
Free product observed? Yes <input checked="" type="checkbox"/> No					Volume of groundwater removed post sampling: NA			
Total number of samples collected: 0					Total Volume of groundwater removed: NA			
Total number of samples submitted to lab for analysis: 0								

**TABLE 1**  
**SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA**  
**COLORADO OIL AND GAS CONSERVATION COMMISSION (OWP)**  
**NORDMAN TRUST 42-20X, ELBERT COUNTY, COLORADO**  
**FREMONT PROJECT NO. C022-104**

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		
FLN1-3.5	11/3/2022	3.5	<0.00200	<0.00200	0.0295	<0.00200	<b>0.0403</b>	<0.00746	<b>0.0391</b>	<b>0.924</b>	<b>301</b>	<b>1190</b>
FLS1-4.5	11/3/2022	4.5	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00145	<0.200	<25.0	<100

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  
COLORADO OIL AND GAS CONSERVATION COMMISSION (OWP)  
NORDMAN TRUST 42-20X, ELBERT COUNTY, COLORADO  
FREMONT PROJECT NO. C022-104

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
FLN1-3.5	11/3/2022	3.5	<0.00608	<0.00668	<0.00986	<0.00936	<0.0117	<0.00874	<0.0125	<0.0123	<0.00788	<0.00572	<0.0125	0.0336	<0.0218	<0.0387
FLS1-4.5	11/3/2022	4.5	<0.000304	<0.000334	<0.000493	<0.000468	<0.000585	<0.000437	<0.000624	<0.000614	<0.000394	<0.000286	<0.000627	<0.000643	<0.00109	<0.00194

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**  
**COLORADO OIL AND GAS CONSERVATION COMMISSION (OWP)**  
**NORDMAN TRUST 42-20X, ELBERT COUNTY, COLORADO**  
**FREMONT PROJECT NO. C022-104**

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
Site Specific Background Concentration/Value						
BKG-0.5	11/3/2022	0.5	7.22	0.190	1.90	<b>&lt;1.01</b>
FLN1-35	11/3/2022	3.5	7.38	0.206	0.151	0.249

Bold faced values exceed the COGCC Table 915-1 concentrations

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

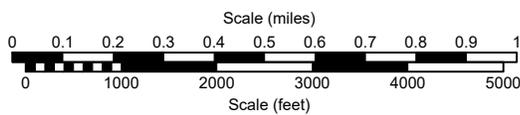
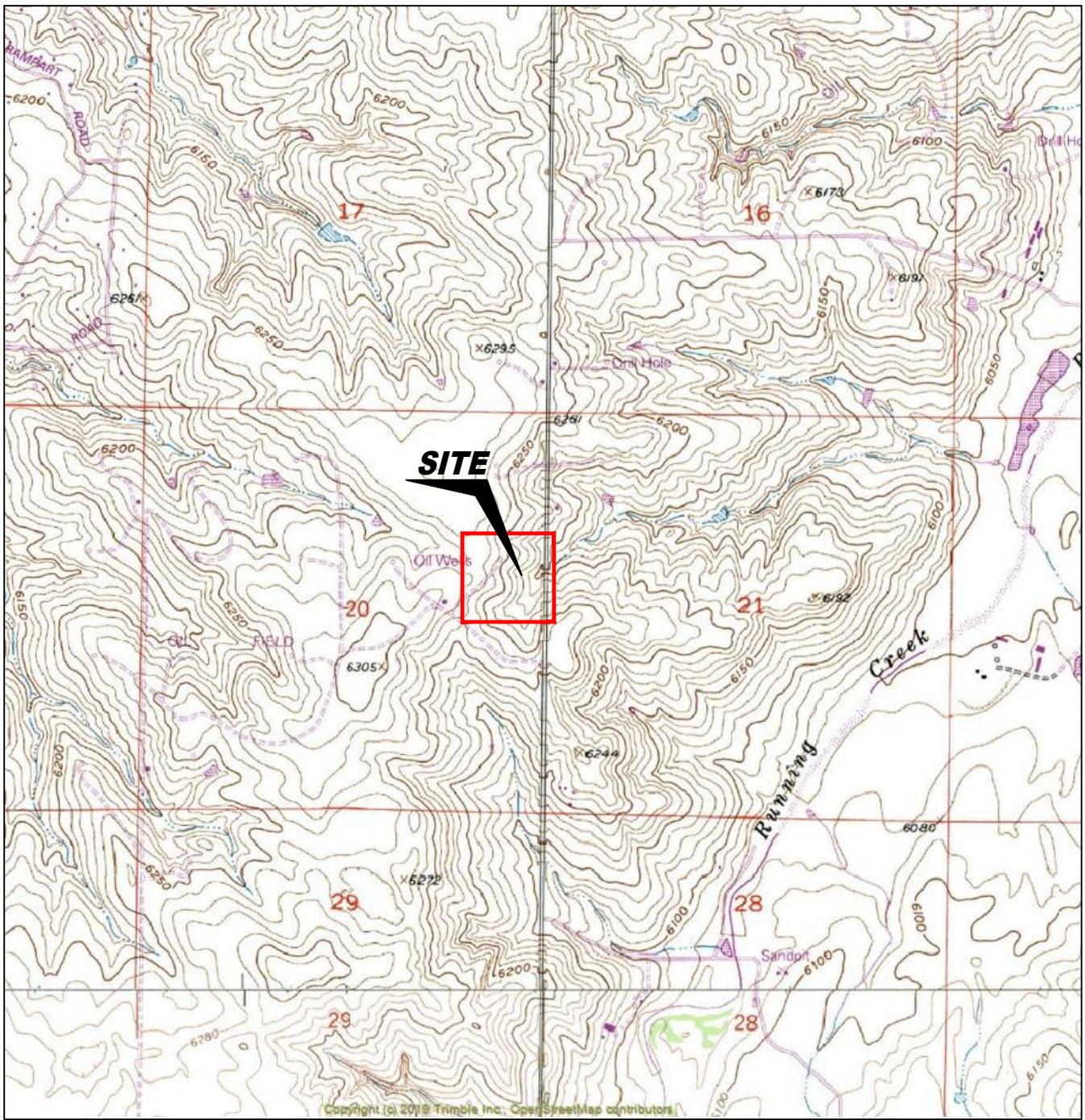
**TABLE 4**  
**SUMMARY OF METALS IN SOIL CHEMISTRY DATA**  
**COLORADO OIL AND GAS CONSERVATION COMMISSION (OWP)**  
**NORDMAN TRUST 42-20X, ELBERT COUNTY, COLORADO**  
**FREMONT PROJECT NO. C022-104**

