

# **FREMONT ENVIRONMENTAL INC.**

December 13, 2022

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

Subject:           **Flow line Closure Checklist**  
Petroshare – Nordman Trust (OWP) 41-20 (Flowline)  
API # 05-039-06553  
NENE Section 20 T6S R64W 6 Meridian  
Elbert County, Colorado  
Facility #209648, Remediation #20820

Dear Mr. Hix

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted flow line removal activities for the Petroshare Nordman Trust (OWP) 41-20. The flowline was removed October 31, 2022, and November 1, 2022. The well was previously plugged due to leaking gases. During the removal of the flowline, a small release occurred in the trench. In addition, there was surface staining observed adjacent to the pump jack. The contaminated soil was excavated from the trench and stockpiled adjacent to the stained soil observed at the pumpjack as documented in the Flowline Closure Checklist.

Inorganic contamination in the form of arsenic and barium were observed in excess of Table 915-1 Protection of Groundwater (POG) SSL adjacent to the former tank battery (FLS 14-1.5). However, elevated arsenic concentrations were also observed in excess of Table 915-1 POG SSL in the background sample and can be attributed as native concentrations.

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:

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

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

# 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: <b>Nordman Trust 41-20, 209648</b>		Date: <b>October 31, 2022 and November 1, 2022</b>			Remediation Project #: <b>20820</b>			
Associated Wells: <b>05-039-06553</b>		Age of Site: <b>Spud Date- November 24, 1985</b>			Number of Photos Attached: <b>9</b>			
Starting point: (GPS coordinates and descriptions) <b>wellhead- (39.5189612° / -104.5720148° )</b>								
End point: (GPS coordinates and descriptions) <b>Former off-location tank battery - (39.5142733° / -104.5748117°)</b>								
USCS Soil Type: <b>SM</b>					Estimated Depth to Groundwater: <b>Estimated - 120' bgs</b>			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) <b>Small line release occurred during the removal of the flow line, the contaminated soil was excavated and stockpiled adjacent to the wellhead. Surface staining observed adjacent to the pump jack.</b>								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) <b>None observed</b>								
Flowlines								
Flowline type	<b>Crude</b>							
Depth	<b>4-5' bgs</b>							
Age	<b>Spud 1985</b>							
Length	<b>1,800'</b>							
Construction Material	<b>steel</b>							
Were flowlines pulled?	<b>yes</b>							
Visual Integrity of lines	<b>fair</b>							
Visual impacts if trenched	<b>small line release from cut</b>							
PID Readings if trenched	<b>highest- 800 prior to excavation</b>							
Sample taken? Location/Sample ID#	<b>Y/Y211053-01 to Y211053-06</b>							
Photo Number(s)	<b>FL1-9</b>							
Other observations regarding on location flowlines:								
Summary								
Was impacted soil identified? No <input checked="" type="checkbox"/> Yes - less than 10 cubic yards                      Yes - more than 10 cubic yards								
Total number of samples field screened: <b>26</b>					Total number of samples collected: <b>6</b>			
Highest PID Reading: <b>800 prior to excavation</b>					Total number of samples submitted to lab for analysis: <b>6</b>			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent: <b>4-6' bgs</b>					Estimated spill volume: <b>&lt;50 gallons</b>			
Lateral extent: <b>approximately 100'</b>					Volume of soil removed: <b>&lt;10 cubic yards</b>			
Is additional investigation required? <b>No, soil samples collected from the beneath the flow line excavation were free from significant hydrocarbon contamination. However, contaminated soil is stockpiled on site adjacent to the pump jack where surface staining observed. Sample should be collected from that area once contaminated soils have been removed</b>								
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: <b>NA</b>					Was remedial groundwater removal conducted? Yes <input checked="" type="checkbox"/> No			
Date Groundwater was encountered: <b>NA</b>					Commencement date of removal: <b>NA</b>			
Sheen on groundwater? Yes <input checked="" type="checkbox"/> No					Volume of groundwater removed prior to sampling: <b>NA</b>			
Free product observed? Yes <input checked="" type="checkbox"/> No					Volume of groundwater removed post sampling: <b>NA</b>			
Total number of samples collected: <b>0</b>					Total Volume of groundwater removed: <b>NA</b>			
Total number of samples submitted to lab for analysis: <b>0</b>								

**TABLE 1**  
**SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA**  
**COLORADO OIL AND GAS CONSERVATION COMMISSION (OWP)**  
**NORDMAN TRUST 41-20, 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		
FLN1-5	10/31/2022	5	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.029	<0.200	<25.0	<100
FLS-4.5-6	11/1/2022	6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00145	<0.200	<25.0	<100
FLS6-6	11/1/2022	6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00145	<0.200	<25.0	<100
FLS 7-6	11/1/2022	6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00145	<0.200	<25.0	<100
FLS13-6	11/1/2022	6	<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 41-20, 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
FLN1-5	10/31/2022	5	<0.00608	<0.00668	<0.00986	<0.00936	<0.0117	<0.00874	<0.0125	<0.0123	<0.00788	<0.00572	<0.0125	<0.0129	<0.0218	<0.0387
FLS 4.5-5	11/1/2022	6	<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
FLS6-6	11/1/2022	6	<0.000304	<0.000334	<0.000493	<0.000468	<0.000585	<0.000437	<0.000624	<0.000614	<0.000394	<0.000186	<0.000627	<0.000643	<0.00109	<0.00194
FLS7-6	11/1/2022	6	<0.000304	<0.000334	<0.000493	<0.000468	<0.000585	<0.000437	<0.000624	<0.000614	<0.000394	<0.000186	<0.000627	<0.000643	<0.00109	<0.00194
FLS13-6	11/1/2022	6	<0.000304	<0.000334	<0.000493	<0.000468	<0.000585	<0.000437	<0.000624	<0.000614	<0.000394	<0.000186	<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 41-20, 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						
FLS14-1.5	10/31/2022	1.5	8.29	0.648	2.04	0.405
BKG-0.5	11/3/2022	0.5	NA	0.233	0.12	<0.988

