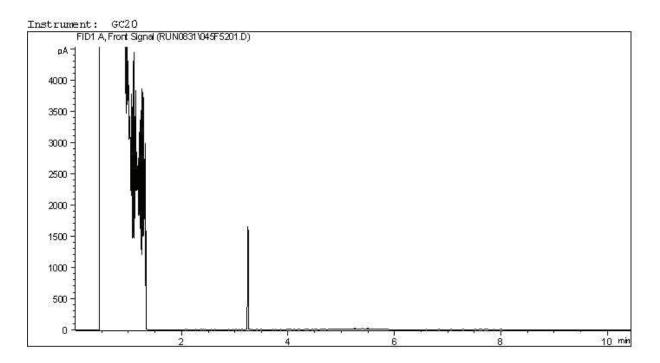
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

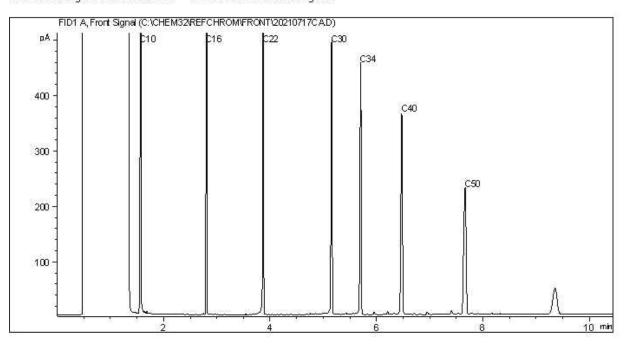
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-140-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-141-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Instrument: GC20

FID1 A, Frort Signal (RUN0831/046F5301.D)

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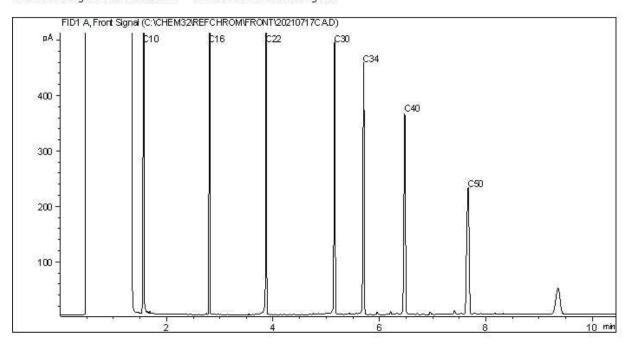
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20

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

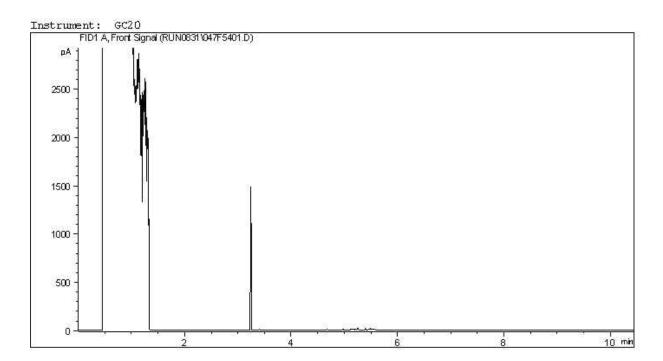
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Client Project #: 20368099-6000-1001

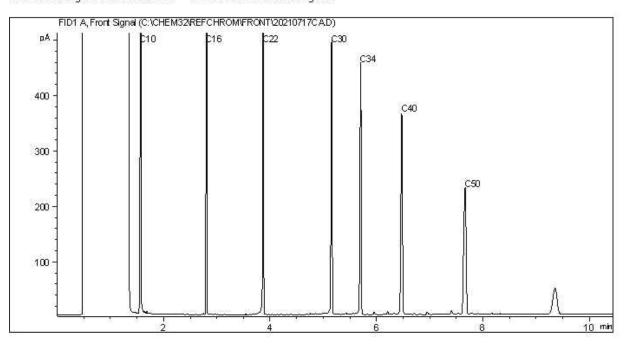
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-141-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

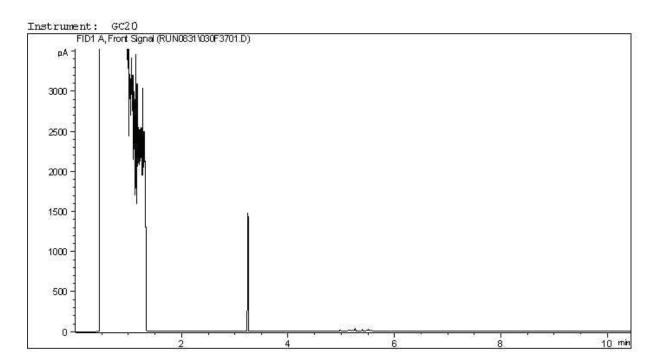
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Client Project #: 20368099-6000-1001

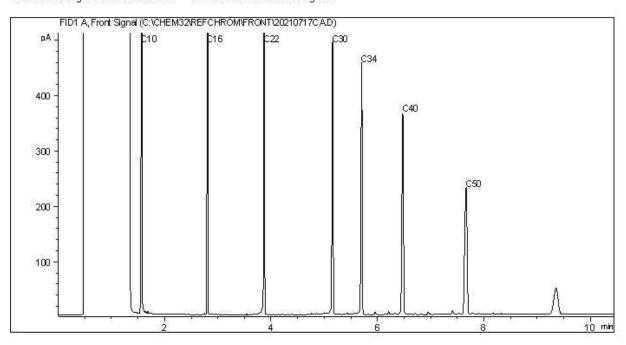
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-141-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

Bureau Veritas Job #: C162662

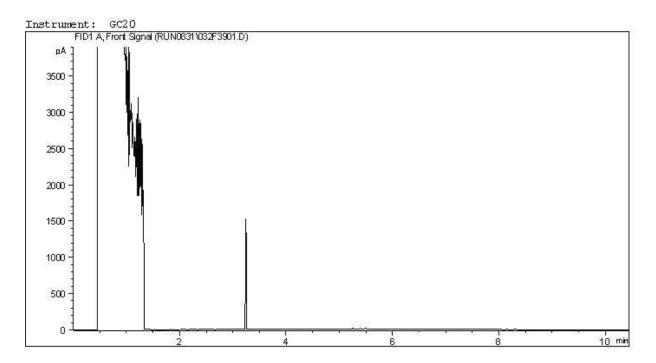
Report Date: 2021/12/24 Bureau Veritas Sample: AEP052 Lab-Dup

GOLDER ASSOCIATES LTD. Client Project #: 20368099-6000-1001

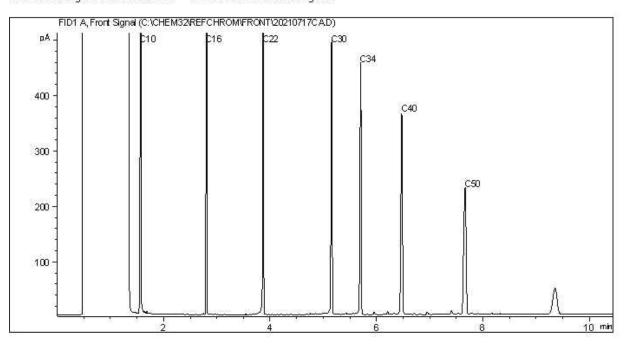
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-141-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	-	C12	Diesel:	c8	$\leftarrow$	C22
Varsol:	c8	-	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3	1	C60+

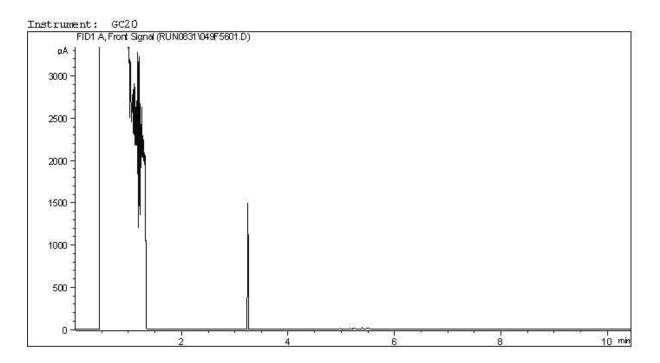
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

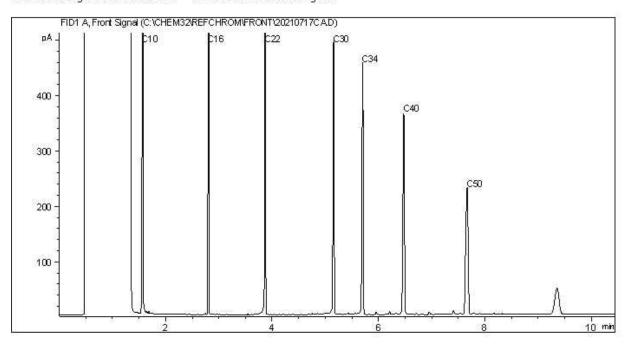
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP N

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

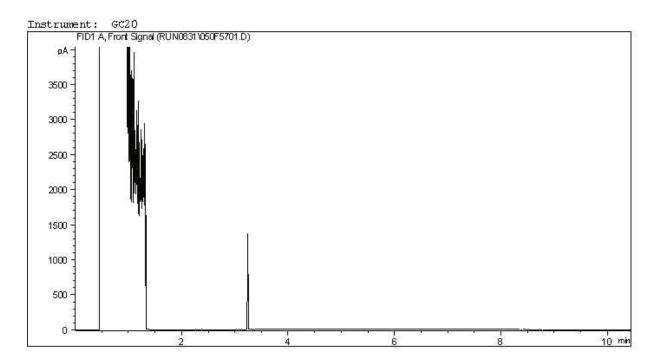
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

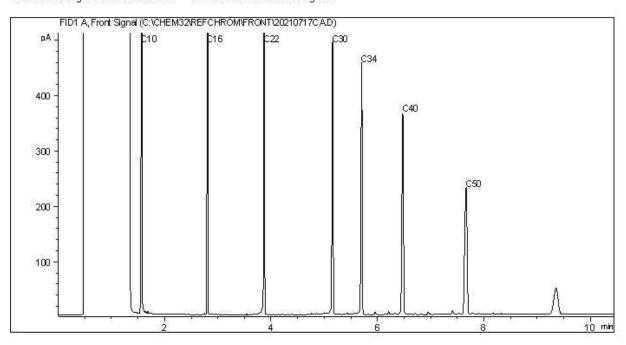
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-143-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

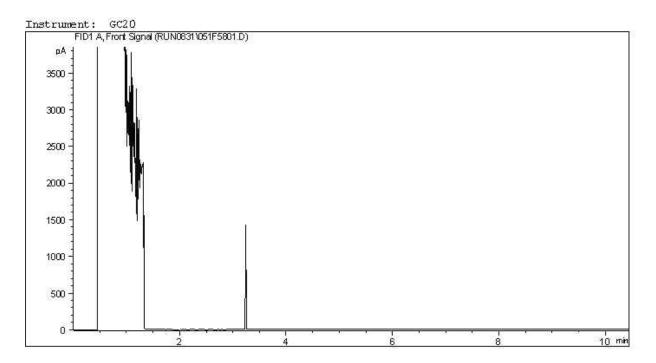
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Client Project #: 20368099-6000-1001