Sample ID	Sample Date	Depth (ft)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
COGCC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
COGCC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
Calculated Site Specific Background Concentration												
BKG-0.5	11/3/2022	0.5	<b>3.01</b>	61.5	0.139	<1.22	<9.82	<9.82	<9.82	0.159	<0.0982	<98.2
FLN1-3.5	11/3/2022	3.5	<b>3.95</b>	<b>146</b>	0.117	<0.244	14.5	12.1	14.9	0.150	<0.0990	<99.0

Bold faced values exceed the COGCC Table 915-1 concentrations

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

NA - Not analyzed

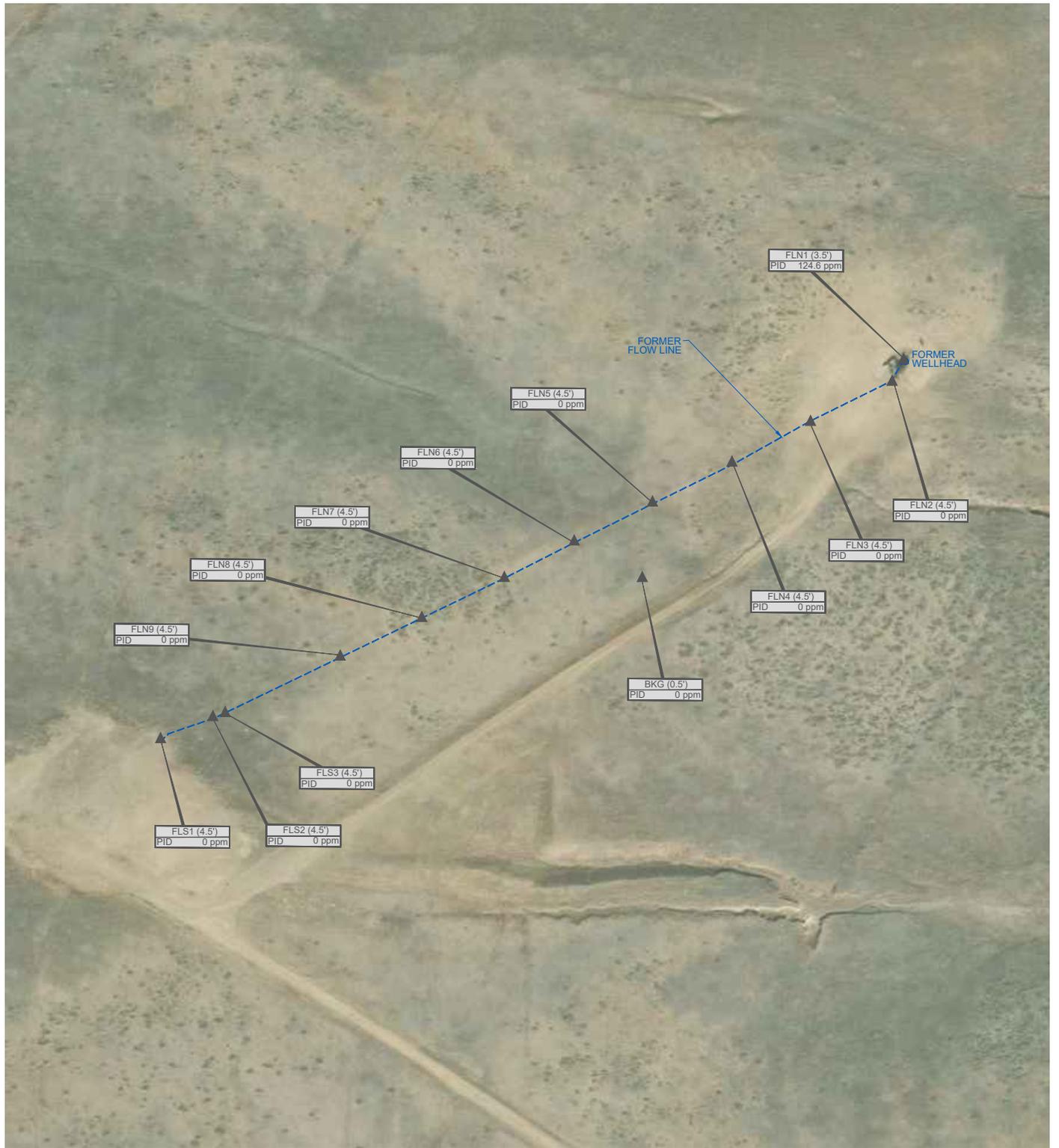


USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
**SITE LOCATION MAP**

**Colorado Oil And Gas Conservation Commission  
Petroshare Corporation ~ Nordman Trust 42-20X (Flowline)  
NESE Sec. 20, T6S, R64W, 6th P.M.  
Elbert County ,Colorado  
39.515475°, -104.572007°**

Project # <b>C022-104</b>	API # <b>05-039-06541</b>	Facility # <b>209636</b>	
Date <b>12/5/33</b>	Remediation # <b>20882</b>	Filename <b>22104TNT42-20</b>	