Bold faced values exceed the COGCC Table 915-1 concentrations

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

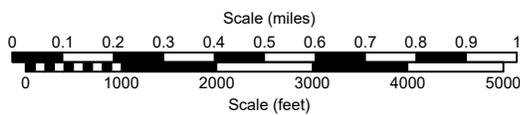
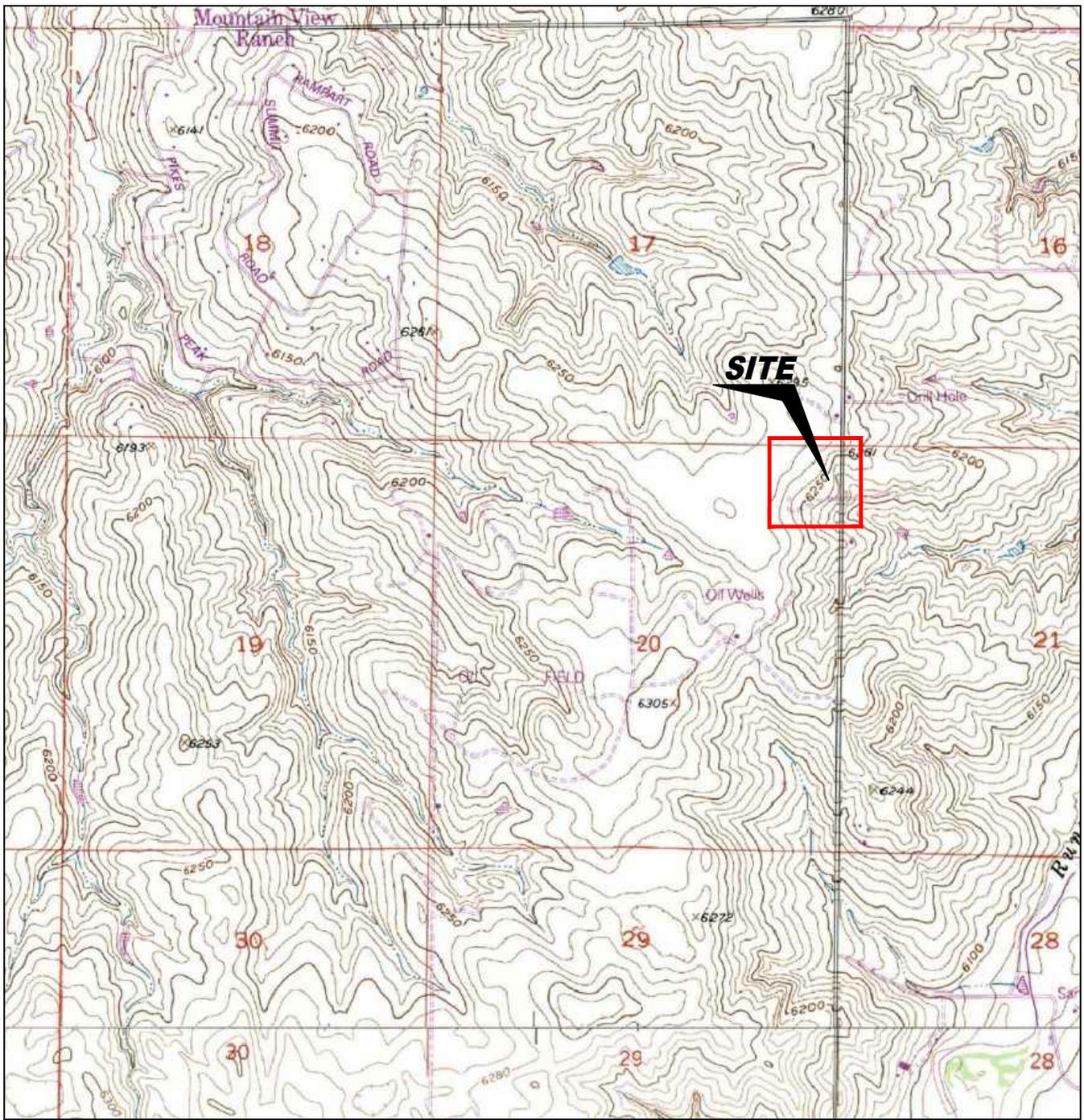
**TABLE 4**  
**SUMMARY OF METALS IN SOIL CHEMISTRY DATA**  
**COLORADO OIL AND GAS CONSERVATION COMMISSION (OWP)**  
**NORDMAN TRUST 41-20, ELBERT COUNTY COLORADO**  
**FREMONT PROJECT NO. C022-104**

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												
FLS 14-1.5	10/31/2022	1.5	<b>4.41</b>	<b>158</b>	0.182	<0.244	14.3	10.9	16.1	0.106	<0.0983	<98.3
BKG-0.5	11/3/2022	0.5	<b>2.52</b>	48.1	0.115	<1.22	<9.23	<9.23	<9.23	0.128	<0.0923	<92.3