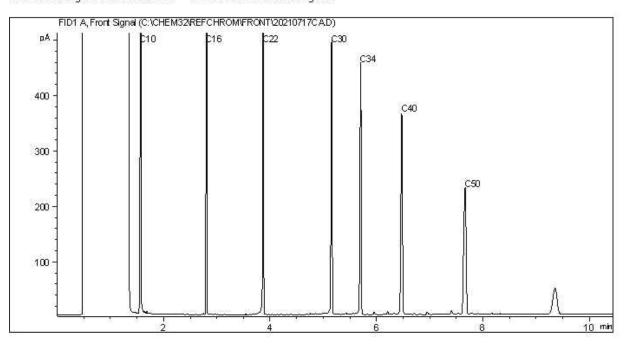
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-143-01

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	-	C12	Diesel:	c8 -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

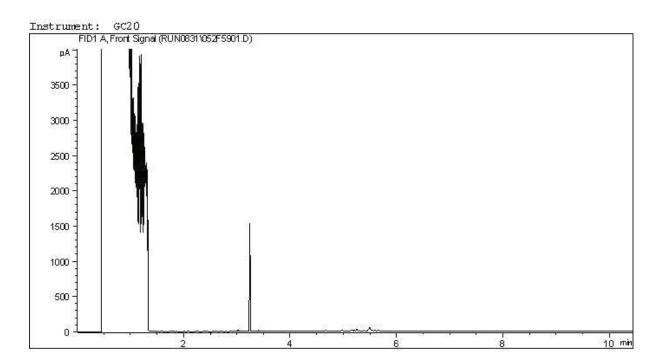
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Client Project #: 20368099-6000-1001

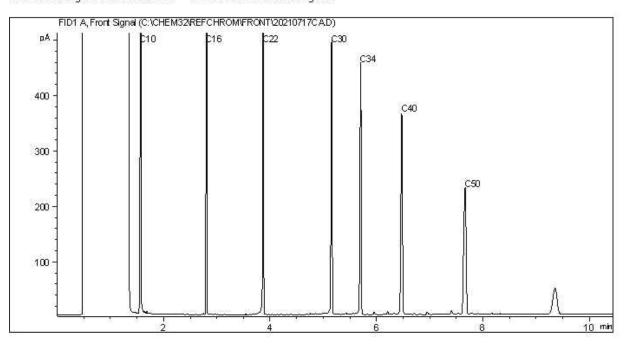
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-143-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

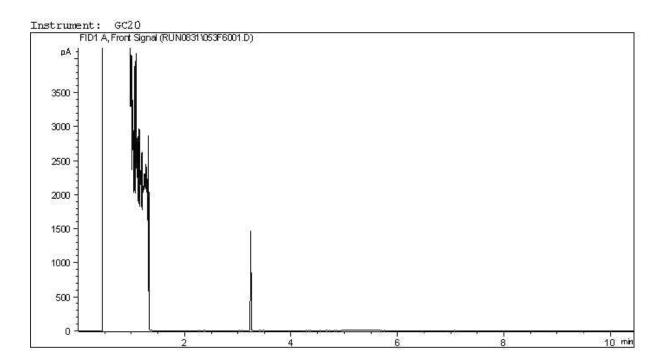
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Client Project #: 20368099-6000-1001

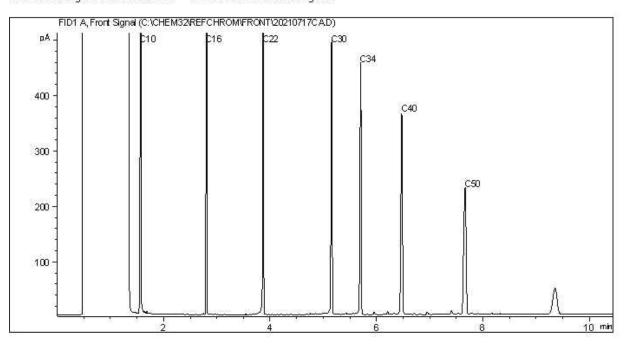
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-144-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	-	C12	Diesel:	c8	$\leftarrow$	C22
Varsol:	c8	-	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3	1	C60+

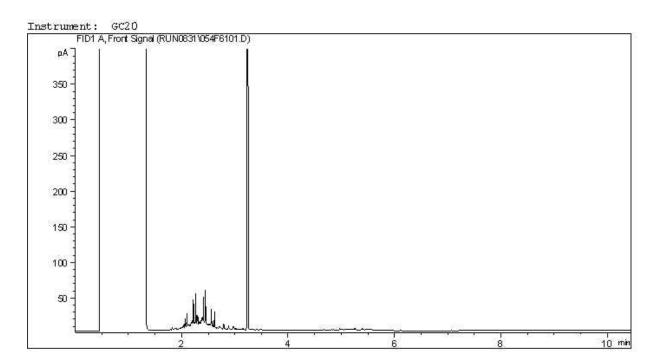
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Client Project #: 20368099-6000-1001

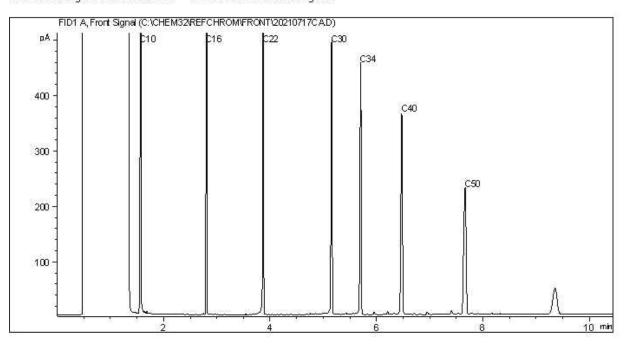
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-144-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-144-05

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

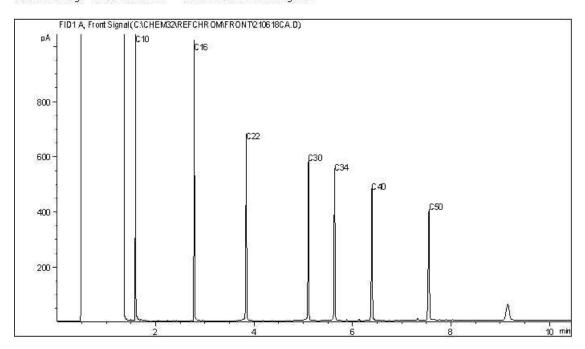
Instrument: GC13

FID1 A Front Signal (RUN0831031F4101.D)

pA

35025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

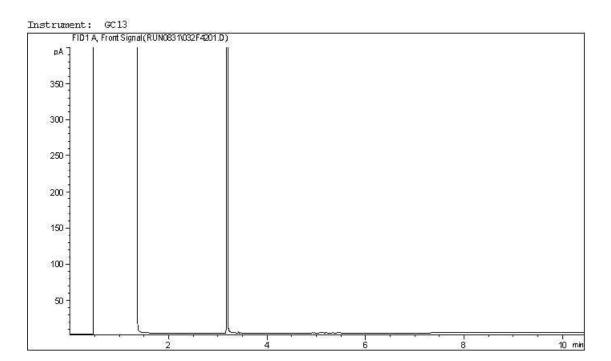
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

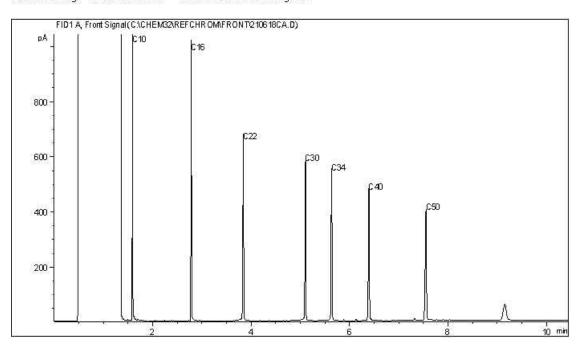
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-145-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

10 min

Client ID: TP21-145-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

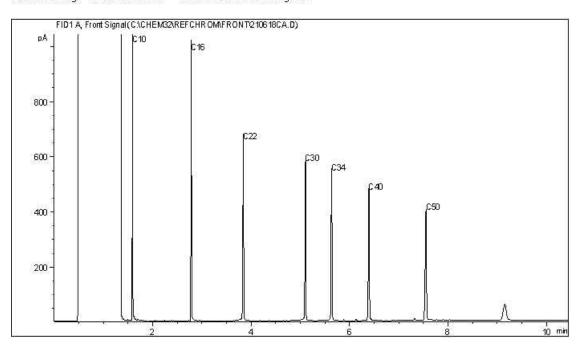
Instrument: GC13

FID1 A Front Signal (RUN0831033F4301.D)

pA

30025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

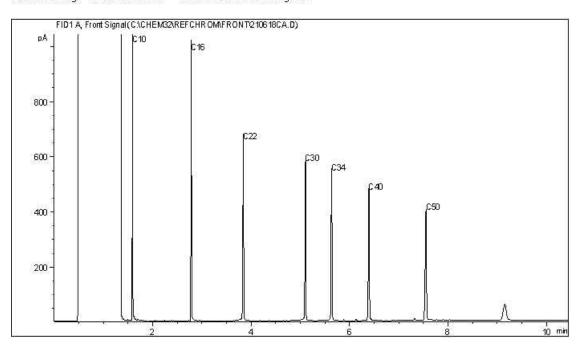
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-145-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

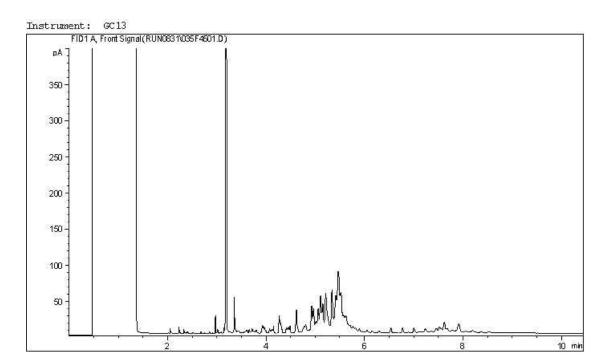
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Client Project #: 20368099-6000-1001

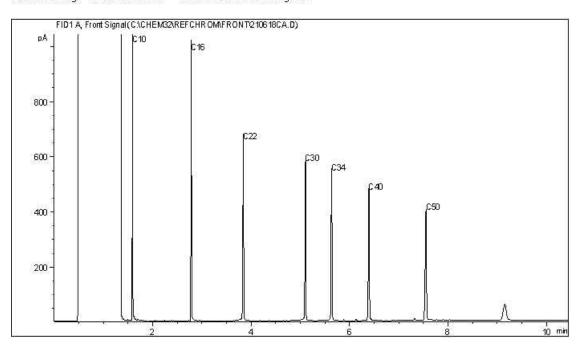
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-128-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

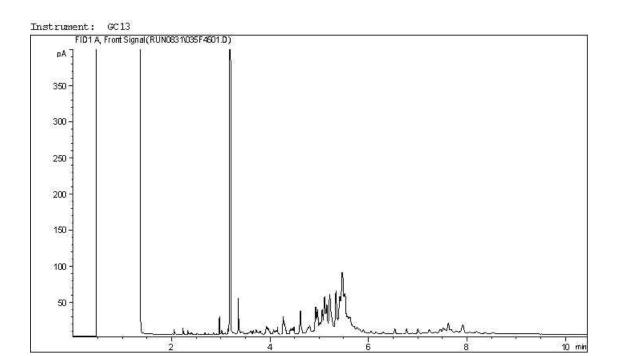
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