**LEGEND**

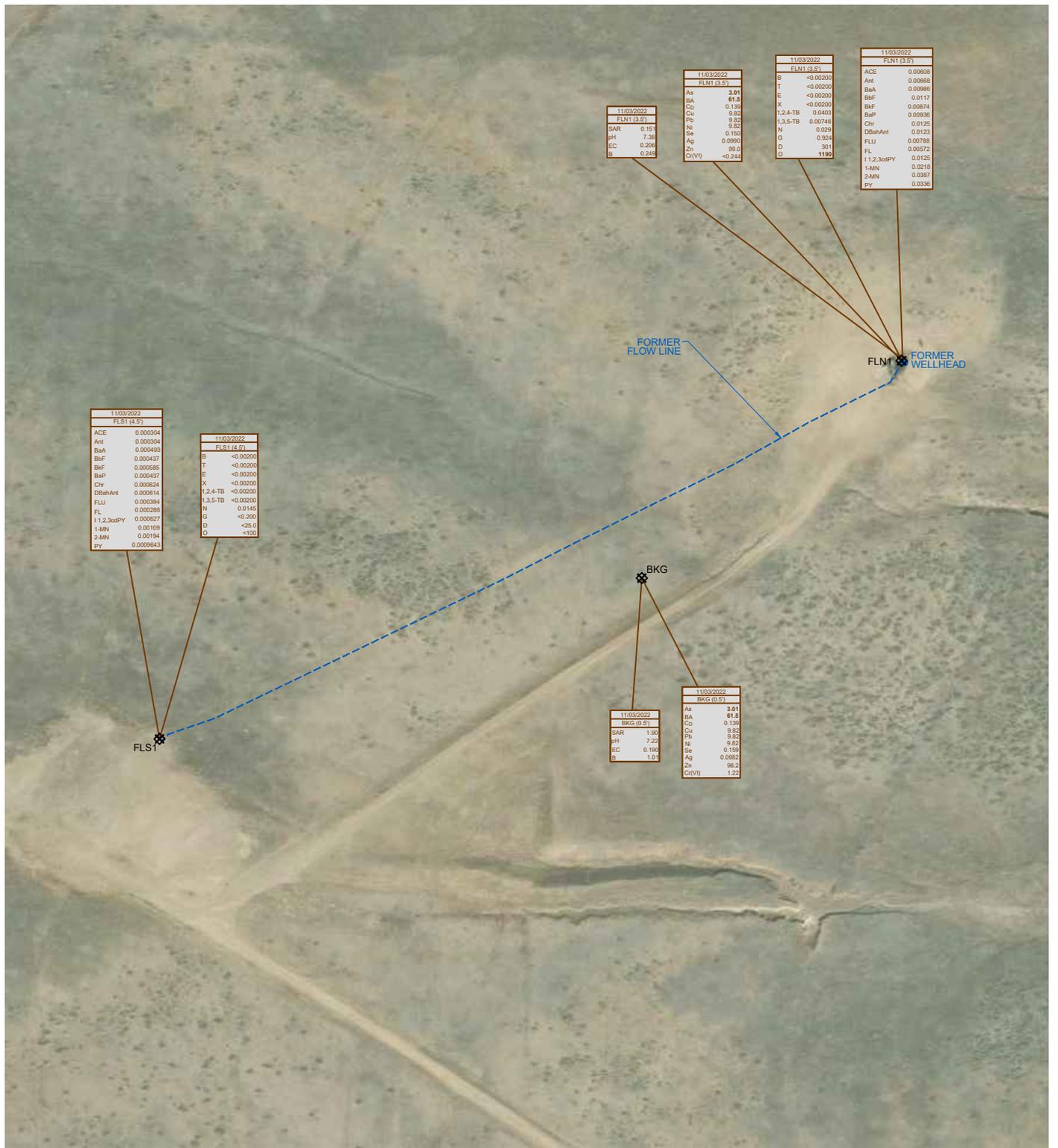
- RISER LOCATION    ▲ PID READING LOCATION    FORMER FACILITY    - - - FLOW LINE    - - - FENCE LINE
- FLS31 (4.5')  
PID 0 ppm    PHOTO IONIZATION DETECTION READING (ppm)  
PID = photo ionization detection / PPM = parts per million

**Figure 2  
SITE MAP**

**Colorado Oil And Gas Conservation Commission  
Petroshare Corporation ~ Nordman Trust 42-20X (Flowline)  
NESE Sec. 20, T6S, R64W, 6th P.M.  
Elbert County ,Colorado  
39.515475°, -104.572007°**

Project No. <b>C022-104</b>	API # <b>05-039-06541</b>	Facility # <b>209636</b>
Date <b>12/5/33</b>	Location # <b>20882</b>	Filename <b>22104QNT42-20</b>





11/03/2022 FLS1 (4.5')	
ACE	0.000304
Ant	0.000304
BaA	0.000493
BbF	0.000437
BbF	0.000555
BaP	0.000437
Chr	0.000624
DBahAnt	0.000614
FLU	0.000394
FL	0.000288
1,1,2,3cdPY	0.000627
1-MN	0.00109
2-MN	0.00194
PY	0.0009643

11/03/2022 FLS1 (4.5')	
B	<0.00200
T	<0.00200
E	<0.00200
X	<0.00200
1,2,4-TB	<0.00200
1,3,5-TB	<0.00200
N	0.0145
G	<0.200
D	<25.0
O	<100

11/03/2022 FLN1 (3.5')	
SAR	0.15
pH	7.38
EC	0.208
B	0.249

11/03/2022 FLN1 (3.5')	
As	3.01
Ba	61.6
Cd	0.139
Cu	9.82
Pb	9.82
Ni	0.150
Ag	0.0990
Zn	99.0
Cr(VI)	<0.244