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

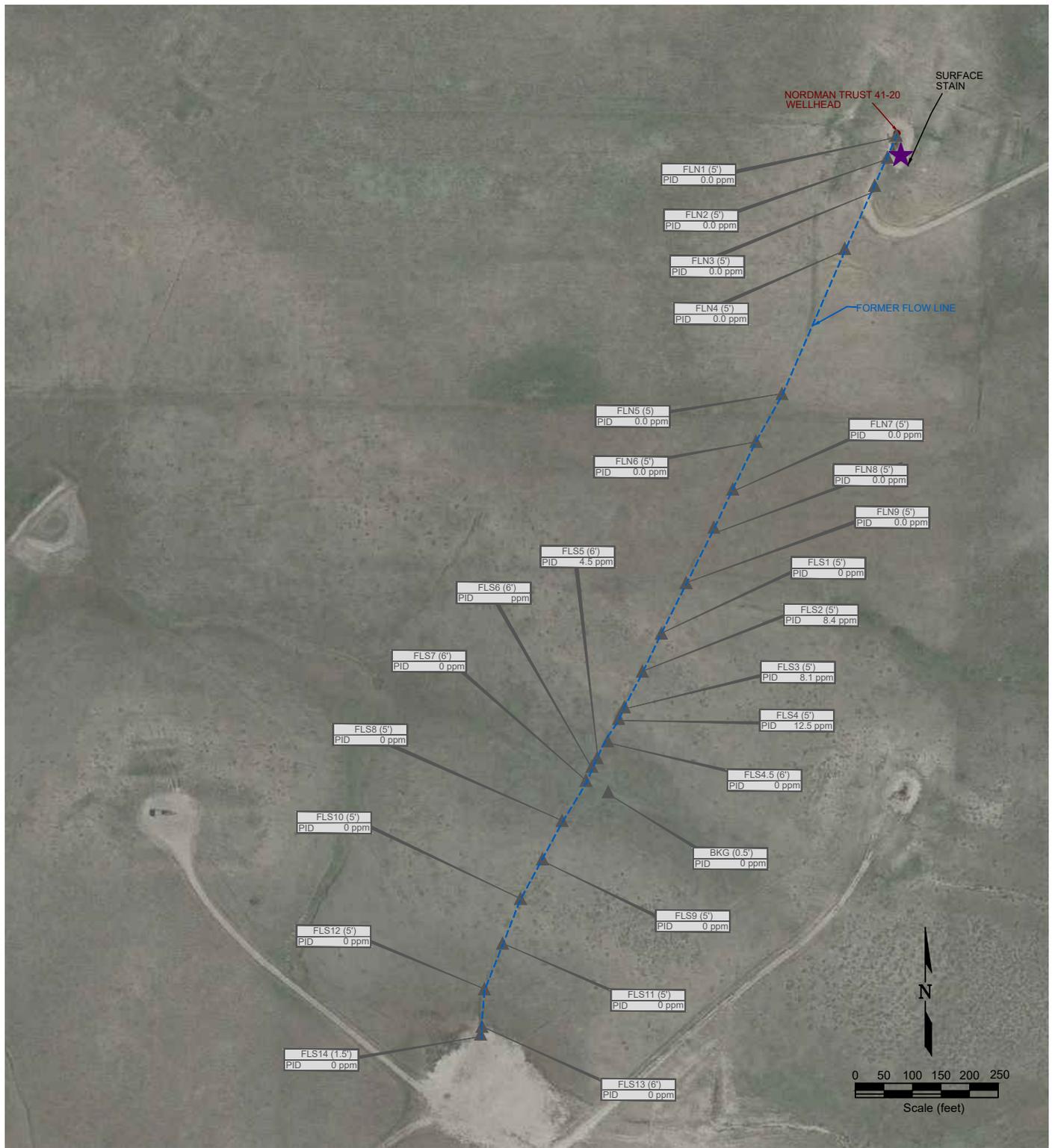


USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
**SITE LOCATION MAP**

**Colorado Oil And Gas Conservation Commission  
Petroshare Corporation ~ Nordman Trust (OWP) 41-20**  
NENE Sec. 20 T6S, R64W, 6th P.M.  
Elbert County, Colorado  
39.518969°, -104.572019°

Project # <b>C022-104</b>	API # <b>05-039-06553</b>	Facility # <b>209648</b>	
Date <b>12/3/33</b>	Location ID <b>322194</b>	Filename <b>22104TNT41-20</b>	



**LEGEND**

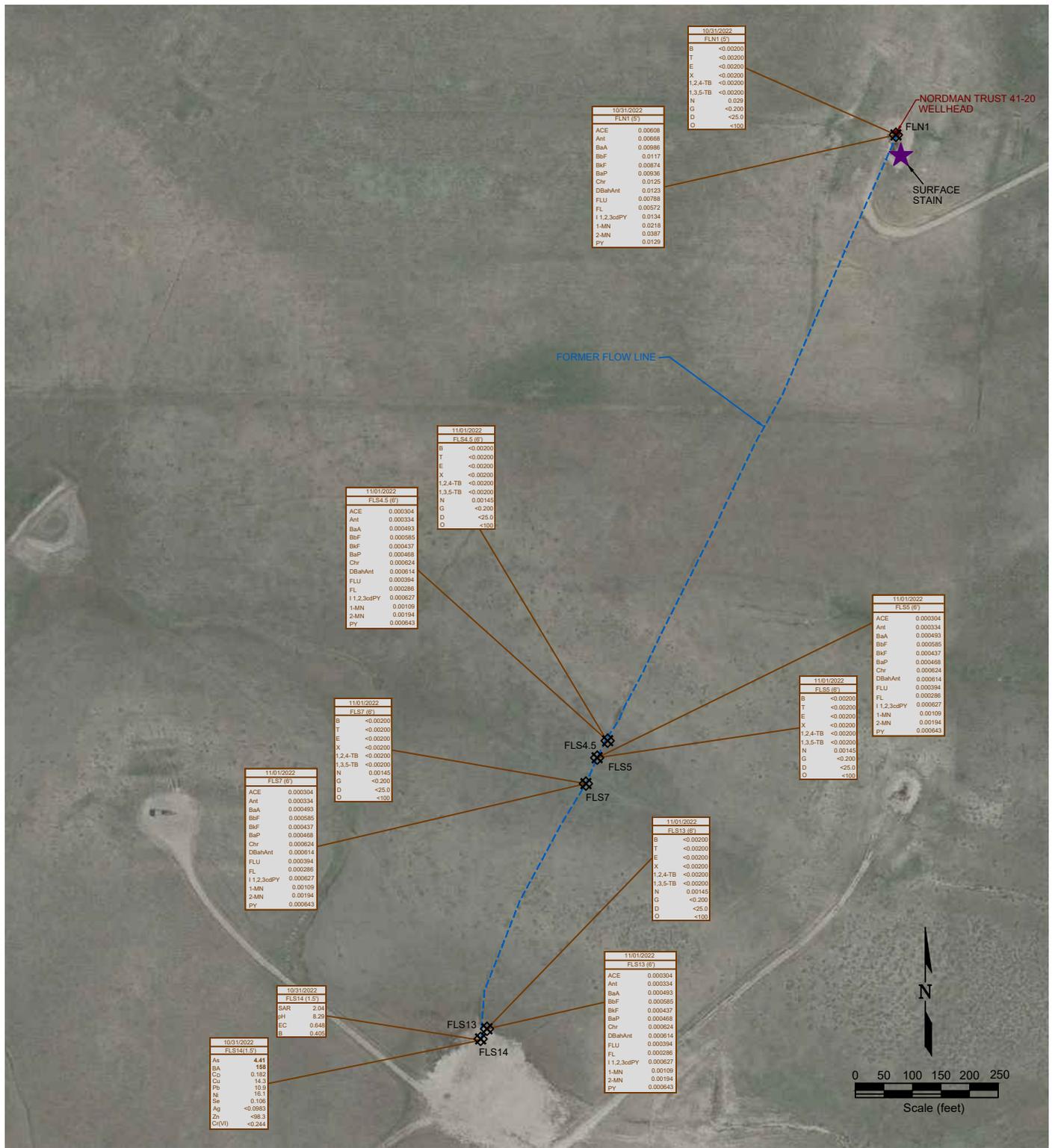
- RISER LOCATION
  - ★ SURFACE STAIN
  - ▲ PID READING LOCATION
  - FORMER FORMER FACILITY
  - FLOW LINE
  - FENCE LINE
- PHOTO IONIZATION DETECTION READING (ppm)  
 PID = photo ionization detection / PPM = parts per million

**Figure 2  
SITE MAP**

**Colorado Oil And Gas Conservation Commission  
 Petroshare Corporation ~ Nordman Trust (OWP) 41-20  
 NENE Sec. 20, T6S, R64W, 6th P.M.  
 Elbert County, Colorado  
 39.518969°, -104.572019°**

Project No. <b>C022-104</b>	API # <b>05-039-06553</b>	Facility # <b>209648</b>
Date <b>12/7/22</b>	Location # <b>322194</b>	Filename <b>22104QNT41-20</b>





**LEGEND**

- RISER LOCATION
- SURFACE STAIN
- FORMER FACILITY
- FORMER FLOW LINE
- FLOW LINE
- FENCE LINE

DATE SAMPLED	SAMPLE ID and DEPTH (ft)	DATE SAMPLED	SAMPLE ID and DEPTH (ft)
10/31/2022	FLN1 (S)	10/31/2022	FLS14 (1.5)
ACE	0.00608	As	4.41
Ant	0.00668	BA	158
BaA	0.00986	Co	0.182
BbF	0.0117	Cu	14.3
BkF	0.00874	PH	8.29
BaP	0.00936	EC	0.648
Chr	0.0125	B	0.405
DBahAnt	0.0123		
FLU	0.00788		
FL	0.00572		
1,1,2,3cdPY	0.0134		
1-MN	0.0218		
2-MN	0.0387		
Py	0.0129		