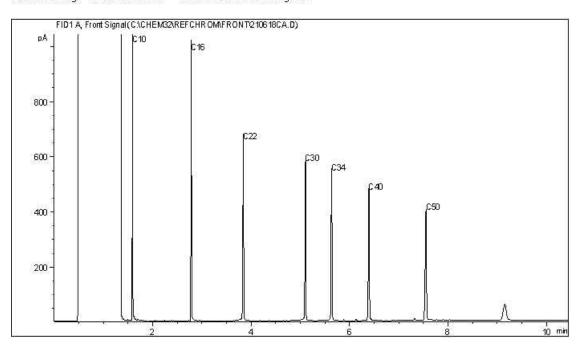
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-128-02

### CCME Hydrocarbons (F2-F4)+F3A/B in soil Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-128-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

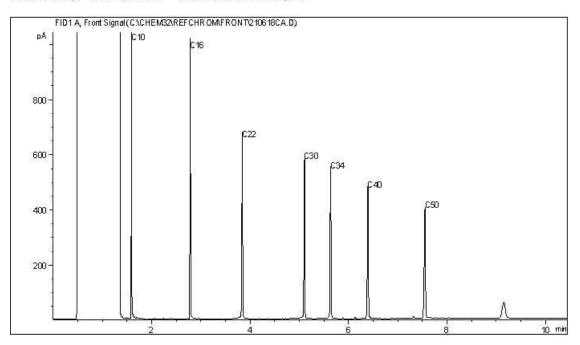
Instrument: GC13

FID1 A Front Signal (RUN0831/037F4701.D)

pA

330250150150150-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

10 min

Client ID: TP21-128-06

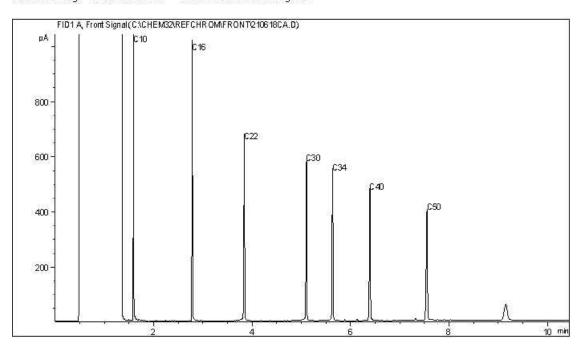
### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Instrument: GC13

FID1 A Front Signal (RUN0831/038F4801.D)

pA
30025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

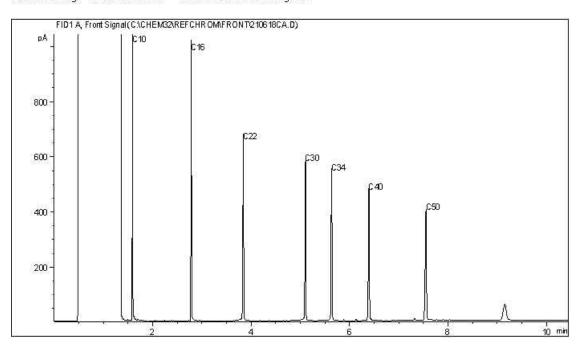
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-127-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-127-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

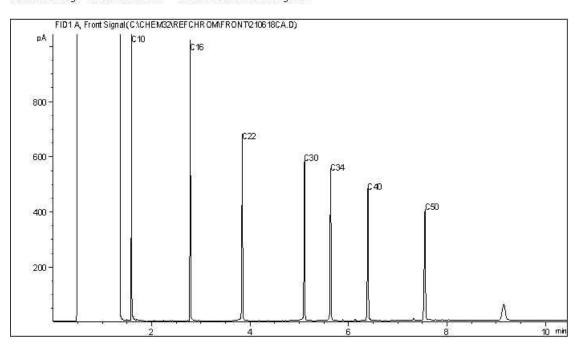
Instrument: GC13

FID1 A Front Signal (RUN0831040F5001.D)

pA

350 
250 
150 
100 
50 -

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

10 min

Client ID: TP21-127-05

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

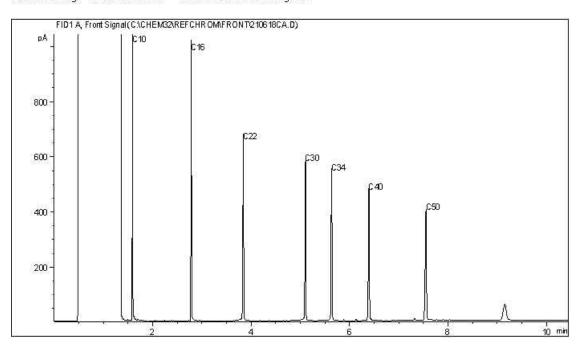
Instrument: GC13

FID1 A Front Signal (RUN0831/04) F5101.D)

pA

350 
250 
150 
150 
100 
30 -

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

# GOLDER DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farew	ell			Sampling Date:	August 20, 2021					
Golder Project Number: 2	20368099	-6000-100	1	Laboratory:	Bureau Veritas Edmonto	on				
Lab Submission Number: 6	C162662									
Was the Cooler Received at the lal Was proper chain of custody of the Were sample temperatures accepta Were all samples analyzed and ext Has lab warranted all tests were in Was sufficient sample provided for Has lab warranted all samples were	e samples able when racted with statistical rather requestricts.	documente they reache hin hold tin control in ested analy	d and keped lab?: nes?: CoA?: sis?	ot?	Yes Yes Yes Yes Yes Yes Yes Yes Yes	- - - -				
Are All Laboratory QC Within Ac	ceptance (	Criteria (Ye	es, No, N	ot Applicable)?						
Surrogate Recovery Method Blank Concentration Laboratory Duplicate RPD Matrix Spike Recovery Blank Spike Recovery	Yes X X X X X X	No	NA	,						
Are All Field QC Samples Within	Alert Lim	its (Yes, N	o, Not A <sub>l</sub>	oplicable)?						
Field Blank Concentration	Yes	No	NA X	All field QC samp	Comments ples are within					
Trip Blank Concentration Field Duplicate RPD	X		X	alert limits.						
Is data considered reliable (Yes/No If answer is "No" or "Suspect", de	*		tionale:	Yes						
Data Reviewed by (Print):		pert r 22, 2021		Data Reviewed by	(Signature): Ondo	(albert				



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

### **Attention: Aurelie Belavance**

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-33-01, 644511-34-01, 644511-35-01, 644511-36-01, 644511-37-01

Report Date: 2021/09/09 Report #: R3069178 Version: 3 - Final

# **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C162768 Received: 2021/08/24, 09:45

Sample Matrix: Soil # Samples Received: 42

# Samples Neceived: 42		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
Barium on ICP using Fusion Extraction (1)	3	2021/09/02	2021/09/05	AB SOP-00044 / AB SOP-	EPA 6010d R5 m
				00042	
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1)	2	2021/08/30	2021/09/02	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1)	1	2021/09/03	2021/09/03	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	2	N/A	2021/08/31	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	36	N/A	2021/09/01	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	1	N/A	2021/09/02	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	19	N/A	2021/09/01		Auto Calc
F1-BTEX (1)	20	N/A	2021/09/02		Auto Calc
F1-BTEX (1)	2	N/A	2021/09/03		Auto Calc
F1-BTEX (1)	1	N/A	2021/09/04		Auto Calc
Hexavalent Chromium (1, 3)	3	2021/08/31	2021/08/31	AB SOP-00063	SM 23 3500-Cr B m
CCME Hydrocarbons (F2-F4)+F3A/B in soil (1, 4)	1	2021/08/31	2021/08/31	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 5)	26	2021/08/30	2021/09/01	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 5)	15	2021/08/30	2021/09/02	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 5)	1	2021/08/31	2021/08/31	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2/F2+F3B) in soil (1, 6)	1	N/A	2021/09/01		Auto Calc
CCME Hydrocarbons (F4G in soil) (1, 5)	1	2021/08/30	2021/09/02	AB SOP-00036	CCME PHC-CWS m
				AB SOP-00040	
Elements by ICPMS - Soils (1)	3	2021/08/29	2021/08/30	AB SOP-00001 / AB SOP- 00043	EPA 6020b R2 m
Moisture (1)	41	N/A	2021/08/31	AB SOP-00002	CCME PHC-CWS m
Moisture (1)	1	N/A	2021/09/01	AB SOP-00002	CCME PHC-CWS m
Soluble NO2 (N);Soluble NO2 (N) + NO3(N) (1)	3	2021/08/31	2021/08/31	AB SOP-00091	SM 23 4500 NO3m
Nitrate-N (soluble) (1)	3	2021/08/27	2021/08/31		Auto Calc
Soluble lons (1)	3	2021/08/30	2021/08/31	AB SOP-00033 / AB SOP- 00042	EPA 6010d R5 m
Soluble Paste (1)	3	2021/08/30	2021/08/31	AB SOP-00033	Carter 2nd ed 15.2 m
Soluble Boron Calculation (1)	3	N/A	2021/09/01		Auto Calc



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

**Attention: Aurelie Belavance** 

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-33-01, 644511-34-01, 644511-35-01, 644511-36-01, 644511-37-01

Report Date: 2021/09/09

Report #: R3069178 Version: 3 - Final

### **CERTIFICATE OF ANALYSIS**

BV LABS JOB #: C162768 Received: 2021/08/24, 09:45

Sample Matrix: Soil # Samples Received: 42

		Date	Date		
Analyses	Quantity	/ Extracted	Analyzed	Laboratory Method	Analytical Method
Soluble Ions Calculation (1)	3	N/A	2021/08/30	)	Auto Calc

#### Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

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 $Reference\ Method\ suffix\ "m"\ indicates\ test\ methods\ incorporate\ validated\ modifications\ from\ specific\ reference\ methods\ to\ improve\ performance.$ 

- \* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
- (1) This test was performed by Bureau Veritas Calgary Environmental
- (2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.
- (3) Some soil samples may react with the Cr(VI) spike reducing it to Cr(III). These samples are highly unlikely to contain native hexavalent chromium. Thus a failed spike recovery does not invalidate a negative result on the native sample.
- (4) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories

conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

#### **Attention: Aurelie Belavance**

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-33-01, 644511-34-01, 644511-35-01, 644511-36-01, 644511-37-01

Report Date: 2021/09/09

Report #: R3069178 Version: 3 - Final

### **CERTIFICATE OF ANALYSIS**

### **BV LABS JOB #: C162768**

#### Received: 2021/08/24, 09:45

(5) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

(6) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

#### **Encryption Key**



Bureau Veritas
09 Sep 2021 14:09:16

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Cynny Hagen, Key Account Specialist Email: Cynny.HAGEN@bureauveritas.com

Phone# (403)735-2273

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (SOIL)