11/03/2022 FLN1 (3.5')	
B	<0.00200
T	<0.00200
E	<0.00200
X	<0.00200
1,2,4-TB	0.0403
1,3,5-TB	0.00748
N	0.029
G	0.924
D	301
O	1190

11/03/2022 FLN1 (3.5')	
ACE	0.00698
Ant	0.00698
BaA	0.00985
BbF	0.0117
BbF	0.00874
BaP	0.00936
Chr	0.0125
DBahAnt	0.0123
FLU	0.00788
FL	0.00572
1,1,2,3cdPY	0.0125
1-MN	0.0218
2-MN	0.0387
PY	0.0336

11/03/2022 BKG (0.5')	
SAR	1.90
pH	7.22
EC	0.190
B	1.01

11/03/2022 BKG (0.5')	
As	3.01
Ba	61.6
Cd	0.139
Cu	9.82
Pb	9.82
Ni	0.150
Ag	0.0982
Zn	99.2
Cr(VI)	1.22

**LEGEND**

- RISER LOCATION
- ⊗ SOIL SAMPLE LOCATION
- FORMER FACILITY
- FLOW LINE
- FENCE LINE

11/03/2022 FLN1 (3.5')	DATE SAMPLED SAMPLE ID and DEPTH (ft)
ACE	0.000304
Ant	0.000304
BaA	0.000493
BbF	0.000437
BbF	0.000555
BaP	0.000437
Chr	0.000624
DBahAnt	0.000614
FLU	0.000394
FL	0.000288
1,1,2,3cdPY	0.000627
1-MN	0.00109
2-MN	0.00194
PY	0.0009643

11/03/2022 FLN1 (3.5')	DATE SAMPLED SAMPLE ID and DEPTH (ft)
B	<0.00200
T	<0.00200
E	<0.00200
X	<0.00200
1,2,4-TB	0.0403
1,3,5-TB	0.00748
N	0.029
G	0.924
D	301
O	1190

11/03/2022 BKG (0.5')	DATE SAMPLED SAMPLE ID & DEPTH (ft)	11/03/2022 DATE SAMPLED SAMPLE ID & DEPTH (ft)	
SAR	1.90	As	3.01
pH	7.22	BA	61.6
EC	0.190	Cd	0.139
B	1.01	Cu	9.82
		Pb	9.82
		Ni	0.150
		Ag	0.0982
		Zn	99.2
		Cr(VI)	1.22

**Figure 3  
SOIL CHEMISTRY MAP**  
Colorado Oil And Gas Conservation Commission  
Petroshare Corporation ~ Nordman Trust 42-20X (Flowline)  
NESE Sec. 20, T6S, R64W, 6th P.M.  
Elbert County, Colorado  
39.515475°, -104.572007°

Project No. <b>C022-104</b>	API # <b>05-039-06541</b>	Facility # <b>209636</b>
Date <b>12/5/33</b>	Location # <b>20882</b>	Filename <b>22104QNT42-20</b>



FL1) Flowline removal excavation, facing northeast with pump jack



FL2) Sample location FLN1-3.5, soil staining and odor present- facing northeast



November 16, 2022

Fremont Environmental

Paul Henehan

8305 6th St, PO Box 1289

Wellington CO 80549

**Project Name - Petroshare - Nordman Trust  
42-20X**

**Project Number - C022-104**

Attached are your analytical results for Petroshare - Nordman Trust 42-20X received by Origins Laboratory, Inc. November 03, 2022. This project is associated with Origins project number Y211149-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



Fremont Environmental  
8305 6th St, PO Box 1289  
Wellington CO 80549

Paul Henehan  
Project Number: C022-104  
Project: Petroshare - Nordman Trust 42-20X

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG-0.5	Y211149-01	Soil	November 3, 2022 0:00	11/03/2022 16:55
FLN1-3.5	Y211149-02	Soil	November 3, 2022 0:00	11/03/2022 16:55
FLS1-4.5	Y211149-03	Soil	November 3, 2022 0:00	11/03/2022 16:55

Origins Laboratory, Inc.



*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  
 8305 6th St, PO Box 1289  
 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: 4211149

Client: Fremont

Client Project ID: Nordman Trust 42-20X

Checklist Completed by: TJM

Shipped Via: HD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 11/04/12

Airbill #: NA

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1, 58 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe)

Thermometer ID: T004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)			<input checked="" type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)			<input checked="" type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		no sample times
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / ( pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by: JTB (Project Manager)

Date/Time Reviewed: 11-8-12

Origins Laboratory, Inc.



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  
 8305 6th St, PO Box 1289  
 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**BKG-0.5**

**11/3/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211149-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND		1.01	mg/L	10	B2K0806	11/08/2022	11/09/2022	
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**Metals by Saturated Paste by EPA 6010**

Calcium	1.51		0.499	meq/L	"	[CALC]	11/07/2022	11/09/2022	
Magnesium	1.07		0.823	"	"	"	"	"	
Sodium	2.16		0.435	"	"	"	"	"	

**pH in Soil by 9045D**

pH	7.22			pH Units	1	B2K0708	11/07/2022	11/07/2022	
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**SAR by 20B Saturated Paste**

SAR	1.90			SAR	1	B2K0704	11/07/2022	11/09/2022	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.190		0.00500	mmhos/cm	1	B2K0708	11/07/2022	11/07/2022	
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**Table 915 metals by EPA 6020B**

Arsenic	3.01		0.0982	mg/kg	10	B2K0820	11/08/2022	11/10/2022	
Barium	61.5		9.82	"	"	"	"	"	
Cadmium	0.139		0.0982	"	"	"	"	"	
Copper	ND		9.82	"	"	"	"	"	

Origins Laboratory, Inc.