**Figure 3**  
**SOIL CHEMISTRY MAP**

Colorado Oil And Gas Conservation Commission  
Petroshare Corporation ~ Nordman Trust (OWP) 41-20  
NENE Sec. 20, T6S, R64W, 6th P.M.  
Elbert County, Colorado  
39.518969° , -104.572019°

Project No. <b>C022-104</b>	API # <b>05-039-06553</b>	Facility # <b>209648</b>
Date <b>12/06/22</b>	Location # <b>322194</b>	Filename <b>22104QNT41-20</b>

FL1) Nordman Trust 41-20 facility signage- facing southwest



FL2)- Surface staining observed adjacent to the pumpjack- facing west



FL3) Flowline piping after removal, fair condition, no indication of failures



FL4) Flowline trench looking back at wellhead- facing northeast



FL5) Flowline trench – facing southwest



FL6) north edge of line release excavation- facing southwest



FL7) Line release excavation- facing southwest



FL8) Flow line excavation from former tank battery- facing northeast



FL9) – Flowline termination – facing north



November 15, 2022

**Fremont Environmental**

**Paul Henehan**

**8305 6th St, PO Box 1289**

**Wellington CO 80549**

**Project Name - Petroshare - Nordman Trust 41-20 Project Number - C022-104**

Attached are your analytical results for Petroshare - Nordman Trust 41-20 received by Origins Laboratory, Inc. November 01, 2022. This project is associated with Origins project number Y211053-01.

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 41-20

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FLN 1-5	Y211053-01	Soil	October 31, 2022 0:00	11/01/2022 16:26
FL5 4.5-6	Y211053-02	Soil	November 1, 2022 0:00	11/01/2022 16:26
FL5 6-6	Y211053-03	Soil	November 1, 2022 0:00	11/01/2022 16:26
FL5 7-6	Y211053-04	Soil	November 1, 2022 0:00	11/01/2022 16:26
FL5 13-6	Y211053-05	Soil	November 1, 2022 0:00	11/01/2022 16:26
FL5 14-1.5	Y211053-06	Soil	November 1, 2022 0:00	11/01/2022 16:26

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 41-20

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: 4211053

Client: Fremont

Client Project ID: Petroshare - Nordman Tru

Checklist Completed by: EHS

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 11/2/22

Airbill #: NA

Matrix(s) Received: (Check all that apply):  Soil/Solid

Water

Other:

Cooler Number/Temperature: 1 / 18.3 °C / 1 °C / 1 °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> ?				
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		no 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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any): <u>Not enough sample volume provided for samples 2-4 and 6</u>				

<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: JB (Project Manager)

Date/Time Reviewed: 11-3-22

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 41-20

**FLN 1-5**  
**10/31/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211053-01 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2K0327	11/03/2022	11/04/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	92.7 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K0337	11/03/2022	11/09/2022	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	109 %		70-130			"	"	"	
Surrogate: Toluene-d8	102 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %		70-130			"	"	"	

**PAH by 8270D SIM**

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 41-20

**FLN 1-5**  
**10/31/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y211053-01 (Soil)**

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.0218	0.0402	mg/Kg	20	L647055	11/04/2022	11/07/2022	
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	ND	0.029	0.0402	"	"	"	"	"	
Pyrene	ND	0.0129	0.0134	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	49.7 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	61.7 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	44.9 %		29-110			"	"	"	

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 41-20

**FL5 4.5-6**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211053-02 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2K0327	11/03/2022	11/04/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

<i>Surrogate: o-Terphenyl</i>	103 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K0337	11/03/2022	11/09/2022	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

<i>Surrogate: 1,2-Dichloroethane-d4</i>	112 %		70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	101 %		70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %		70-130			"	"	"	

**PAH by 8270D SIM**

Origins Laboratory, Inc.



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 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 4.5-6**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y211053-02 (Soil)**

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L647151	11/04/2022	11/07/2022	
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	43.4 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	55.7 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	41.6 %	29-110	"	"	"

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 6-6**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211053-03 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2K0327	11/03/2022	11/04/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	97.8 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K0337	11/03/2022	11/09/2022	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	111 %		70-130			"	"	"	
Surrogate: Toluene-d8	101 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %		70-130			"	"	"	

**PAH by 8270D SIM**

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 6-6**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y211053-03 (Soil)**

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L647151	11/04/2022	11/07/2022	
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	64.4 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	43.9 %		29-110			"	"	"	

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 7-6**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211053-04 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2K0327	11/03/2022	11/04/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	96.8 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K0337	11/03/2022	11/09/2022	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	111 %		70-130			"	"	"	
Surrogate: Toluene-d8	102 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %		70-130			"	"	"	

**PAH by 8270D SIM**

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 7-6**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y211053-04 (Soil)**

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L647151	11/04/2022	11/07/2022	
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	37.5 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	52.1 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	40.5 %		29-110			"	"	"	

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 13-6**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211053-05 (Soil)**

**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2K0327	11/03/2022	11/04/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	99.2 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K0337	11/03/2022	11/09/2022	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	117 %		70-130			"	"	"	
Surrogate: Toluene-d8	100 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %		70-130			"	"	"	

**PAH by 8270D SIM**

Origins Laboratory, Inc.



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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 13-6**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y211053-05 (Soil)**

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L647151	11/04/2022	11/07/2022	
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	40.9 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	50.5 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	38.5 %		29-110			"	"	"	

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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 14-1.5**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211053-06 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.405		0.0992	mg/L	1	B2K0412	11/04/2022	11/07/2022	
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**Metals by Saturated Paste by EPA 6010**

Calcium	1.84		0.499	meq/L	10	[CALC]	11/04/2022	11/08/2022	
Magnesium	1.48		0.823	"	"	"	"	"	
Sodium	2.63		0.435	"	"	"	"	"	

**pH in Soil by 9045D**

pH	8.29			pH Units	1	B2K0418	11/04/2022	11/08/2022	
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**SAR by 20B Saturated Paste**

SAR	2.04			SAR	1	B2K0408	11/04/2022	11/08/2022	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.648		0.00500	mmhos/cm	1	B2K0423	11/04/2022	11/08/2022	
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**Table 915 metals by EPA 6020B**

Arsenic	4.41		0.0983	mg/kg	10	B2K0403	11/04/2022	11/07/2022	
Barium	158		9.83	"	"	"	"	"	
Cadmium	0.182		0.0983	"	"	"	"	"	
Copper	14.3		9.83	"	"	"	"	"	

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 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**FL5 14-1.5**

**11/1/2022 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211053-06 (Soil)**

**Table 915 metals by EPA 6020B**

Lead	10.9		9.83	mg/kg	10	B2K0403	11/04/2022	11/07/2022	
Nickel	16.1		9.83	"	"	"	"	"	
Selenium	0.106		0.0983	"	"	"	"	"	
Silver	ND		0.0983	"	"	"	"	"	
Zinc	ND		98.3	"	"	"	"	"	

**Total Metals by 7196A**

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L647489	10/31/2022	11/07/2022	
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Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**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 B2K0327 - EPA 3580</b>										
<b>Blank (B2K0327-BLK1)</b>										
					Prepared: 11/03/2022 Analyzed: 11/03/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	24		"	24.9		98.3	50-150			

Origins Laboratory, Inc.