BV Labs ID		AEP489	AEP509		AEP532		
Sampling Date		2021/08/21	2021/08/21		2021/08/21		
Jamping Date		10:25	11:16		16:11		
COC Number		644511-33-01	644511-34-01		644511-37-01		
	UNITS	TP21-123-04	DUP P	QC Batch	TP21-93-06	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	A336664	<10	10	A336885
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	A336664	<50	50	A336885
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	A336664	<50	50	A336885
Reached Baseline at C50	mg/kg	Yes	Yes	A336664	Yes	N/A	A336885
Physical Properties							
Moisture	%	3.8	4.6	A336673	15	0.30	A337532
Volatiles	•	•	•	•	•	=	•
Benzene	mg/kg	<0.0050	<0.0050	A340134	<0.0050	0.0050	A340134
Toluene	mg/kg	<0.050	<0.050	A340134	<0.050	0.050	A340134
Ethylbenzene	mg/kg	<0.010	<0.010	A340134	<0.010	0.010	A340134
m & p-Xylene	mg/kg	<0.040	<0.040	A340134	<0.040	0.040	A340134
o-Xylene	mg/kg	<0.020	<0.020	A340134	<0.020	0.020	A340134
Xylenes (Total)	mg/kg	<0.045	<0.045	A334698	<0.045	0.045	A334711
F1 (C6-C10) - BTEX	mg/kg	<10	<10	A334698	<10	10	A334711
F1 (C6-C10)	mg/kg	<10	<10	A340134	<10	10	A340134
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	100	99	A340134	95	N/A	A340134
4-Bromofluorobenzene (sur.)	%	103	103	A340134	88	N/A	A340134
D10-o-Xylene (sur.)	%	113	113	A340134	79	N/A	A340134
D4-1,2-Dichloroethane (sur.)	%	114	113	A340134	83	N/A	A340134
O-TERPHENYL (sur.)	%	98	91	A336664	78	N/A	A336885
RDL = Reportable Detection Lir	nit						
N/A - Not Applicable							



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

								_	_
BV Labs ID		AEP482	AEP482		AEP483	AEP484	AEP485		
Sampling Date		2021/08/21	2021/08/21		2021/08/21	2021/08/21	2021/08/21		
Jamping Date		09:55	09:55		09:56	09:57	10:03		
COC Number		644511-33-01	644511-33-01		644511-33-01	644511-33-01	644511-33-01		
	UNITS	TP21-126-02	TP21-126-02 Lab-Dup	RDL	TP21-126-04	TP21-126-06	TP21-142-01	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	12	<10	10	14	<10	<10	10	A336664
F3 (C16-C34 Hydrocarbons)	mg/kg	240	250	50	220	<50	120	50	A336664
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	67	50	81	<50	<50	50	A336664
Reached Baseline at C50	mg/kg	Yes	Yes	N/A	Yes	Yes	Yes	N/A	A336664
Physical Properties	•		•	•	•	•		<u>-</u>	3
Moisture	%	40	40	0.30	9.2	16	25	0.30	A336673
Volatiles									
Xylenes (Total)	mg/kg	<0.095	N/A	0.095	<0.045	<0.045	<0.045	0.045	A334698
F1 (C6-C10) - BTEX	mg/kg	<21	N/A	21	<10	<10	<10	10	A334698
Field Preserved Volatiles									
Benzene	mg/kg	<0.0070 (1)	<0.0070	0.0070	<0.0050	<0.0050	<0.0050	0.0050	A336426
Toluene	mg/kg	<0.050 (1)	<0.050	0.050	<0.050	<0.050	<0.050	0.050	A336426
Ethylbenzene	mg/kg	<0.018 (1)	0.030	0.018	<0.010	<0.010	<0.010	0.010	A336426
m & p-Xylene	mg/kg	<0.085 (2)	<0.085	0.085	<0.040	<0.040	<0.040	0.040	A336426
o-Xylene	mg/kg	<0.043 (2)	<0.043	0.043	<0.020	<0.020	<0.020	0.020	A336426
F1 (C6-C10)	mg/kg	<21 (2)	<21	21	<10	<10	<10	10	A336426
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	101	102	N/A	101	102	101	N/A	A336426
4-Bromofluorobenzene (sur.)	%	99	100	N/A	100	100	100	N/A	A336426
D10-o-Xylene (sur.)	%	119	127	N/A	124	130	121	N/A	A336426
D4-1,2-Dichloroethane (sur.)	%	107	104	N/A	105	108	104	N/A	A336426
O-TERPHENYL (sur.)	%	97	96	N/A	99	104	101	N/A	A336664

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

- (1) Detection limit reported based on MDL and sample weight used for analysis.
- (2) Detection limits raised based on sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AEP486	AEP487	AEP488	AEP490		AEP491		
Sampling Date		2021/08/21	2021/08/21	2021/08/21	2021/08/21		2021/08/21		
Jamping Date		10:04	10:05	10:24	10:26		10:32		
COC Number		644511-33-01	644511-33-01	644511-33-01	644511-33-01		644511-33-01		
	UNITS	TP21-142-03	TP21-142-05	TP21-123-01	TP21-123-06	RDL	TP21-BH19-110-02	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	38	<10	10	<10	10	A336664
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	160	<50	50	280	50	A336664
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	50	87	50	A336664
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	Yes	N/A	A336664
Physical Properties	•	•	•	-	•	=	•	=	
Moisture	%	4.1	5.2	8.5	15	0.30	47	0.30	A336673
Volatiles									
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	0.045	<0.10	0.10	A334698
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	10	<23	23	A334698
Field Preserved Volatiles									
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0080 (1)	0.0080	A336426
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	<0.050 (1)	0.050	A336426
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	<0.010 (1)	0.010	A336426
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	<0.092 (2)	0.092	A336426
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	<0.046 (2)	0.046	A336426
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	10	<23 (2)	23	A336426
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	103	100	101	100	N/A	101	N/A	A336426
4-Bromofluorobenzene (sur.)	%	101	100	100	100	N/A	102	N/A	A336426
D10-o-Xylene (sur.)	%	125	132	125	119	N/A	128	N/A	A336426
D4-1,2-Dichloroethane (sur.)	%	109	106	107	106	N/A	108	N/A	A336426
O-TERPHENYL (sur.)	%	106	112	104	97	N/A	96	N/A	A336664

RDL = Reportable Detection Limit

N/A = Not Applicable

(2) Detection limits raised based on sample weight used for analysis.

<sup>(1)</sup> Detection limit reported based on MDL and sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

	-							
BV Labs ID		AEP501	AEP502	AEP503		AEP504		
Sampling Date		2021/08/21	2021/08/21	2021/08/21		2021/08/21		
Jamping Date		10:33	10:41	10:41		10:57		
COC Number		644511-34-01	644511-34-01	644511-34-01		644511-34-01		
	UNITS	TP21-BH19-110-04	TP21-BH19-110-05	DUP 0	RDL	TP21-124-02	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	10	72	10	A336664
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	<50	50	2100	50	A336664
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	50	850	50	A336664
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	N/A	No	N/A	A336664
Physical Properties								
Moisture	%	3.1	4.1	4.5	0.30	44	0.30	A336673
Volatiles								
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	0.045	<0.11	0.11	A334698
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	10	<24	24	A334698
Field Preserved Volatiles	•	•		•		•		
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	0.023 (1)	0.012	A336426
Toluene	mg/kg	<0.050	<0.050	<0.050	0.050	0.13 (1)	0.12	A336426
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	0.031 (1)	0.024	A336426
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	<0.095 (1)	0.095	A336426
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.020	0.063 (1)	0.048	A336426
F1 (C6-C10)	mg/kg	<10	<10	<10	10	<24 (1)	24	A336426
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	100	101	101	N/A	101	N/A	A336426
4-Bromofluorobenzene (sur.)	%	102	100	101	N/A	100	N/A	A336426
D10-o-Xylene (sur.)	%	157 (2)	124	121	N/A	122	N/A	A336426
D4-1,2-Dichloroethane (sur.)	%	109	106	108	N/A	107	N/A	A336426
O-TERPHENYL (sur.)	%	98	98	100	N/A	97	N/A	A336664
DDI Damantahla Dataatian Li	• • • • • • • • • • • • • • • • • • • •	-		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		

RDL = Reportable Detection Limit

<sup>(1)</sup> Detection limits raised based on sample weight used for analysis.

<sup>(2)</sup> Surrogate recovery exceeds acceptance criteria (high recovery). As results are non-detect, there is no impact on data quality.



Report Date: 2021/09/09

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AEP505	AEP506		AEP507	AEP508		
Sampling Date		2021/08/21	2021/08/21		2021/08/21	2021/08/21		
Sampling Date		10:58	10:59		11:15	11:16		
COC Number		644511-34-01	644511-34-01		644511-34-01	644511-34-01		
	UNITS	TP21-124-04	TP21-124-06	QC Batch	TP21-125-02	TP21-125-04	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	A336664	57	<10	10	A336664
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	A336664	170	<50	50	A336664
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	A336664	<50	<50	50	A336664
Reached Baseline at C50	mg/kg	Yes	Yes	A336664	Yes	Yes	N/A	A336664
Physical Properties							-	
Moisture	%	6.0	11	A336673	17	4.3	0.30	A336673
Volatiles			-	•	•	•	<del>-</del>	-
Xylenes (Total)	mg/kg	<0.045	<0.045	A334698	<0.045	<0.045	0.045	A334711
F1 (C6-C10) - BTEX	mg/kg	<10	<10	A334698	<10	<10	10	A334711
Field Preserved Volatiles			-	•	•	•	<u>-</u>	-
Benzene	mg/kg	<0.0050	<0.0050	A336426	<0.0050	<0.0050	0.0050	A336426
Toluene	mg/kg	<0.050	<0.050	A336426	<0.050	<0.050	0.050	A336426
Ethylbenzene	mg/kg	<0.010	<0.010	A336426	<0.010	<0.010	0.010	A336426
m & p-Xylene	mg/kg	<0.040	<0.040	A336426	<0.040	<0.040	0.040	A336426
o-Xylene	mg/kg	<0.020	<0.020	A336426	<0.020	<0.020	0.020	A336426
F1 (C6-C10)	mg/kg	<10	<10	A336426	<10	<10	10	A336426
Surrogate Recovery (%)	•	•	-	•	•	•	=	•
1,4-Difluorobenzene (sur.)	%	100	103	A336426	101	101	N/A	A336426
4-Bromofluorobenzene (sur.)	%	98	100	A336426	102	99	N/A	A336426
D10-o-Xylene (sur.)	%	137	124	A336426	129	131	N/A	A336426
D4-1,2-Dichloroethane (sur.)	%	105	108	A336426	110	108	N/A	A336426
O-TERPHENYL (sur.)	%	95	99	A336664	100	91	N/A	A336664
RDL = Reportable Detection Lir	nit							



Report Date: 2021/09/09

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

								1	
BV Labs ID		AEP510		AEP511	AEP511		AEP512		
Sampling Date		2021/08/21		2021/08/21	2021/08/21		2021/08/21		
		11:17		14:02	14:02		14:15		
COC Number		644511-34-01		644511-35-01	644511-35-01		644511-35-01		
	UNITS	TP21-125-05	QC Batch	TP21-125-08	TP21-125-08 Lab-Dup	QC Batch	TP21-94-01	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	A336664	<10	N/A	A336003	<10	10	A336061
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	A336664	<50	N/A	A336003	<50	50	A336061
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	A336664	<50	N/A	A336003	<50	50	A336061
Reached Baseline at C50	mg/kg	Yes	A336664	Yes	N/A	A336003	Yes	N/A	A336061
Physical Properties			•					•	
Moisture	%	4.8	A336673	9.2	8.6	A336192	3.7	0.30	A336234
Volatiles	•								,
Xylenes (Total)	mg/kg	<0.045	A334711	<0.045	N/A	A334711	<0.045	0.045	A334711
F1 (C6-C10) - BTEX	mg/kg	<10	A334711	<10	N/A	A334711	<10	10	A334711
Field Preserved Volatiles	,	-	-					·	,
Benzene	mg/kg	<0.0050	A338974	<0.0050	N/A	A336426	<0.0050	0.0050	A336426
Toluene	mg/kg	<0.050	A338974	<0.050	N/A	A336426	<0.050	0.050	A336426
Ethylbenzene	mg/kg	<0.010	A338974	<0.010	N/A	A336426	<0.010	0.010	A336426
m & p-Xylene	mg/kg	<0.040	A338974	<0.040	N/A	A336426	<0.040	0.040	A336426
o-Xylene	mg/kg	<0.020	A338974	0.025	N/A	A336426	<0.020	0.020	A336426
F1 (C6-C10)	mg/kg	<10	A338974	<10	N/A	A336426	<10	10	A336426
Surrogate Recovery (%)	,		•					•	,
1,4-Difluorobenzene (sur.)	%	98	A338974	100	N/A	A336426	100	N/A	A336426
4-Bromofluorobenzene (sur.)	%	101	A338974	99	N/A	A336426	100	N/A	A336426
D10-o-Xylene (sur.)	%	93	A338974	124	N/A	A336426	129	N/A	A336426
D4-1,2-Dichloroethane (sur.)	%	99	A338974	109	N/A	A336426	108	N/A	A336426
O-TERPHENYL (sur.)	%	92	A336664	96	N/A	A336003	97	N/A	A336061