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Fremont Environmental  
 8305 6th St, PO Box 1289  
 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**BKG-0.5**

**11/3/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211149-01 (Soil)**

**Table 915 metals by EPA 6020B**

Lead	ND		9.82	mg/kg	10	B2K0820	11/08/2022	11/10/2022	
Nickel	ND		9.82	"	"	"	"	"	
Selenium	<b>0.159</b>		0.0982	"	"	"	"	"	
Silver	ND		0.0982	"	"	"	"	"	
Zinc	ND		98.2	"	"	"	"	"	

**Total Metals by 7196A**

Chromium, Hexavalent	ND	1.22	2.5	mg/Kg	5	L648087	11/03/2022	11/10/2022	
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Origins Laboratory, Inc.



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Fremont Environmental  
 8305 6th St, PO Box 1289  
 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**FLN1-3.5**

**11/3/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211149-02 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.249		0.101	mg/L	1	B2K0806	11/08/2022	11/09/2022	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	301		25.0	mg/kg	1	B2K0703	11/07/2022	11/07/2022	
Residual Range Organics (C28-C40)	1190		100	"	"	"	"	"	

Surrogate: o-Terphenyl	104 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	0.0403		0.00200	mg/kg	1	B2K0924	11/09/2022	11/10/2022	
1,3,5-Trimethylbenzene	0.00746		0.00200	"	"	"	"	"	
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	0.0295		0.00200	"	"	"	"	"	
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	0.924		0.200	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	97.4 %		70-130			"	"	"	
Surrogate: Toluene-d8	101 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	89.8 %		70-130			"	"	"	

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**FLN1-3.5**

**11/3/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211149-02 (Soil)**

**Metals by Saturated Paste by EPA 6010**

Calcium	2.02		0.499	meq/L	10	[CALC]	11/07/2022	11/09/2022	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.0218	0.0402	mg/Kg	20	L647814	11/09/2022	11/09/2022	
2-Methylnaphthalene	ND	0.0387	0.0402	"	"	"	"	"	
Acenaphthene	ND	0.00608	0.0134	"	"	"	"	"	
Anthracene	ND	0.00668	0.0134	"	"	"	"	"	
Benzo(a)anthracene	ND	0.00986	0.0134	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00936	0.0134	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0117	0.0134	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.00874	0.0134	"	"	"	"	"	
Chrysene	ND	0.0125	0.0134	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0123	0.0134	"	"	"	"	"	
Fluoranthene	ND	0.00788	0.0134	"	"	"	"	"	
Fluorene	ND	0.00572	0.0134	"	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0125	0.0134	"	"	"	"	"	
Naphthalene	0.0319	0.029	0.0402	"	"	"	"	"	J
Pyrene	0.0336	0.0129	0.0134	"	"	"	"	"	

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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**FLN1-3.5**

**11/3/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y211149-02 (Soil)**

**PAH by 8270D SIM**

Surrogate: 2-Fluorobiphenyl	45.1 %		33-115			L6478 14	11/09/2022	11/09/2022	
Surrogate: 4-Terphenyl-d14	53.7 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	39.9 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	7.38			pH Units	1	B2K0708	11/07/2022	11/07/2022	
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**SAR by 20B Saturated Paste**

SAR	0.151			SAR	1	B2K0704	11/07/2022	11/09/2022	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.206		0.00500	mmhos/cm	1	B2K0708	11/07/2022	11/07/2022	
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**Table 915 metals by EPA 6020B**

Arsenic	3.95		0.0990	mg/kg	10	B2K0820	11/08/2022	11/10/2022	
Barium	146		9.90	"	"	"	"	"	
Cadmium	0.117		0.0990	"	"	"	"	"	
Copper	14.5		9.90	"	"	"	"	"	
Lead	12.1		9.90	"	"	"	"	"	
Nickel	14.9		9.90	"	"	"	"	"	
Selenium	0.150		0.0990	"	"	"	"	"	

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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**FLN1-3.5**

**11/3/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211149-02 (Soil)**

**Table 915 metals by EPA 6020B**

Silver	ND		0.0990	mg/kg	10	B2K0820	11/08/2022	11/10/2022	
Zinc	ND		99.0	"	"	"	"	"	

**Total Metals by 7196A**

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L648087	11/03/2022	11/10/2022	
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 Project: Petroshare - Nordman Trust 42-20X

**FLS1-4.5**

**11/3/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211149-03 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2K0703	11/07/2022	11/07/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	92.0 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K0924	11/09/2022	11/10/2022	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	105 %		70-130			"	"	"	
Surrogate: Toluene-d8	99.0 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	84.7 %		70-130			"	"	"	

**PAH by 8270D SIM**

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**FLS1-4.5**

**11/3/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y211149-03 (Soil)**

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L647814	11/09/2022	11/09/2022	
2-Methylnaphthalene	ND	0.00194	0.00201	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	
Fluorene	ND	0.000286	0.00067	"	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"	
Naphthalene	ND	0.00145	0.00201	"	"	"	"	"	
Pyrene	ND	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	49.1 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	46.1 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	54.5 %		29-110			"	"	"	

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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B2K0703 - EPA 3580</b>										
<b>Blank (B2K0703-BLK1)</b>										
					Prepared: 11/07/2022 Analyzed: 11/07/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	24		"	24.9		97.8	50-150			

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0703 - EPA 3580**

**LCS (B2K0703-BS1)**

Prepared: 11/07/2022 Analyzed: 11/07/2022

Diesel (C10-C28)	968	50.0	mg/kg	1000		96.8	70-130			
Residual Range Organics (C28-C40)	957	200	"	1000		95.7	70-130			
Surrogate: o-Terphenyl	48		"	49.8		97.0	50-150			