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 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**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 B2K0327 - EPA 3580**

**LCS (B2K0327-BS1)**

Prepared: 11/03/2022 Analyzed: 11/03/2022

Diesel (C10-C28)	863	50.0	mg/kg	1000		86.3	70-130			
Residual Range Organics (C28-C40)	984	200	"	1000		98.4	70-130			
Surrogate: o-Terphenyl	48		"	49.8		95.7	50-150			

Origins Laboratory, Inc.



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 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**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 B2K0327 - EPA 3580

Matrix Spike (B2K0327-MS1)	Source: Y211093-01			Prepared: 11/03/2022 Analyzed: 11/03/2022						
Diesel (C10-C28)	919	50.0	mg/kg	1000	ND	91.9	70-130			
Residual Range Organics (C28-C40)	1030	200	"	1000	ND	103	70-130			
Surrogate: o-Terphenyl	49		"	49.8		98.0	50-150			

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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 41-20

**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 B2K0327 - EPA 3580**

<b>Matrix Spike Dup (B2K0327-MSD1)</b>	<b>Source: Y211093-01</b>		<b>Prepared: 11/03/2022 Analyzed: 11/03/2022</b>							
Diesel (C10-C28)	920	50.0	mg/kg	1000	ND	92.0	70-130	0.139	35	
Residual Range Organics (C28-C40)	1040	200	"	1000	ND	104	70-130	0.321	35	
Surrogate: o-Terphenyl	47		"	49.8		95.4	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 B2K0337 - EPA 5030 (soil)**

**Blank (B2K0337-BLK1)**

Prepared: 11/03/2022 Analyzed: 11/09/2022

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	0.13		"	0.125	106		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	101		70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	103		70-130			

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 Project: Petroshare - Nordman Trust 41-20

**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 B2K0337 - EPA 5030 (soil)

**LCS (B2K0337-BS1)**

Prepared: 11/03/2022 Analyzed: 11/09/2022

1,2,4-Trimethylbenzene	0.112	0.00200	mg/kg	0.100		112	70-130			
1,3,5-Trimethylbenzene	0.112	0.00200	"	0.100		112	70-130			
Benzene	0.107	0.00200	"	0.100		107	70-130			
Ethylbenzene	0.115	0.00200	"	0.100		115	70-130			
Naphthalene	0.108	0.00380	"	0.100		108	70-130			
Toluene	0.110	0.00200	"	0.100		110	70-130			
o-Xylene	0.106	0.00200	"	0.100		106	70-130			
m,p-Xylene	0.231	0.00400	"	0.200		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.6	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 B2K0337 - EPA 5030 (soil)

Matrix Spike (B2K0337-MS1)	Source: Y211038-01			Prepared: 11/03/2022 Analyzed: 11/09/2022						
1,2,4-Trimethylbenzene	0.104	0.00200	mg/kg	0.100	ND	104	70-130			
1,3,5-Trimethylbenzene	0.103	0.00200	"	0.100	ND	103	70-130			
Benzene	0.0989	0.00200	"	0.100	ND	98.9	70-130			
Ethylbenzene	0.105	0.00200	"	0.100	ND	105	70-130			
Naphthalene	0.0901	0.00380	"	0.100	ND	90.1	70-130			
Toluene	0.102	0.00200	"	0.100	ND	102	70-130			
o-Xylene	0.102	0.00200	"	0.100	ND	102	70-130			
m,p-Xylene	0.209	0.00400	"	0.200	0.00182	103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	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 B2K0337 - EPA 5030 (soil)

Matrix Spike Dup (B2K0337-MSD1)	Source: Y211038-01			Prepared: 11/03/2022 Analyzed: 11/09/2022						
1,2,4-Trimethylbenzene	0.107	0.00200	mg/kg	0.100	ND	107	70-130	2.81	20	
1,3,5-Trimethylbenzene	0.105	0.00200	"	0.100	ND	105	70-130	2.10	20	
Benzene	0.101	0.00200	"	0.100	ND	101	70-130	2.50	20	
Ethylbenzene	0.109	0.00200	"	0.100	ND	109	70-130	4.47	20	
Naphthalene	0.0917	0.00380	"	0.100	ND	91.7	70-130	1.76	20	
Toluene	0.104	0.00200	"	0.100	ND	104	70-130	2.18	20	
o-Xylene	0.107	0.00200	"	0.100	ND	107	70-130	4.31	20	
m,p-Xylene	0.219	0.00400	"	0.200	0.00182	109	70-130	4.87	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	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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**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 B2K0403 - EPA 3050B**

**Blank (B2K0403-BLK1)**

Prepared: 11/04/2022 Analyzed: 11/07/2022

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 (B2K0403-BS1)**

Prepared: 11/04/2022 Analyzed: 11/07/2022

Arsenic	0.0483	0.000100	mg/kg	0.0500		96.6	80-120			
Barium	4.89	0.0100	"	5.00		97.7	80-120			
Cadmium	0.0493	0.000100	"	0.0500		98.7	80-120			
Copper	0.536	0.0100	"	0.500		107	80-120			
Lead	0.0494	0.0100	"	0.0500		98.9	80-120			
Nickel	0.0532	0.0100	"	0.0500		106	80-120			
Selenium	0.0495	0.000100	"	0.0500		98.9	80-120			
Silver	0.0506	0.000100	"	0.0500		101	80-120			
Zinc	0.489	0.100	"	0.500		97.9	80-120			

**Matrix Spike (B2K0403-MS1)**

Source: Y211018-01

Prepared: 11/04/2022 Analyzed: 11/07/2022

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 Project: Petroshare - Nordman Trust 41-20

**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 B2K0403 - EPA 3050B**

<b>Matrix Spike (B2K0403-MS1)</b>		<b>Source: Y211018-01</b>			Prepared: 11/04/2022 Analyzed: 11/07/2022					
Arsenic	9.73	0.0961	mg/kg	4.81	4.82	102	75-125			
Barium	635	9.61	"	481	260	77.9	75-125			
Cadmium	5.31	0.0961	"	4.81	0.220	106	75-125			
Copper	63.3	9.61	"	48.1	12.4	106	75-125			
Lead	15.3	9.61	"	4.81	9.95	112	75-125			
Nickel	19.1	9.61	"	4.81	13.0	128	75-125			QM-07
Selenium	4.30	0.0961	"	4.81	0.0808	87.7	75-125			
Silver	5.22	0.0961	"	4.81	0.0302	108	75-125			
Zinc	94.4	96.1	"	48.1	45.5	102	75-125			