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AEP513	AEP513	AEP514	AEP515	AEP516	AEP517		
Sampling Date		2021/08/21	2021/08/21	2021/08/21	2021/08/21	2021/08/21	2021/08/21		
Sampling Date		14:16	14:16	14:17	14:31	14:32	14:34		
COC Number		644511-35-01	644511-35-01	644511-35-01	644511-35-01	644511-35-01	644511-35-01		
	UNITS	TP21-94-03	TP21-94-03 Lab-Dup	TP21-94-05	TP21-95-01	TP21-95-03	TP21-95-06	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	N/A	<10	36	<10	43	10	A336061
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	N/A	75	150	<50	<50	50	A336061
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	N/A	<50	55	<50	<50	50	A336061
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	Yes	Yes	Yes	N/A	A336061
Physical Properties								•	
Moisture	%	31	N/A	6.2	9.8	5.0	5.4	0.30	A336234
Volatiles									
Xylenes (Total)	mg/kg	<0.045	N/A	<0.045	<0.045	<0.045	<0.045	0.045	A334711
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	<10	<10	<10	<10	10	A334711
Field Preserved Volatiles		•					•	•	
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A336429
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A336429
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A336429
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A336429
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A336429
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	<10	10	A336429
Surrogate Recovery (%)	•	•	-	•	•	•	•	•	
1,4-Difluorobenzene (sur.)	%	101	103	103	102	102	103	N/A	A336429
4-Bromofluorobenzene (sur.)	%	99	100	101	101	100	100	N/A	A336429
D10-o-Xylene (sur.)	%	132	134	117	116	111	117	N/A	A336429
D4-1,2-Dichloroethane (sur.)	%	104	105	103	101	105	104	N/A	A336429
O-TERPHENYL (sur.)	%	99	N/A	101	107	101	115	N/A	A336061

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AEP518	AEP519	AEP520	AEP520	AEP521	AEP522		
Compling Data		2021/08/21	2021/08/21	2021/08/21	2021/08/21	2021/08/21	2021/08/21		
Sampling Date		14:46	14:32	15:10	15:10	15:13	15:15		
COC Number		644511-35-01	644511-35-01	644511-35-01	644511-35-01	644511-36-01	644511-36-01		
	UNITS	TP21-95-08	DUP Q	TP21-96-01	TP21-96-01 Lab-Dup	TP21-96-03	TP21-96-05	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	24	83	97	93	<10	10	A336061
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	86	190	190	230	<50	50	A336061
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	<50	50	A336061
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A336061
Physical Properties								•	
Moisture	%	5.8	6.6	8.0	8.2	16	2.9	0.30	A336234
Volatiles									
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	N/A	<0.045	<0.045	0.045	A334711
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	N/A	<10	<10	10	A334711
Field Preserved Volatiles								•	
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	N/A	<0.0050	<0.0050	0.0050	A336429
Toluene	mg/kg	<0.050	<0.050	<0.050	N/A	<0.050	<0.050	0.050	A336429
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	N/A	<0.010	<0.010	0.010	A336429
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	N/A	<0.040	<0.040	0.040	A336429
o-Xylene	mg/kg	<0.020	<0.020	<0.020	N/A	<0.020	<0.020	0.020	A336429
F1 (C6-C10)	mg/kg	<10	<10	<10	N/A	<10	<10	10	A336429
Surrogate Recovery (%)		•	•	•	•	•	•	•	
1,4-Difluorobenzene (sur.)	%	102	102	103	N/A	102	101	N/A	A336429
4-Bromofluorobenzene (sur.)	%	99	100	100	N/A	100	100	N/A	A336429
D10-o-Xylene (sur.)	%	125	109	113	N/A	111	106	N/A	A336429
D4-1,2-Dichloroethane (sur.)	%	103	104	105	N/A	103	105	N/A	A336429
O-TERPHENYL (sur.)	%	101	103	99	97	100	104	N/A	A336061

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

			_		_		_		_
BV Labs ID		AEP523	AEP524	AEP525	AEP526	AEP527	AEP528		
Sampling Date		2021/08/21	2021/08/21	2021/08/21	2021/08/21	2021/08/21	2021/08/21		
Sampling Date		15:25	15:28	15:30	15:40	15:45	15:51		
COC Number		644511-36-01	644511-36-01	644511-36-01	644511-36-01	644511-36-01	644511-36-01		
	UNITS	TP21-91-02	TP21-91-04	TP21-91-06	TP21-92-02	TP21-92-04	TP21-92-06	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	110	59	17	<10	<10	<10	10	A336061
F3 (C16-C34 Hydrocarbons)	mg/kg	310	190	55	60	75	<50	50	A336061
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	<50	50	A336061
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A336061
Physical Properties									
Moisture	%	6.0	7.1	17	21	10	7.5	0.30	A336234
Volatiles		•	-	•		•	•	·	-
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	0.045	A334711
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	<10	<10	10	A334711
Field Preserved Volatiles		•	-	•		•	•	·	-
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A336429
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A336429
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A336429
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A336429
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A336429
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	<10	10	A336429
Surrogate Recovery (%)	•	•	-	•	•	•	•	=	•
1,4-Difluorobenzene (sur.)	%	103	103	102	102	104	103	N/A	A336429
4-Bromofluorobenzene (sur.)	%	100	101	101	99	101	99	N/A	A336429
D10-o-Xylene (sur.)	%	139	113	134	121	110	120	N/A	A336429
D4-1,2-Dichloroethane (sur.)	%	104	107	105	103	105	104	N/A	A336429
O-TERPHENYL (sur.)	%	111	99	113	109	114	105	N/A	A336061
RDL = Reportable Detection Lir	nit								

RDL = Reportable Detection Limit



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AEP529	AEP530	AEP531		
Sampling Date		2021/08/21	2021/08/21	2021/08/21		
Sampling Date		15:51	15:54	15:55		
COC Number		644511-36-01	644511-36-01	644511-37-01		
	UNITS	DUP R	TP21-93-02	TP21-93-04	RDL	QC Batch
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	10	A336061
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	<50	50	A336061
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	50	A336061
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	N/A	A336061
Physical Properties						
Moisture	%	7.4	4.6	7.2	0.30	A336234
Volatiles			•		,	
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	0.045	A334711
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	10	A334711
Field Preserved Volatiles			•		,	
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	A336429
Toluene	mg/kg	<0.050	<0.050	<0.050	0.050	A336429
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	A336429
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	A336429
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.020	A336429
F1 (C6-C10)	mg/kg	<10	<10	<10	10	A336429
Surrogate Recovery (%)		•	•	•	,	
1,4-Difluorobenzene (sur.)	%	102	103	102	N/A	A336429
4-Bromofluorobenzene (sur.)	%	99	100	100	N/A	A336429
D10-o-Xylene (sur.)	%	123	118	125	N/A	A336429
D4-1,2-Dichloroethane (sur.)	%	106	105	104	N/A	A336429
, /				108	N/A	A336061



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

## **AT1 REGULATED METALS - SOILS (SOIL)**

BV Labs ID		AEP523	AEP524		AEP525	AEP525		
Sampling Date		2021/08/21	2021/08/21		2021/08/21	2021/08/21		
Sampling Date		15:25	15:28		15:30	15:30		
COC Number		644511-36-01	644511-36-01		644511-36-01	644511-36-01		
	UNITS	TP21-91-02	TP21-91-04	RDL	TP21-91-06	TP21-91-06 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Calculated Boron (B)	mg/kg	0.036	<0.023	0.023	0.074	N/A	0.029	A334408
Elements								
Hex. Chromium (Cr 6+)	mg/kg	<0.080	<0.080	0.080	<0.080	N/A	0.080	A337484
Soluble Parameters								
Soluble Boron (B)	mg/L	0.16	<0.10	0.10	0.26	0.16	0.10	A337369
Saturation %	%	23	23	N/A	29	30	N/A	A335353
Soluble Sulphate (SO4)	mg/L	620	270	5.0	74	74	5.0	A337369
Elements							•	
Total Antimony (Sb)	mg/kg	<0.50	<0.50	0.50	<0.50	N/A	0.50	A335389
Total Arsenic (As)	mg/kg	8.1	8.9	1.0	8.4	N/A	1.0	A335389
Total Barium (Ba)	mg/kg	2200	2100	1.0	170	N/A	1.0	A335389
Total Beryllium (Be)	mg/kg	<0.40	<0.40	0.40	<0.40	N/A	0.40	A335389
Total Cadmium (Cd)	mg/kg	0.15	0.14	0.050	0.10	N/A	0.050	A335389
Total Chromium (Cr)	mg/kg	39	27	1.0	8.4	N/A	1.0	A335389
Total Cobalt (Co)	mg/kg	5.1	5.0	0.50	5.5	N/A	0.50	A335389
Total Copper (Cu)	mg/kg	11	10	1.0	6.0	N/A	1.0	A335389
Total Lead (Pb)	mg/kg	16	16	0.50	5.2	N/A	0.50	A335389
Total Mercury (Hg)	mg/kg	0.089	0.087	0.050	<0.050	N/A	0.050	A335389
Total Molybdenum (Mo)	mg/kg	1.3	1.2	0.40	0.65	N/A	0.40	A335389
Total Nickel (Ni)	mg/kg	25	20	1.0	14	N/A	1.0	A335389
Total Selenium (Se)	mg/kg	<0.50	<0.50	0.50	<0.50	N/A	0.50	A335389
Total Silver (Ag)	mg/kg	<0.20	<0.20	0.20	<0.20	N/A	0.20	A335389
Total Thallium (TI)	mg/kg	<0.10	<0.10	0.10	<0.10	N/A	0.10	A335389
Total Tin (Sn)	mg/kg	<1.0	<1.0	1.0	<1.0	N/A	1.0	A335389
Total Uranium (U)	mg/kg	0.58	0.55	0.20	0.49	N/A	0.20	A335389
Total Vanadium (V)	mg/kg	24	24	1.0	19	N/A	1.0	A335389
Total Zinc (Zn)	mg/kg	39	40	10	38	N/A	10	A335389

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



Report Date: 2021/09/09

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# **RESULTS OF CHEMICAL ANALYSES OF SOIL**