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0703 - EPA 3580**

<b>Matrix Spike (B2K0703-MS1)</b>	<b>Source: Y211142-01</b>			Prepared: 11/07/2022 Analyzed: 11/07/2022						
Diesel (C10-C28)	967	50.0	mg/kg	1000	ND	96.7	70-130			
Residual Range Organics (C28-C40)	940	200	"	1000	ND	94.0	70-130			
Surrogate: o-Terphenyl	46		"	49.8		92.4	50-150			

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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0703 - EPA 3580**

<b>Matrix Spike Dup (B2K0703-MSD1)</b>	<b>Source: Y211142-01</b>		<b>Prepared: 11/07/2022 Analyzed: 11/07/2022</b>							
Diesel (C10-C28)	984	50.0	mg/kg	1000	ND	98.4	70-130	1.75	35	
Residual Range Organics (C28-C40)	982	200	"	1000	ND	98.2	70-130	4.29	35	
Surrogate: o-Terphenyl	47		"	49.8		94.7	50-150			

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**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0924 - EPA 5030 (soil)**

**Blank (B2K0924-BLK1)**

Prepared: 11/09/2022 Analyzed: 11/10/2022

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125	99.3		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	102		70-130			
Surrogate: 4-Bromofluorobenzene	0.10		"	0.125	80.8		70-130			

Origins Laboratory, Inc.



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 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0924 - EPA 5030 (soil)**

**LCS (B2K0924-BS1)**

Prepared: 11/09/2022 Analyzed: 11/10/2022

1,2,4-Trimethylbenzene	0.107	0.00200	mg/kg	0.100		107	70-130			
1,3,5-Trimethylbenzene	0.110	0.00200	"	0.100		110	70-130			
Benzene	0.0912	0.00200	"	0.100		91.2	70-130			
Ethylbenzene	0.108	0.00200	"	0.100		108	70-130			
Naphthalene	0.110	0.00380	"	0.100		110	70-130			
Toluene	0.112	0.00200	"	0.100		112	70-130			
o-Xylene	0.104	0.00200	"	0.100		104	70-130			
m,p-Xylene	0.222	0.00400	"	0.200		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.4	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B2K0924 - EPA 5030 (soil)

Matrix Spike (B2K0924-MS1)	Source: Y211122-01			Prepared: 11/09/2022 Analyzed: 11/10/2022						
1,2,4-Trimethylbenzene	0.126	0.00200	mg/kg	0.100	ND	126	70-130			
1,3,5-Trimethylbenzene	0.126	0.00200	"	0.100	ND	126	70-130			
Benzene	0.118	0.00200	"	0.100	ND	118	70-130			
Ethylbenzene	0.132	0.00200	"	0.100	ND	132	70-130			QM-07
Naphthalene	0.128	0.00380	"	0.100	ND	128	70-130			
Toluene	0.137	0.00200	"	0.100	ND	137	70-130			QM-07
o-Xylene	0.126	0.00200	"	0.100	ND	126	70-130			
m,p-Xylene	0.270	0.00400	"	0.200	ND	135	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		93.0	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B2K0924 - EPA 5030 (soil)

Matrix Spike Dup (B2K0924-MSD1)	Source: Y211122-01			Prepared: 11/09/2022 Analyzed: 11/10/2022						
1,2,4-Trimethylbenzene	0.117	0.00200	mg/kg	0.100	ND	117	70-130	7.33	20	
1,3,5-Trimethylbenzene	0.120	0.00200	"	0.100	ND	120	70-130	4.90	20	
Benzene	0.102	0.00200	"	0.100	ND	102	70-130	14.8	20	
Ethylbenzene	0.122	0.00200	"	0.100	ND	122	70-130	8.37	20	
Naphthalene	0.123	0.00380	"	0.100	ND	123	70-130	3.99	20	
Toluene	0.123	0.00200	"	0.100	ND	123	70-130	10.1	20	
o-Xylene	0.115	0.00200	"	0.100	ND	115	70-130	8.76	20	
m,p-Xylene	0.251	0.00400	"	0.200	ND	126	70-130	7.22	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.9	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		95.1	70-130			

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 Project: Petroshare - Nordman Trust 42-20X

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Metals by EPA 6000/7000 Series Methods - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0820 - EPA 3050B**

**Blank (B2K0820-BLK1)**

Prepared: 11/08/2022 Analyzed: 11/10/2022

Arsenic	ND	0.000100	mg/kg							
Barium	ND	0.0100	"							
Cadmium	ND	0.000100	"							
Copper	ND	0.0100	"							
Lead	ND	0.0100	"							
Nickel	ND	0.0100	"							
Selenium	ND	0.000100	"							
Silver	ND	0.000100	"							
Zinc	ND	0.100	"							

**LCS (B2K0820-BS1)**

Prepared: 11/08/2022 Analyzed: 11/10/2022

Arsenic	0.0506	0.000100	mg/kg	0.0500		101	80-120			
Barium	4.96	0.0100	"	5.00		99.2	80-120			
Cadmium	0.0498	0.000100	"	0.0500		99.6	80-120			
Copper	0.509	0.0100	"	0.500		102	80-120			
Lead	0.0490	0.0100	"	0.0500		98.1	80-120			
Nickel	0.0508	0.0100	"	0.0500		102	80-120			
Selenium	0.0494	0.000100	"	0.0500		98.9	80-120			
Silver	0.0508	0.000100	"	0.0500		102	80-120			
Zinc	0.521	0.100	"	0.500		104	80-120			

**Matrix Spike (B2K0820-MS1)**

Source: Y211145-01

Prepared: 11/08/2022 Analyzed: 11/10/2022

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Fremont Environmental  
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 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 42-20X