<b>Matrix Spike Dup (B2K0403-MSD1)</b>		<b>Source: Y211018-01</b>			Prepared: 11/04/2022 Analyzed: 11/07/2022					
Arsenic	8.91	0.0952	mg/kg	4.76	4.82	85.9	75-125	8.84	20	
Barium	554	9.52	"	476	260	61.7	75-125	13.6	20	QM-07
Cadmium	4.88	0.0952	"	4.76	0.220	98.0	75-125	8.32	20	
Copper	57.7	9.52	"	47.6	12.4	95.1	75-125	9.28	20	
Lead	14.7	9.52	"	4.76	9.95	100	75-125	4.03	20	
Nickel	18.7	9.52	"	4.76	13.0	121	75-125	1.99	20	
Selenium	4.15	0.0952	"	4.76	0.0808	85.4	75-125	3.58	20	
Silver	4.74	0.0952	"	4.76	0.0302	98.9	75-125	9.68	20	
Zinc	88.0	95.2	"	47.6	45.5	89.3	75-125	6.98	20	

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 Project: Petroshare - Nordman Trust 41-20

**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 B2K0408 - Saturated Paste Metals**

**Blank (B2K0408-BLK1)**

Prepared: 11/04/2022 Analyzed: 11/08/2022

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

**Duplicate (B2K0408-DUP1)**

**Source: Y211049-05**

Prepared: 11/04/2022 Analyzed: 11/08/2022

SAR	0.00		SAR		14.9			200	200	
Calcium PPM	120	10.0	mg/L		81.3			38.8	50	
Magnesium PPM	72.5	10.0	"		50.2			36.3	50	
Sodium PPM	828	10.0	"		692			17.9	50	

**Batch B2K0412 - DTPA Sorbitol Preparation**

**Blank (B2K0412-BLK1)**

Prepared: 11/04/2022 Analyzed: 11/07/2022

Boron	ND	0.100	mg/L							
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**Duplicate (B2K0412-DUP1)**

**Source: Y211049-08**

Prepared: 11/04/2022 Analyzed: 11/07/2022

Boron	1.35	0.0991	mg/L		1.48			9.66	50	
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Paul Henehan  
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 Project: Petroshare - Nordman Trust 41-20

**Saturated Paste - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B2K0418 - NO PREP</b>										
<b>Duplicate (B2K0418-DUP1)</b>		<b>Source: Y211049-05</b>			Prepared: 11/04/2022 Analyzed: 11/08/2022					
pH	8.22		pH Units		8.30			0.969	25	
<b>Batch B2K0423 - Default Prep GenChem</b>										
<b>Blank (B2K0423-BLK1)</b>					Prepared: 11/04/2022 Analyzed: 11/08/2022					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
<b>Duplicate (B2K0423-DUP1)</b>		<b>Source: Y211049-05</b>			Prepared: 11/04/2022 Analyzed: 11/08/2022					
Specific Conductance (EC)	4.41	0.00500	mmhos/cm		3.72			17.1	25	

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 Project: Petroshare - Nordman Trust 41-20

**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 L647151 - 3550B**

<b>MSD (L 86435-MSD-L647151)</b>		<b>Source: 86435</b>			Prepared: 11/04/2022 Analyzed: 11/07/2022					
Fluoranthene	0.0995	0.00067	mg/Kg	0.164	0.000769	60.2	30-130	0.5	30	
1-Methylnaphthalene	0.0898	0.00201	"	0.164	<0.00109	54.7	30-130	0.2	30	
Indeno(1,2,3-cd)pyrene	0.0809	0.00067	"	0.164	0.000654	48.9	30-130	0.3	30	
2-Methylnaphthalene	0.0883	0.00201	"	0.164	<0.00194	53.8	30-130	3.1	30	
Chrysene	0.1	0.00067	"	0.164	0.000888	60.4	30-130	4.7	30	
Pyrene	0.0995	0.00067	"	0.164	0.00114	59.9	30-130	0.3	30	
Naphthalene	0.0848	0.00201	"	0.164	<0.00145	51.7	30-130	1.1	30	
Fluorene	0.0935	0.00067	"	0.164	<0.000286	57	30-130	5.2	30	
Dibenz(a,h)anthracene	0.0728	0.00067	"	0.164	<0.000614	44.3	30-130	0.2	30	
Benzo(b)fluoranthene	0.0917	0.00067	"	0.164	0.00105	55.2	30-130	3.1	30	
Benzo(a)pyrene	0.0946	0.00067	"	0.164	0.000789	57.2	30-130	6.4	30	
Benzo(a)anthracene	0.109	0.00067	"	0.164	0.000986	65.8	30-130	5.6	30	
Anthracene	0.0993	0.00067	"	0.164	<0.000334	60.5	30-130	2.5	30	
Benzo(k)fluoranthene	0.0988	0.00067	"	0.164	0.000516	59.9	30-130	1.8	30	
Acenaphthene	0.0952	0.00067	"	0.164	<0.000304	58	30-130	1.5	30	
Surrogate: 2-Fluorobiphenyl	54.5		"	0.328	188	54.5	33-115			
Surrogate: 4-Terphenyl-d14	66.1		"	0.328	229	66.1	33-122			
Surrogate: Nitrobenzene-d5	47.2		"	0.328	166	47.2	29-110			

<b>MS (L 86435-MS-L647151)</b>		<b>Source: 86435</b>			Prepared: 11/04/2022 Analyzed: 11/07/2022					
Benzo(b)fluoranthene	0.0889	0.00067	mg/Kg	0.167	0.00105	52.6	30-130			
Chrysene	0.0954	0.00067	"	0.167	0.000888	56.5	30-130			
Fluoranthene	0.1	0.00067	"	0.167	0.000769	59.4	30-130			
Fluorene	0.0985	0.00067	"	0.167	<0.000286	58.9	30-130			
Naphthalene	0.0858	0.00201	"	0.167	<0.00145	51.3	30-130			
Benzo(a)pyrene	0.0887	0.00067	"	0.167	0.000789	52.6	30-130			
Benzo(k)fluoranthene	0.097	0.00067	"	0.167	0.000516	57.7	30-130			

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 Project: Petroshare - Nordman Trust 41-20

**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 L647151 - 3550B**

MS (L 86435-MS-L647151)	Source: 86435			Prepared: 11/04/2022 Analyzed: 11/07/2022						
Pyrene	0.0992	0.00067	mg/Kg	0.167	0.00114	58.7	30-130			
Indeno(1,2,3-cd)pyrene	0.0806	0.00067	"	0.167	0.000654	47.8	30-130			
Dibenz(a,h)anthracene	0.073	0.00067	"	0.167	<0.000614	43.7	30-130			
2-Methylnaphthalene	0.0911	0.00201	"	0.167	<0.00194	54.5	30-130			
1-Methylnaphthalene	0.09	0.00201	"	0.167	<0.00109	53.8	30-130			
Acenaphthene	0.0937	0.00067	"	0.167	<0.000304	56.1	30-130			
Anthracene	0.0968	0.00067	"	0.167	<0.000334	57.9	30-130			
Benzo(a)anthracene	0.103	0.00067	"	0.167	0.000986	61	30-130			
Surrogate: Nitrobenzene-d5	45		"	0.333	166	45	29-110			
Surrogate: 4-Terphenyl-d14	64.5		"	0.333	229	64.5	33-122			
Surrogate: 2-Fluorobiphenyl	54.6		"	0.333	188	54.6	33-115			