<b>4</b>									
BV Labs ID		AEP523		AEP524		AEP525			
Sampling Date		2021/08/21		2021/08/21		2021/08/21			
Sampling Date		15:25		15:28		15:30			
COC Number		644511-36-01		644511-36-01		644511-36-01			
	UNITS	TP21-91-02	RDL	TP21-91-04	RDL	TP21-91-06	RDL	QC Batch	
Calculated Parameters									
Soluble Nitrate (N)	mg/L	24	1.0	13	2.0	0.97	0.20	A334715	
Calculated Sulphate (SO4)	mg/kg	140	1.1	62	1.1	21	1.5	A334603	
Calculated Nitrate (N)	mg/kg	5.5	0.23	2.9	0.46	0.28	0.058	A334603	
Soluble Parameters					-			-	
Soluble Nitrite (N)	mg/L	10	1.0	16	2.0	<0.20	0.20	A337225	
Soluble Nitrate plus Nitrite (N)	mg/L	34	1.0	29	1.0	0.97	0.20	A337225	
RDL = Reportable Detection Lim	it								



 Labs Job #: C162768
 GOLDER ASSOCIATES LTD.

 port Date: 2021/09/09
 Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		AEP504	AEP532		
Sampling Date		2021/08/21	2021/08/21		
Sampling Date		10:57	16:11		
COC Number		644511-34-01	644511-37-01		
	UNITS	TP21-124-02	TP21-93-06	RDL	QC Batch
Ext. Pet. Hydrocarbon					
F3A (C16-C22)	mg/kg	N/A	<50	50	A335211
F3B (C22-C34)	mg/kg	N/A	<50	50	A335211
F2% (BIC)	mg/kg	N/A	NC	N/A	A334554
Reached Baseline at C50	mg/kg	N/A	Yes	N/A	A335211
F4G-SG (Heavy Hydrocarbons-Grav.)	mg/kg	4300	N/A	500	A340205
RDL = Reportable Detection Limit	•				
N/A = Not Applicable					



BV Labs Job #: C162768

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

BV Labs ID		AEP523	AEP524	AEP525		
Sampling Date		2021/08/21	2021/08/21	2021/08/21		
Sampling Date		15:25	15:28	15:30		
COC Number		644511-36-01	644511-36-01	644511-36-01		
	UNITS	TP21-91-02	TP21-91-04	TP21-91-06	RDL	QC Batch
	0					
Elements						
Elements Total Fusion Barium (Ba)	mg/kg		3300	750	50	A340316



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## **GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	3.3°C
Package 3	2.0°C
Package 4	1.3°C
Package 5	3.0°C

Sample AEP489 [TP21-123-04] : Sample received was not in compliance with CCME sampling requirements for VOC/BTEX/F1 in soil.

Sample AEP509 [DUP P]: Sample received was not in compliance with CCME sampling requirements for VOC/BTEX/F1 in soil.

Sample AEP532 [TP21-93-06]: Sample received was not in compliance with CCME sampling requirements for VOC/BTEX/F1 in soil.

Results relate only to the items tested.



BV Labs Job #: C162768 GOLDER ASSOCIATES LTD.

Report Date: 2021/09/09 Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# **QUALITY ASSURANCE REPORT**

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A335211	GG3	Matrix Spike	F3A (C16-C22)	2021/08/30		89	%	60 - 140
			F3B (C22-C34)	2021/08/30		88	%	60 - 140
A335211	GG3	Spiked Blank	F3A (C16-C22)	2021/08/30		95	%	60 - 140
			F3B (C22-C34)	2021/08/30		93	%	60 - 140
A335211	GG3	Method Blank	F3A (C16-C22)	2021/08/30	<50		mg/kg	
			F3B (C22-C34)	2021/08/30	<50		mg/kg	
A335211	GG3	RPD	F3A (C16-C22)	2021/08/30	NC		%	40
			F3B (C22-C34)	2021/08/30	NC		%	40
A335353	EH2	QC Standard	Saturation %	2021/08/31		101	%	75 - 125
A335353	EH2	RPD [AEP525-03]	Saturation %	2021/08/31	1.6		%	12
A335389	LQ1	Matrix Spike	Total Antimony (Sb)	2021/08/30		111	%	75 - 125
			Total Arsenic (As)	2021/08/30		109	%	75 - 125
			Total Barium (Ba)	2021/08/30		NC	%	75 - 125
			Total Beryllium (Be)	2021/08/30		109	%	75 - 125
			Total Cadmium (Cd)	2021/08/30		102	%	75 - 125
			Total Chromium (Cr)	2021/08/30		115	%	75 - 125
			Total Cobalt (Co)	2021/08/30		103	%	75 - 125
			Total Copper (Cu)	2021/08/30		112	%	75 - 125
			Total Lead (Pb)	2021/08/30		111	%	75 - 125
			Total Mercury (Hg)	2021/08/30		115	%	75 - 125
			Total Molybdenum (Mo)	2021/08/30		113	%	75 - 125
			Total Nickel (Ni)	2021/08/30		113	%	75 - 125
			Total Selenium (Se)	2021/08/30		118	%	75 - 125
			Total Silver (Ag)	2021/08/30		114	%	75 - 125
			Total Thallium (TI)	2021/08/30		104	%	75 - 125
			Total Tin (Sn)	2021/08/30		115	%	75 - 125
			Total Uranium (U)	2021/08/30		108	%	75 - 125
			Total Vanadium (V)	2021/08/30		124	%	75 - 125
			Total Zinc (Zn)	2021/08/30		NC	%	75 - 125
A335389	LQ1	QC Standard	Total Antimony (Sb)	2021/08/30		125	%	15 - 182
7.000000	-4-	Qo otamaara	Total Arsenic (As)	2021/08/30		105	%	53 - 147
			Total Barium (Ba)	2021/08/30		102	%	80 - 119
			Total Cadmium (Cd)	2021/08/30		106	%	72 - 128
			Total Chromium (Cr)	2021/08/30		112	%	59 - 141
			Total Cobalt (Co)	2021/08/30		105	%	58 - 142
			Total Copper (Cu)	2021/08/30		109	%	83 - 117
			Total Lead (Pb)	2021/08/30		116	%	79 - 121
			Total Molybdenum (Mo)	2021/08/30		118	%	67 - 133
			Total Nickel (Ni)	2021/08/30		114	%	79 - 121
			Total Silver (Ag)	2021/08/30		94	%	47 - 153
			Total Tin (Sn)	2021/08/30		109	%	67 - 133
			Total Uranium (U)	2021/08/30		103	%	77 - 123
			Total Vanadium (V)	2021/08/30		114	%	77 - 123 79 - 121
			Total Variation (V) Total Zinc (Zn)	2021/08/30		106	% %	79 - 121 79 - 121
A335389	LQ1	Spiked Blank	Total Antimony (Sb)	2021/08/30		114	%	80 - 120
, .555565	LQI	Spined Didilk	Total Artimony (35)	2021/08/30		105	%	80 - 120
			Total Barium (Ba)	2021/08/30		103	% %	80 - 120
			Total Barium (Ba)	2021/08/30		109	% %	80 - 120 80 - 120
			Total Cadmium (Cd)	2021/08/30		108	% %	80 - 120 80 - 120
			Total Cadmium (Cd) Total Chromium (Cr)	2021/08/30				
			Total Cobalt (Co)			110	%	80 - 120 80 - 120
			TOTAL CODAIL (CO)	2021/08/30		110	<u> </u>	80 - 120



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
Daten		QC 17PC	Total Copper (Cu)	2021/08/30	Value	112	%	80 - 120
			Total Lead (Pb)	2021/08/30		109	%	80 - 120
			Total Mercury (Hg)	2021/08/30		114	%	80 - 120
			Total Molybdenum (Mo)	2021/08/30		115	%	80 - 120
			Total Nickel (Ni)	2021/08/30		111	%	80 - 120
			Total Selenium (Se)	2021/08/30		105	%	80 - 120
			Total Silver (Ag)	2021/08/30		113	%	80 - 120
			Total Thallium (TI)	2021/08/30		109	%	80 - 120
			Total Tin (Sn)	2021/08/30		108	%	80 - 120
			Total Uranium (U)	2021/08/30		115	%	80 - 120
			Total Vanadium (V)	2021/08/30		109	%	80 - 120
			Total Zinc (Zn)	2021/08/30		105	%	80 - 120
A335389	LQ1	Method Blank	Total Antimony (Sb)	2021/08/30	<0.50		mg/kg	
			Total Arsenic (As)	2021/08/30	<1.0		mg/kg	
			Total Barium (Ba)	2021/08/30	<1.0		mg/kg	
			Total Beryllium (Be)	2021/08/30	< 0.40		mg/kg	
			Total Cadmium (Cd)	2021/08/30	<0.050		mg/kg	
			Total Chromium (Cr)	2021/08/30	<1.0		mg/kg	
			Total Cobalt (Co)	2021/08/30	<0.50		mg/kg	
			Total Copper (Cu)	2021/08/30	<1.0		mg/kg	
			Total Lead (Pb)	2021/08/30	<0.50		mg/kg	
			Total Mercury (Hg)	2021/08/30	< 0.050		mg/kg	
			Total Molybdenum (Mo)	2021/08/30	< 0.40		mg/kg	
			Total Nickel (Ni)	2021/08/30	<1.0		mg/kg	
			Total Selenium (Se)	2021/08/30	<0.50		mg/kg	
			Total Silver (Ag)	2021/08/30	<0.20		mg/kg	
			Total Thallium (TI)	2021/08/30	<0.10		mg/kg	
			Total Tin (Sn)	2021/08/30	<1.0		mg/kg	
			Total Uranium (U)	2021/08/30	<0.20		mg/kg	
			Total Vanadium (V)	2021/08/30	<1.0		mg/kg	
			Total Zinc (Zn)	2021/08/30	<10		mg/kg	
A335389	LQ1	RPD	Total Antimony (Sb)	2021/08/30	8.6		%	30
			Total Arsenic (As)	2021/08/30	0.040		%	30
			Total Barium (Ba)	2021/08/30	6.5		%	35
			Total Beryllium (Be)	2021/08/30	2.4		%	30
			Total Cadmium (Cd)	2021/08/30	0.87		%	30
			Total Chromium (Cr)	2021/08/30	2.8		%	30
			Total Cobalt (Co)	2021/08/30	5.3		%	30
			Total Copper (Cu)	2021/08/30	3.3		%	30
			Total Lead (Pb)	2021/08/30	3.8		%	35
			Total Mercury (Hg)	2021/08/30	9.6		%	35
			Total Molybdenum (Mo)	2021/08/30	0.42		%	35
			Total Nickel (Ni)	2021/08/30	1.0		%	30
			Total Selenium (Se)	2021/08/30	NC		%	30
			Total Silver (Ag)	2021/08/30	NC		%	35
			Total Thallium (TI)	2021/08/30	7.3		%	30
			Total Tin (Sn)	2021/08/30	NC		%	35
			Total Uranium (U)	2021/08/30	0.63		%	30
			Total Vanadium (V)	2021/08/30	4.4		%	30
			Total Zinc (Zn)	2021/08/30	0.14		%	30
4336003	EC0	Matrix Spike	O-TERPHENYL (sur.)	2021/09/01		102	%	60 - 140