**Metals by EPA 6000/7000 Series Methods - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0820 - EPA 3050B**

<b>Matrix Spike (B2K0820-MS1)</b>		<b>Source: Y211145-01</b>			Prepared: 11/08/2022 Analyzed: 11/10/2022					
Arsenic	7.36	0.0976	mg/kg	4.88	1.88	112	75-125			
Barium	577	9.76	"	488	56.6	107	75-125			
Cadmium	5.22	0.0976	"	4.88	0.0766	105	75-125			
Copper	58.5	9.76	"	48.8	5.61	108	75-125			
Lead	10.8	9.76	"	4.88	5.64	105	75-125			
Nickel	11.3	9.76	"	4.88	5.25	125	75-125			
Selenium	5.10	0.0976	"	4.88	0.142	102	75-125			
Silver	5.28	0.0976	"	4.88	0.0236	108	75-125			
Zinc	81.4	97.6	"	48.8	23.2	119	75-125			

<b>Matrix Spike Dup (B2K0820-MSD1)</b>		<b>Source: Y211145-01</b>			Prepared: 11/08/2022 Analyzed: 11/10/2022					
Arsenic	7.28	0.0963	mg/kg	4.82	1.88	112	75-125	1.11	20	
Barium	563	9.63	"	482	56.6	105	75-125	2.48	20	
Cadmium	5.17	0.0963	"	4.82	0.0766	106	75-125	0.927	20	
Copper	57.0	9.63	"	48.2	5.61	107	75-125	2.68	20	
Lead	11.0	9.63	"	4.82	5.64	111	75-125	2.24	20	
Nickel	11.7	9.63	"	4.82	5.25	134	75-125	3.15	20	QM-07
Selenium	4.79	0.0963	"	4.82	0.142	96.4	75-125	6.40	20	
Silver	5.21	0.0963	"	4.82	0.0236	108	75-125	1.21	20	
Zinc	80.2	96.3	"	48.2	23.2	118	75-125	1.46	20	

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**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0704 - Saturated Paste Metals**

**Blank (B2K0704-BLK1)**

Prepared: 11/07/2022 Analyzed: 11/09/2022

SAR	0.00		SAR							
Calcium PPM	ND	10.0	mg/L							
Magnesium PPM	ND	10.0	"							
Sodium PPM	ND	10.0	"							

**Duplicate (B2K0704-DUP1)**

**Source: Y211125-01**

Prepared: 11/07/2022 Analyzed: 11/10/2022

SAR	0.00		SAR		0.705			200	200	
Calcium PPM	517	10.0	mg/L		99.2			136	50	QR-DUP
Magnesium PPM	68.3	10.0	"		35.4			63.3	50	QR-DUP
Sodium PPM	204	10.0	"		32.1			146	50	QR-DUP

**Batch B2K0806 - DTPA Sorbitol Preparation**

**Blank (B2K0806-BLK1)**

Prepared: 11/08/2022 Analyzed: 11/09/2022

Boron	ND	0.100	mg/L							
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**Duplicate (B2K0806-DUP1)**

**Source: Y211106-04**

Prepared: 11/08/2022 Analyzed: 11/09/2022

Boron	1.43	0.0998	mg/L		1.34			6.77	50	
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**Saturated Paste - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2K0708 - Saturated Paste pH/EC**

**Blank (B2K0708-BLK1)**

Prepared: 11/07/2022 Analyzed: 11/07/2022

Specific Conductance (EC) ND 0.00500 mmhos/cm

**Duplicate (B2K0708-DUP1)**

**Source: Y211103-01**

Prepared: 11/07/2022 Analyzed: 11/07/2022

Specific Conductance (EC)	0.271	0.00500	mmhos/cm		0.274			1.28	25	
pH	8.05		pH Units		8.14			1.11	25	

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**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, LLC.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L647814 - 3550B**

<b>MSD (L 88081-MSD-L647814)</b>		<b>Source: 88081</b>			Prepared: 11/09/2022 Analyzed: 11/09/2022					
Chrysene	0.0999	0.00067	mg/Kg	0.162	<0.000624	61.6	30-130	1	30	
Naphthalene	0.0819	0.00201	"	0.162	<0.00145	50.5	30-130	5.2	30	
Indeno(1,2,3-cd)pyrene	0.0648	0.00067	"	0.162	<0.000627	40	30-130	15.6	30	
Fluorene	0.0953	0.00067	"	0.162	<0.000286	58.8	30-130	4.5	30	
Fluoranthene	0.104	0.00067	"	0.162	<0.000394	64.1	30-130	6.5	30	
Dibenz(a,h)anthracene	0.0786	0.00067	"	0.162	<0.000614	48.5	30-130	10.2	30	
Pyrene	0.104	0.00067	"	0.162	<0.000643	64.1	30-130	6.5	30	
Benzo(k)fluoranthene	0.0807	0.00067	"	0.162	<0.000437	49.8	30-130	16.5	30	
Benzo(b)fluoranthene	0.0889	0.00067	"	0.162	<0.000585	54.8	30-130	2	30	
Benzo(a)pyrene	0.114	0.00067	"	0.162	<0.000468	70.3	30-130	2.5	30	
Benzo(a)anthracene	0.099	0.00067	"	0.162	<0.000493	61.1	30-130	4.9	30	
Anthracene	0.0967	0.00067	"	0.162	<0.000334	59.6	30-130	5.3	30	
Acenaphthene	0.0871	0.00067	"	0.162	<0.000304	53.7	30-130	5.3	30	
2-Methylnaphthalene	0.0858	0.00201	"	0.162	<0.00194	52.9	30-130	5.9	30	
1-Methylnaphthalene	0.0864	0.00201	"	0.162	<0.00109	53.3	30-130	5.7	30	
Surrogate: 2-Fluorobiphenyl	55.3		"	0.325	164	55.3	33-115			
Surrogate: Nitrobenzene-d5	47.3		"	0.325	142	47.3	29-110			
Surrogate: 4-Terphenyl-d14	66.1		"	0.325	196	66.1	33-122			