LCS (LCS-L647151)	Prepared: 11/04/2022 Analyzed: 11/07/2022									
1-Methylnaphthalene	0.089	0.00201	mg/Kg	0.167		53.2	30-130			
2-Methylnaphthalene	0.0881	0.00201	"	0.167		52.7	30-130			
Acenaphthene	0.092	0.00067	"	0.167		55	30-130			
Benzo(a)pyrene	0.083	0.00067	"	0.167		49.7	30-130			
Benzo(b)fluoranthene	0.0818	0.00067	"	0.167		48.9	30-130			
Benzo(k)fluoranthene	0.0925	0.00067	"	0.167		55.3	30-130			
Chrysene	0.087	0.00067	"	0.167		52	30-130			
Dibenz(a,h)anthracene	0.0736	0.00067	"	0.167		44	30-130			
Fluoranthene	0.0786	0.00067	"	0.167		47	30-130			
Fluorene	0.0765	0.00067	"	0.167		45.8	30-130			
Indeno(1,2,3-cd)pyrene	0.0809	0.00067	"	0.167		48.4	30-130			
Naphthalene	0.0845	0.00201	"	0.167		50.5	30-130			
Pyrene	0.0812	0.00067	"	0.167		48.6	30-130			
Benzo(a)anthracene	0.0968	0.00067	"	0.167		57.9	30-130			

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 41-20

**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 L647151 - 3550B**

**LCS (LCS-L647151)**

Prepared: 11/04/2022 Analyzed: 11/07/2022

Anthracene	0.094	0.00067	mg/Kg	0.167		56.2	30-130			
Surrogate: 2-Fluorobiphenyl	55.8		"	0.333		55.8	33-115			
Surrogate: 4-Terphenyl-d14	63.6		"	0.333		63.6	33-122			
Surrogate: Nitrobenzene-d5	47.4		"	0.333		47.4	29-110			

**LRB (LRB-L647151)**

Prepared: 11/04/2022 Analyzed: 11/07/2022

Benzo(k)fluoranthene	ND	0.00067	mg/Kg				-			
2-Methylnaphthalene	ND	0.00201	"				-			
Acenaphthene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Chrysene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Surrogate: 2-Fluorobiphenyl	54.9		"	0.333		54.9	33-115			
Surrogate: 4-Terphenyl-d14	66		"	0.333		66	33-122			
Surrogate: Nitrobenzene-d5	46.8		"	0.333		46.8	29-110			

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 41-20

**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 L647055 - 3550B**

<b>MSD (L 86417-MSD-L647055)</b>		<b>Source: 86417</b>			Prepared: 11/04/2022 Analyzed: 11/07/2022					
Anthracene	0.0942	0.00067	mg/Kg	0.165	<0.000334	57	30-130	17.6	30	
Pyrene	0.0922	0.00067	"	0.165	<0.000643	55.8	30-130	18	30	
1-Methylnaphthalene	0.0847	0.00201	"	0.165	<0.00109	51.3	30-130	13.3	30	
Naphthalene	0.0866	0.00201	"	0.165	<0.00145	52.4	30-130	18.9	30	
2-Methylnaphthalene	0.0852	0.00201	"	0.165	<0.00194	51.6	30-130	14	30	
Indeno(1,2,3-cd)pyrene	0.0521	0.00067	"	0.165	<0.000627	31.5	30-130	16	30	
Acenaphthene	0.0922	0.00067	"	0.165	<0.000304	55.8	30-130	17.8	30	
Fluorene	0.0933	0.00067	"	0.165	<0.000286	56.5	30-130	18.8	30	
Benzo(a)anthracene	0.102	0.00067	"	0.165	0.000551	61.4	30-130	20.4	30	
Benzo(a)pyrene	0.0877	0.00067	"	0.165	<0.000468	53.1	30-130	18.5	30	
Benzo(b)fluoranthene	0.0809	0.00067	"	0.165	0.000706	48.6	30-130	8.7	30	
Benzo(k)fluoranthene	0.0923	0.00067	"	0.165	<0.000437	55.9	30-130	24.8	30	
Chrysene	0.0961	0.00067	"	0.165	<0.000624	58.2	30-130	23.8	30	
Dibenz(a,h)anthracene	0.0458	0.00067	"	0.165	<0.000614	27.7	30-130	19.1	30	*
Fluoranthene	0.0938	0.00067	"	0.165	<0.000394	56.8	30-130	17.3	30	
Surrogate: Nitrobenzene-d5	41.8		"	0.33	137	41.8	29-110			
Surrogate: 2-Fluorobiphenyl	44.8		"	0.33	166	44.8	33-115			
Surrogate: 4-Terphenyl-d14	63.9		"	0.33	199	63.9	33-122			

<b>MS (L 86417-MS-L647055)</b>		<b>Source: 86417</b>			Prepared: 11/04/2022 Analyzed: 11/07/2022					
Acenaphthene	0.0771	0.00067	mg/Kg	0.166	<0.000304	46.4	30-130			
Indeno(1,2,3-cd)pyrene	0.0612	0.00067	"	0.166	<0.000627	36.8	30-130			
1-Methylnaphthalene	0.0741	0.00201	"	0.166	<0.00109	44.6	30-130			
2-Methylnaphthalene	0.074	0.00201	"	0.166	<0.00194	44.5	30-130			
Pyrene	0.0769	0.00067	"	0.166	<0.000643	46.3	30-130			
Naphthalene	0.0716	0.00201	"	0.166	<0.00145	43.1	30-130			
Fluorene	0.0772	0.00067	"	0.166	<0.000286	46.5	30-130			

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 41-20

**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 L647055 - 3550B**

MS (L 86417-MS-L647055)	Source: 86417		Prepared: 11/04/2022 Analyzed: 11/07/2022							
Fluoranthene	0.0788	0.00067	mg/Kg	0.166	<0.000394	47.4	30-130			
Dibenz(a,h)anthracene	0.0555	0.00067	"	0.166	<0.000614	33.4	30-130			
Benzo(k)fluoranthene	0.0719	0.00067	"	0.166	<0.000437	43.3	30-130			
Benzo(b)fluoranthene	0.0741	0.00067	"	0.166	0.000706	44.2	30-130			
Benzo(a)pyrene	0.0728	0.00067	"	0.166	<0.000468	43.8	30-130			
Benzo(a)anthracene	0.0831	0.00067	"	0.166	0.000551	49.7	30-130			
Anthracene	0.0789	0.00067	"	0.166	<0.000334	47.5	30-130			
Chrysene	0.0756	0.00067	"	0.166	<0.000624	45.5	30-130			
Surrogate: 2-Fluorobiphenyl	41.9		"	0.331	166	41.9	33-115			
Surrogate: 4-Terphenyl-d14	52.2		"	0.331	199	52.2	33-122			
Surrogate: Nitrobenzene-d5	36.8		"	0.331	137	36.8	29-110			