Report Date: 2021/09/09

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

QA/QC								<u> </u>
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			F2 (C10-C16 Hydrocarbons)	2021/09/01		104	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/01		98	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/01		113	%	60 - 140
A336003	EC0	Spiked Blank	O-TERPHENYL (sur.)	2021/08/31		95	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/08/31		92	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/08/31		89	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/08/31		97	%	60 - 140
A336003	EC0	Method Blank	O-TERPHENYL (sur.)	2021/08/31		112	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/08/31	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/08/31	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/08/31	<50		mg/kg	
A336003	EC0	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/01	18		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/01	26		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/01	NC		%	40
A336061	MHF	Matrix Spike [AEP520-01]	O-TERPHENYL (sur.)	2021/09/01		109	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/01		104	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/01		94	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/01		93	%	60 - 140
A336061	MHF	Spiked Blank	O-TERPHENYL (sur.)	2021/09/01		105	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/01		103	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/01		96	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/01		93	%	60 - 140
A336061	MHF	Method Blank	O-TERPHENYL (sur.)	2021/09/01		104	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/01	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/01	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/01	<50		mg/kg	
A336061	MHF	RPD [AEP520-01]	F2 (C10-C16 Hydrocarbons)	2021/09/01	15		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/01	4.6		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/01	NC		%	40
A336192	SVI	Method Blank	Moisture	2021/08/31	< 0.30		%	
A336192	SVI	RPD [AEP511-01]	Moisture	2021/08/31	6.7		%	20
A336234	WLE	Method Blank	Moisture	2021/08/31	< 0.30		%	
A336234	WLE	RPD [AEP520-01]	Moisture	2021/08/31	2.5		%	20
A336426	DO1	Matrix Spike [AEP482-02]	1,4-Difluorobenzene (sur.)	2021/08/31		92	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/08/31		99	%	50 - 140
			D10-o-Xylene (sur.)	2021/08/31		122	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/08/31		102	%	50 - 140
			Benzene	2021/08/31		101	%	50 - 140
			Toluene	2021/08/31		95	%	50 - 140
			Ethylbenzene	2021/08/31		103	%	50 - 140
			m & p-Xylene	2021/08/31		96	%	50 - 140
			o-Xylene	2021/08/31		100	%	50 - 140
			F1 (C6-C10)	2021/08/31		90	%	60 - 140
A336426	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/08/31		88	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/08/31		87	%	50 - 140
			D10-o-Xylene (sur.)	2021/08/31		102	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/08/31		98	%	50 - 140
			Benzene	2021/08/31		92	%	60 - 130
			Toluene	2021/08/31		96	%	60 - 130
			Ethylbenzene	2021/08/31		97	%	60 - 130
			m & p-Xylene	2021/08/31		94	%	60 - 130



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			o-Xylene	2021/08/31		85	%	60 - 130
			F1 (C6-C10)	2021/08/31		97	%	60 - 140
A336426	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/08/31		101	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/08/31		100	%	50 - 140
			D10-o-Xylene (sur.)	2021/08/31		111	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/08/31		106	%	50 - 140
			Benzene	2021/08/31	<0.0050		mg/kg	
			Toluene	2021/08/31	<0.050		mg/kg	
			Ethylbenzene	2021/08/31	<0.010		mg/kg	
			m & p-Xylene	2021/08/31	<0.040		mg/kg	
			o-Xylene	2021/08/31	<0.020		mg/kg	
			F1 (C6-C10)	2021/08/31	<10		mg/kg	
A336426	DO1	RPD [AEP482-02]	Benzene	2021/08/31	NC		%	50
			Toluene	2021/08/31	NC		%	50
			Ethylbenzene	2021/08/31	NC		%	50
			m & p-Xylene	2021/08/31	NC		%	50
			o-Xylene	2021/08/31	NC		%	50
			F1 (C6-C10)	2021/08/31	NC		%	30
A336429	DO1	Matrix Spike [AEP513-02]	1,4-Difluorobenzene (sur.)	2021/09/01		95	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/01		100	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/01		134	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/01		99	%	50 - 140
			Benzene	2021/09/01		98	%	50 - 140
			Toluene	2021/09/01		93	%	50 - 140
			Ethylbenzene	2021/09/01		101	%	50 - 140
			m & p-Xylene	2021/09/01		94	%	50 - 140
			o-Xylene	2021/09/01		97	%	50 - 140
			F1 (C6-C10)	2021/09/01		92	%	60 - 140
A336429	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/01		90	%	50 - 140
A330423	DOI	эрікса віапк	4-Bromofluorobenzene (sur.)	2021/09/01		90	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/01		98	%	50 - 140
			D10-0-Aylerie (sur.) D4-1,2-Dichloroethane (sur.)	2021/09/01		98	%	50 - 140
			Benzene	2021/09/01		88	%	60 - 130
			Toluene	2021/09/01		91	% %	60 - 130
			Ethylbenzene	2021/09/01		92		60 - 130
				• •		90	% %	
			m & p-Xylene	2021/09/01 2021/09/01			% %	60 - 130 60 - 130
			o-Xylene			81		
4226420	504		F1 (C6-C10)	2021/09/01		102	%	60 - 140
A336429	DOI	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/01		101	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/01		101	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/01		112	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/01		103	%	50 - 140
			Benzene	2021/09/01	<0.0050		mg/kg	
			Toluene	2021/09/01	<0.050		mg/kg	
			Ethylbenzene	2021/09/01	<0.012 (1)		mg/kg	
			m & p-Xylene	2021/09/01	<0.040		mg/kg	
			o-Xylene	2021/09/01	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/01	<10		mg/kg	
A336429	DO1	RPD [AEP513-02]	Benzene	2021/09/01	NC		%	50
			Toluene	2021/09/01	NC		%	50
			Ethylbenzene	2021/09/01	NC		%	50



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			m & p-Xylene	2021/09/01	NC		%	50
			o-Xylene	2021/09/01	NC		%	50
			F1 (C6-C10)	2021/09/01	NC		%	30
A336664	GG3	Matrix Spike [AEP482-01]	O-TERPHENYL (sur.)	2021/09/01		96	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/01		93	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/01		98	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/01		100	%	60 - 140
A336664	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/01		95	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/01		95	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/01		100	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/01		101	%	60 - 140
A336664	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/01		96	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/01	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/01	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/01	<50		mg/kg	
A336664	GG3	RPD [AEP482-01]	F2 (C10-C16 Hydrocarbons)	2021/09/01	16		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/01	4.0		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/01	29		%	40
A336673	KLG	Method Blank	Moisture	2021/08/31	< 0.30		%	
A336673	KLG	RPD [AEP482-01]	Moisture	2021/08/31	1.0		%	20
A336885	LL0	Matrix Spike	O-TERPHENYL (sur.)	2021/08/31		108	%	60 - 140
		·	F2 (C10-C16 Hydrocarbons)	2021/08/31		98	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/08/31		102	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/08/31		95	%	60 - 140
A336885	LLO	Spiked Blank	O-TERPHENYL (sur.)	2021/08/31		91	%	60 - 140
		- <b>r</b>	F2 (C10-C16 Hydrocarbons)	2021/08/31		88	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/08/31		89	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/08/31		91	%	60 - 140
A336885	LLO	Method Blank	O-TERPHENYL (sur.)	2021/08/31		95	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/08/31	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/08/31	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/08/31	<50		mg/kg	
A336885	LL0	RPD	F2 (C10-C16 Hydrocarbons)	2021/08/31	NC		<b>8</b> /8	40
7.550005	LLO	111 5	F3 (C16-C34 Hydrocarbons)	2021/08/31	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/08/31	NC		%	40
A337225	JFH	Matrix Spike	Soluble Nitrite (N)	2021/08/31	140	86	%	75 - 125
71337223	3111	Wat ix Spike	Soluble Nitrate plus Nitrite (N)	2021/08/31		51 (2)	%	75 - 125
A337225	JFH	QC Standard	Soluble Nitrate plus Nitrite (N)	2021/08/31		90	%	75 - 125
A337225	JFH	Spiked Blank	Soluble Nitrite (N)	2021/08/31		93	%	80 - 120
A337223	3111	Spiked Blatik	Soluble Nitrate plus Nitrite (N)	2021/08/31		93	%	80 - 120
A337225	JFH	Method Blank	Soluble Nitrite (N)	2021/08/31	<0.20	55	mg/L	00 - 120
A337223	3111	Wethod Diank	Soluble Nitrate plus Nitrite (N)	2021/08/31	<0.20		mg/L	
A337225	JFH	RPD	Soluble Nitrite (N)	2021/08/31	NC		111g/ L %	30
A337223	MPU	Matrix Spike [AEP525-03]	Soluble Boron (B)	2021/08/31	NC	107	%	75 - 125
A337369	MPU	QC Standard	Soluble Sulphate (SO4)	2021/08/31		107	% %	75 - 125 75 - 125
			Soluble Boron (B)			99	% %	
A337369	MPU	Spiked Blank	` '	2021/08/31 2021/08/31	<0.10	99		80 - 120
A337369	MPU	Method Blank	Soluble Boron (B)	· ·	<0.10		mg/L	
4227260	NAC:	DDD [4EDE35 03]	Soluble Sulphate (SO4)	2021/08/31	<5.0		mg/L	22
A337369	MPU	RPD [AEP525-03]	Soluble Boron (B)	2021/08/31	NC		%	30
			Soluble Sulphate (SO4)	2021/08/31	0.52		%	30
A337484	KWE	Matrix Spike	Hex. Chromium (Cr 6+)	2021/08/31		96	%	75 - 125



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

01/06			QUALITI ASSURANCE					
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A337484	KWE	Spiked Blank	Hex. Chromium (Cr 6+)	2021/08/31		111	%	80 - 120
A337484	KWE	•	Hex. Chromium (Cr 6+)	2021/08/31	<0.080		mg/kg	
A337484	KWE	RPD	Hex. Chromium (Cr 6+)	2021/08/31	NC		%	35
A337532	ARV	Method Blank	Moisture	2021/09/01	< 0.30		%	
A337532	ARV	RPD	Moisture	2021/09/01	7.4		%	20
A338974	DO1	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/01		106	%	50 - 140
		,	4-Bromofluorobenzene (sur.)	2021/09/01		87	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/01		86	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/01		96	%	50 - 140
			Benzene	2021/09/01		99	%	50 - 140
			Toluene	2021/09/01		104	%	50 - 140
			Ethylbenzene	2021/09/01		106	%	50 - 140
			m & p-Xylene	2021/09/01		109	%	50 - 140
			o-Xylene	2021/09/01		108	%	50 - 140
			F1 (C6-C10)	2021/09/01		83	%	60 - 140
A338974	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/01		101	%	50 - 140
		•	4-Bromofluorobenzene (sur.)	2021/09/01		83	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/01		88	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/01		102	%	50 - 140
			Benzene	2021/09/01		82	%	60 - 130
			Toluene	2021/09/01		89	%	60 - 130
			Ethylbenzene	2021/09/01		89	%	60 - 130
			m & p-Xylene	2021/09/01		91	%	60 - 130
			o-Xylene	2021/09/01		86	%	60 - 130
			F1 (C6-C10)	2021/09/01		90	%	60 - 140
A338974	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/01		103	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/01		83	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/01		78	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/01		96	%	50 - 140
			Benzene	2021/09/01	<0.0050		mg/kg	
			Toluene	2021/09/01	< 0.050		mg/kg	
			Ethylbenzene	2021/09/01	< 0.010		mg/kg	
			m & p-Xylene	2021/09/01	< 0.040		mg/kg	
			o-Xylene	2021/09/01	< 0.020		mg/kg	
			F1 (C6-C10)	2021/09/01	<10		mg/kg	
A338974	DO1	RPD	Benzene	2021/09/01	NC		%	50
			Toluene	2021/09/01	NC		%	50
			Ethylbenzene	2021/09/01	NC		%	50
			m & p-Xylene	2021/09/01	NC		%	50
			o-Xylene	2021/09/01	NC		%	50
			F1 (C6-C10)	2021/09/01	NC		%	30
A340134	JNG	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/02		93	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/02		101	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/02		118	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/02		111	%	50 - 140
			Benzene	2021/09/02		95	%	50 - 140
			Toluene	2021/09/02		92	%	50 - 140
			Ethylbenzene	2021/09/02		103	%	50 - 140
			m & p-Xylene	2021/09/02		94	%	50 - 140
			o-Xylene	2021/09/02		97	%	50 - 140
			F1 (C6-C10)	2021/09/02		84	%	60 - 140