<b>MS (L 88081-MS-L647814)</b>		<b>Source: 88081</b>			Prepared: 11/09/2022 Analyzed: 11/09/2022					
Benzo(a)anthracene	0.104	0.00067	mg/Kg	0.166	<0.000493	62.6	30-130			
1-Methylnaphthalene	0.0915	0.00201	"	0.166	<0.00109	55.1	30-130			
Acenaphthene	0.0919	0.00067	"	0.166	<0.000304	55.3	30-130			
Anthracene	0.102	0.00067	"	0.166	<0.000334	61.4	30-130			
Indeno(1,2,3-cd)pyrene	0.0758	0.00067	"	0.166	<0.000627	45.6	30-130			
2-Methylnaphthalene	0.0911	0.00201	"	0.166	<0.00194	54.8	30-130			
Benzo(a)pyrene	0.117	0.00067	"	0.166	<0.000468	70.4	30-130			

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**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, LLC.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L647814 - 3550B**

MS (L 88081-MS-L647814)	Source: 88081			Prepared: 11/09/2022 Analyzed: 11/09/2022						
Naphthalene	0.0863	0.00201	mg/Kg	0.166	<0.00145	51.9	30-130			
Pyrene	0.111	0.00067	"	0.166	<0.000643	66.8	30-130			
Fluorene	0.0997	0.00067	"	0.166	<0.000286	60	30-130			
Fluoranthene	0.111	0.00067	"	0.166	<0.000394	66.8	30-130			
Dibenz(a,h)anthracene	0.0871	0.00067	"	0.166	<0.000614	52.4	30-130			
Chrysene	0.101	0.00067	"	0.166	<0.000624	60.8	30-130			
Benzo(k)fluoranthene	0.0953	0.00067	"	0.166	<0.000437	57.4	30-130			
Benzo(b)fluoranthene	0.0907	0.00067	"	0.166	<0.000585	54.6	30-130			
Surrogate: 2-Fluorobiphenyl	58.4		"	0.332	164	58.4	33-115			
Surrogate: 4-Terphenyl-d14	70.4		"	0.332	196	70.4	33-122			
Surrogate: Nitrobenzene-d5	48.1		"	0.332	142	48.1	29-110			

LCS (LCS-L647814)	Prepared: 11/09/2022 Analyzed: 11/09/2022									
Anthracene	0.102	0.00067	mg/Kg	0.167		61	30-130			
Benzo(k)fluoranthene	0.11	0.00067	"	0.167		65.8	30-130			
Benzo(a)pyrene	0.119	0.00067	"	0.167		71.2	30-130			
Benzo(a)anthracene	0.104	0.00067	"	0.167		62.2	30-130			
Acenaphthene	0.0904	0.00067	"	0.167		54.1	30-130			
2-Methylnaphthalene	0.0906	0.00201	"	0.167		54.2	30-130			
Dibenz(a,h)anthracene	0.115	0.00067	"	0.167		68.8	30-130			
1-Methylnaphthalene	0.0909	0.00201	"	0.167		54.4	30-130			
Chrysene	0.102	0.00067	"	0.167		61	30-130			
Pyrene	0.11	0.00067	"	0.167		65.8	30-130			
Fluorene	0.097	0.00067	"	0.167		58	30-130			
Indeno(1,2,3-cd)pyrene	0.103	0.00067	"	0.167		61.6	30-130			
Naphthalene	0.0861	0.00201	"	0.167		51.5	30-130			
Benzo(b)fluoranthene	0.0941	0.00067	"	0.167		56.3	30-130			

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**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, LLC.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L647814 - 3550B**

**LCS (LCS-L647814)**

Prepared: 11/09/2022 Analyzed: 11/09/2022

Fluoranthene	0.108	0.00067	mg/Kg	0.167		64.6	30-130			
Surrogate: 4-Terphenyl-d14	69.3		"	0.333		69.3	33-122			
Surrogate: 2-Fluorobiphenyl	59.1		"	0.333		59.1	33-115			
Surrogate: Nitrobenzene-d5	51.3		"	0.333		51.3	29-110			

**LRB (LRB-L647814)**

Prepared: 11/09/2022 Analyzed: 11/09/2022

Benzo(b)fluoranthene	ND	0.00067	mg/Kg				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Fluoranthene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Surrogate: Nitrobenzene-d5	47.1		"	0.333		47.1	29-110			
Surrogate: 4-Terphenyl-d14	65.1		"	0.333		65.1	33-122			
Surrogate: 2-Fluorobiphenyl	52.8		"	0.333		52.8	33-115			

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**Total Metals by 7196A - Quality Control  
 Waypoint Analytical, LLC.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L648087 -</b>										
<b>DUP (L 82835-DUP)</b>		<b>Source: 82835</b>			Prepared: Analyzed: 11/10/2022					
Chromium, Hexavalent	ND	0.5	mg/Kg		<0.500		-	0	20	
<b>MS (L 82835-MS)</b>		<b>Source: 82835</b>			Prepared: Analyzed: 11/10/2022					
Chromium, Hexavalent	36.8	2.53	mg/Kg	40.4	< 0.244	91	75-125			
<b>MSD (L 82835-MSD)</b>		<b>Source: 82835</b>			Prepared: Analyzed: 11/10/2022					
Chromium, Hexavalent	545	50	mg/Kg	658	<24.4	83	75-125			
<b>LCS (LCS)</b>					Prepared: Analyzed: 11/10/2022					
Chromium, Hexavalent	6.35	0.5	mg/Kg	8		79	75-125			
<b>LRB (LRB)</b>					Prepared: Analyzed: 11/10/2022					
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

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### Notes and Definitions

U Sample is Non-Detect.

QR-DUP RPD exceeds QC acceptance criteria, this indicates source sample is not homogenous.

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

J Estimated Value. Analyte below reported quantitation limit.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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