LCS (LCS-L647055)	Prepared: 11/04/2022 Analyzed: 11/07/2022									
Pyrene	0.0864	0.00067	mg/Kg	0.167		51.7	30-130			
Benzo(k)fluoranthene	0.086	0.00067	"	0.167		51.4	30-130			
Dibenz(a,h)anthracene	0.0501	0.00067	"	0.167		30	30-130			
Fluoranthene	0.0892	0.00067	"	0.167		53.4	30-130			
Fluorene	0.0929	0.00067	"	0.167		55.6	30-130			
Indeno(1,2,3-cd)pyrene	0.059	0.00067	"	0.167		35.3	30-130			
Benzo(a)pyrene	0.0815	0.00067	"	0.167		48.8	30-130			
Benzo(b)fluoranthene	0.0775	0.00067	"	0.167		46.4	30-130			
Naphthalene	0.0842	0.00201	"	0.167		50.4	30-130			
Anthracene	0.0914	0.00067	"	0.167		54.7	30-130			
Acenaphthene	0.0828	0.00067	"	0.167		49.5	30-130			
2-Methylnaphthalene	0.0894	0.00201	"	0.167		53.5	30-130			
1-Methylnaphthalene	0.0885	0.00201	"	0.167		52.9	30-130			
Chrysene	0.0916	0.00067	"	0.167		54.8	30-130			

Origins Laboratory, Inc.



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 Wellington CO 80549

Paul Henehan  
 Project Number: C022-104  
 Project: Petroshare - Nordman Trust 41-20

**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 L647055 - 3550B**

**LCS (LCS-L647055)**

Prepared: 11/04/2022 Analyzed: 11/07/2022

Benzo(a)anthracene	0.0971	0.00067	mg/Kg	0.167		58.1	30-130			
Surrogate: Nitrobenzene-d5	42.9		"	0.333		42.9	29-110			
Surrogate: 4-Terphenyl-d14	65.7		"	0.333		65.7	33-122			
Surrogate: 2-Fluorobiphenyl	58.5		"	0.333		58.5	33-115			

**LRB (LRB-L647055)**

Prepared: 11/04/2022 Analyzed: 11/07/2022

Benzo(k)fluoranthene	ND	0.00067	mg/Kg				-			
Chrysene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Acenaphthene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	48.3		"	0.333		48.3	29-110			
Surrogate: 4-Terphenyl-d14	66		"	0.333		66	33-122			
Surrogate: 2-Fluorobiphenyl	40.8		"	0.333		40.8	33-115			

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 41-20

**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 L647489 -</b>										
<b>DUP (L 86419-DUP)</b>		<b>Source: 86419</b>			Prepared: Analyzed: 11/07/2022					
Chromium, Hexavalent	ND	0.5	mg/Kg		<0.500		-	0	20	
<b>MS (L 86419-MS)</b>		<b>Source: 86419</b>			Prepared: Analyzed: 11/07/2022					
Chromium, Hexavalent	32.4	2.5	mg/Kg	39.2	< 0.244	83	75-125			
<b>MSD (L 86419-MSD)</b>		<b>Source: 86419</b>			Prepared: Analyzed: 11/07/2022					
Chromium, Hexavalent	548	50	mg/Kg	580	<24.4	94	75-125			
<b>LCS (LCS)</b>					Prepared: Analyzed: 11/07/2022					
Chromium, Hexavalent	6.55	0.5	mg/Kg	8		82	75-125			
<b>LRB (LRB)</b>					Prepared: Analyzed: 11/07/2022					
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

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 41-20

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### Notes and Definitions

U Sample is Non-Detect.

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

\* QC Failure

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

Origins Laboratory, Inc.



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November 16, 2022

**Fremont Environmental**

**Paul Henehan**

**8305 6th St, PO Box 1289**

**Wellington CO 80549**

**Project Name - Petroshare - Nordman Trust 41-20 Project Number - C022-104**

Attached are your analytical results for Petroshare - Nordman Trust 41-20 received by Origins Laboratory, Inc. November 03, 2022. This project is associated with Origins project number Y211146-01.

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 41-20

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG-0.5	Y211146-01	Soil	November 3, 2022 0:00	11/03/2022 16:55

pH was cancelled due to a shortage of volume. Client was notified on 11/16/2022. JAB

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 41-20

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: 4211144

Client: Fremont

Client Project ID: Nordman Trust 41-20

Checklist Completed by: TSM

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

Date/time completed: 11/04/12

Airbill #: nil

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

Cooler Number/Temperature: 1 / 5.8 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: 1004

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> ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)			X	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)			X	
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		X		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?		X		no sample time
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.				
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)			X	
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: JB (Project Manager)

Date/Time Reviewed: 11-8-12

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 41-20

**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.**  
**Y211146-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND		0.988	mg/L	10	B2K0806	11/08/2022	11/09/2022	
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**Metals by Saturated Paste by EPA 6010**

Calcium	1.01		0.499	meq/L	"	[CALC]	11/07/2022	11/09/2022	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	

**SAR by 20B Saturated Paste**

SAR	0.120			SAR	1	B2K0704	"	"	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.233		0.00500	mmhos/cm	1	B2K0707	11/07/2022	11/09/2022	
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**Table 915 metals by EPA 6020B**

Arsenic	2.52		0.0923	mg/kg	10	B2K0820	11/08/2022	11/10/2022	
Barium	48.1		9.23	"	"	"	"	"	
Cadmium	0.115		0.0923	"	"	"	"	"	
Copper	ND		9.23	"	"	"	"	"	
Lead	ND		9.23	"	"	"	"	"	
Nickel	ND		9.23	"	"	"	"	"	

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 41-20

**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.**  
**Y211146-01 (Soil)**

**Table 915 metals by EPA 6020B**

Selenium	0.128		0.0923	mg/kg	10	B2K0820	11/08/2022	11/10/2022	
Silver	ND		0.0923	"	"	"	"	"	
Zinc	ND		92.3	"	"	"	"	"	

**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 41-20

**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

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			

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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 41-20

**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**

**Matrix Spike (B2K0820-MS1)**

**Source: Y211145-01**

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

Nickel	11.3	9.76	mg/kg	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			

**Matrix Spike Dup (B2K0820-MSD1)**

**Source: Y211145-01**

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

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

**Duplicate (B2K0704-DUP1)**

**Source: Y211125-01**

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

Calcium PPM	517	10.0	mg/L		99.2			136	50	QR-DUP
SAR	0.00		SAR		0.705			200	200	
Magnesium PPM	68.3	10.0	mg/L		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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 Project: Petroshare - Nordman Trust 41-20

**Saturated Paste - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B2K0707 - Saturated Paste pH/EC</b>										
<b>Blank (B2K0707-BLK1)</b>					Prepared: 11/07/2022 Analyzed: 11/09/2022					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
<b>Duplicate (B2K0707-DUP1)</b>					Source: Y211125-01 Prepared: 11/07/2022 Analyzed: 11/10/2022					
Specific Conductance (EC)	3.25	0.00500	mmhos/cm		3.81			15.7	25	

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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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Project: Petroshare - Nordman Trust 41-20

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### Notes and Definitions

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.

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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