Report Date: 2021/09/09

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A340134	JNG	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/02		87	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/02		91	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/02		100	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/02		106	%	50 - 140
			Benzene	2021/09/02		86	%	60 - 130
			Toluene	2021/09/02		91	%	60 - 130
			Ethylbenzene	2021/09/02		93	%	60 - 130
			m & p-Xylene	2021/09/02		90	%	60 - 130
			o-Xylene	2021/09/02		80	%	60 - 130
			F1 (C6-C10)	2021/09/02		107	%	60 - 140
A340134	JNG	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/02		101	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/02		103	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/02		112	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/02		113	%	50 - 140
			Benzene	2021/09/02	<0.0050		mg/kg	
			Toluene	2021/09/02	<0.050		mg/kg	
			Ethylbenzene	2021/09/02	<0.010		mg/kg	
			m & p-Xylene	2021/09/02	<0.040		mg/kg	
			o-Xylene	2021/09/02	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/02	<10		mg/kg	
A340134	JNG	RPD	Benzene	2021/09/02	NC		%	50
			Toluene	2021/09/02	NC		%	50
			Ethylbenzene	2021/09/02	NC		%	50
			m & p-Xylene	2021/09/02	NC		%	50
			o-Xylene	2021/09/02	NC		%	50
			F1 (C6-C10)	2021/09/02	NC		%	40
A340205	JB9	Spiked Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/02		100	%	60 - 140
A340205	JB9	Method Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/02	<500		mg/kg	
A340316	JAB	QC Standard	Total Fusion Barium (Ba)	2021/09/05		124	%	75 - 125
A340316	JAB	Spiked Blank	Total Fusion Barium (Ba)	2021/09/05		117	%	75 - 125
A340316	JAB	Method Blank	Total Fusion Barium (Ba)	2021/09/05	<50		mg/kg	
A340316	JAB	RPD	Total Fusion Barium (Ba)	2021/09/05	6.5		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

- (1) Detection limit raised due to interferent.
- (2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### **VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by:

 $Ghay a suddin \ Khan, \ M. Sc., \ P. Chem., \ QP, \ Scientific \ Specialist, \ Inorganics$ 

Janet Gao, B.Sc., QP, Supervisor, Organics

Tunzhi Gas

Jingyuan Song, QP, Organics – Senior Analyst

bernica fech

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

# ADDITIONAL COOLER TEMPERATURE RECORD

CHAIN-OF-CUSTODY RECORD

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ADDITIONAL COOLER TEMPERATURE RECORD CHAIN-OF-CUSTODY RECORD

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COOLER OBSERVATIONS:		CUSTODY SEAL	INTACT	ICE PRESENT	CUSTODY SEAL	PRESENT	ICE PRESENT	CUSTODY SEAL	PRESENT	INTACT	ICE PRESENT	CUSTODY SEAL	PRESENT	INTACI	CUSTODY SEAL	PRESENT	INTACT	ICE PRESENT	CUSTODY SEAL	PRESENT	INTACT	CUSTODY SEAL	PRESENT	INTACT	ICE PRESENT	CUSTODY SEAL	INTACT	ICE PRESENT	CUSTODY SEAL	PRESENT	INTACT	CLETONY SEAT	PRESENT	INTACT	ICE PRESENT	RECEIVED BY (CIGN 8, DDINT)
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Bureau Veritas Laboratories 4000 19st N.E. Galgary, Alberta Canada T2E 6PB Tat/403) 291-3077 Toll-free:800-563-6266 Fax.(403) 291-9468 www bulabs.com

CHAIN OF CUSTODY RECORD

contact your Project Manager for Bottle Order #: Project Manager: Carmen McKay Received in Yellowknife Please provide advance notice for rush projects RIP BY: JWETCHED AUG 24 2021 54:40 Laboratory Use Only: Turnaround Time (TAT) Required note. Standard TAT for certain tests are > 5 days -225 C#644511-33-01 Specific Rush TAT (if applies to entire subn Laboratory Use Only Standard TAT = 5-7 Working days for most tests Temp: (will be applied if Rush TAT is not specified). Z 89429 BV Labs Job #: S M 3 M M V N MM W Limited Sample - UNIVESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAN OF CUSTOOY RS SUBJECT TO BY LABSE STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTOOY RECORDING.
WANNEAULES CONTINENS AND CONTINEN Date: (YY/MM/DD) Time # jars used and 2001 (02/5) 16: 00 not submitted C00480 20368099-7000-1001 20368099-6000-1001 PAH in Water by GC/MS PROJECT INFORMATION: Regulated Metals (CCME/AT1) ANALYSIS REQUESTED (PLEASE BE SPECIFIC) Routine Water CCME BTEX and F1-F2 in Project Name Extraction (True Barium) P.O. # Project Barium on ICP using Fusion Site # Sulphate / nitrate (F2/F2+F3B) in soil BIC SCALE Analysis RECEIVED BY: (Signaturers 127) Art BTEX and F1-F4 in Soil (Visls) 7 , #6340 GOLDER ASSOCIATES LTD.
Aurelie Belavance
2800, 700 -2nd Street SW
CALGARY AB T2P 2W2 2 7 7 7 atica - alaiet/ betaluge/ REPORT TO: Metals Field Filtered ? (Y/N) abellavance@golder.com 2016 18:00 NATASHA Matrix (403) 299-5600 10:39 Tine Sampled 1007 5007 450 1005 (095 9560 るで SAMPLING UNTIL DELIVERY TO BULABS 900 3/AVG 31 0955 Date Sampled Attention: Address Tel: Email. 21/08/21 60-011-61H8-160T (403) 299-5606 7P21-123-06 40-561-164 canadaaccountspayableinvoices@golder.com TPO-143-03 10-561-1697 Sample (Location) Identification 59- (M)-1804 40-961-16dy 10-151-1597 0-Ch)-18al TPOI-106-104 GOLDER ASSOCIATES LTD. Fax TAN 2800, 700 -2nd Street SW (905) 567-6100 Ext: 1167 INVOICE TO: CALGARY AB T2P 2W2 ACCOUNTS PAYABLE PETER Regulatory Criteria せる CCME Other Согтралу Name AT! A Attention ē 1/4

Bureau Veritas Canada (2019) Inc.

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Page of	345	Only:	Bottle Order #:		644511	Project Manager:	Carmen McKay		juired:	sh projects	$\searrow$	ontact your Project Manager fo	[		(call lab for #)				allowknife	240	2021	TETE	1 1					Custody Seal Intact on Cooler?	White: BV Labs Yellow: Client
	CHAIN OF CUSTODY RECORD	Laboratory Use Only:	BV Labs Job #:	875071	0 1 1 0	COC#:		C#644511-34-01	Turnaround Time (TAT) Required:	Please provide advance notice for rush projects	Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 6.7 Wholeon rlave for most lasts	oganicario in in community du journation in community and in community of the community of the contract your Project Manager for Plansis	Job Specific Rush TAT (if applies to entire submission)	TO TO		Comments			Received in Yellowknife	BY: J.MERCANA	AUG 2 4 2021	See AC	Temp:				Laboratory Use Only	C) on Receipt	
	CHAIN OF C			ز					_		Regular (Standard) TAT: (will be applied if Rush TA Standard TAT = 5.7 Mode	Please note: 5			Rush Confirmation Number:	Limit # of Bottles	M	M	M	M	M	M	M	3	W	~	,	Time Sensitive	- UNLESS OTHERWISE AGREED TO IN WRITHING, WORN SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LARS STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY BOCUMENT IS ACRICIAL TO BE NOT TERMS WHICH ARE ACCUSACY OF THE CHAIN OF CUSTODY RESOLD IN WANATURES CONDITIONS.  "IT IS THE RESOLVISHENT OF THE RELUMBINET TO ENSURE THE ACCUBACY OF THE CHAIN OF CUSTODY RESOLD IN WANATURE TO BE NOT THE RELUMBINET TO ENSURE THE ACCUBACY OF THE CHAIN OF CUSTODY RESOLD IN WANATURE TO BE NOT THE RELUMBINET TO ENSURE THE ACCUBACY OF THE CHAIN OF CUSTODY RESOLD IN WANATURE TO BE NOT THE RELUMBINET TO ENSURE THE ACCUBACY OF THE CHAIN OF CUSTODY RESOLD IN WANATURE THE ACCUBACY.
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	Bureau Veritas Laboratories 4000 19st N.E., Caggary, Alberta Canada T2E 6P8 Tet (403) 291-3077 Toll-free 800-563-6286 Fax (403) 291-9468 www.bvlabs.com			200			-5606	Е	_						SAMPLING		149/14/6 40-64 21/4/6/1	150		6	ヹ	ح	6	7		12	Date: (YY/MM/DD)	21/08/21	- UNLESS OTHERWISE AGREED TO IN WRITING, WORN SUBNITED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS'STANDA WWW BYLDS SOOM TRIBLE ADDRESS TO BE SUBJECT OF BY SOOM STANDARD OF CUSTODY RECORD. AN INCOMP "IT ST HE RESPONSIBILITY OF THE RELINGUISHER TO ENSINE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMP
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Bureau Veritas Canada (2019) Inc.

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346	Only:	Bottle Order #:		644511	Project Manager:	More More	Carmen McNay	quired:	ush projects		<u> </u>	contact your Project Manager for	ou)			(call lab for #)	000				in Yellowknire
CHAIN OF CUSTODY RECORD	Laboratory Use Only:	BV Labs Job #:	01,00	001 701	COC #:		C#644511-35-01	Turnaround Time (TAT) Required	Please provide advance notice for rush projects	Regular (Standard) TAT:	(will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests	Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details	Job Specific Rush TAT (if applies to entire submission	ired;	Rush Confirmation Number:		Comments				Received in Yellowshill
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Toll-free:800-563		#6340 GOLDER ASSOCIATES LTD	Aurelie Belav	2800, 700 -2	CALGARY A	(403) 299-5600	abellavance@golder.com	itructions							The second second second	V LABS	Time Sampled	14:03	14.15	المار	4
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Bureau Veritas Laboratories 4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6286 Fax (403) 291-9468 www.bvlabs.com	INVOICE TO:	#254 GOLDER ASSOCIATES LTD.	PAYABLE	d Street SW	3 T2P 2W2	0 Ext: 1167 Fax: (403) 299-5606	canadaaccountspayableinvoices@golder.com									SAMPLES MUST BE KEPT COOL ( < 10°C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LAB	Sample (Location) Identification	TO31-125-08	10-10-180+	TP21-94-03	30 - 40 - 150T
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Received in Yellowknife By: 9 Men. M.

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- UMLESS OTHERWISE AGREED TO IN WIRTHING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE ANALABLE FOR VIEWING AT IT IS THE RESPONSIBILITY OF THE RELINGUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALTHICAL TAT DELAYS.

Yellow: Client

White: BV Labs

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Bureau Veritas Canada (2019) Inc.

Bureau Veritas Laboratories 4000 19st N E. Calgary, Alberta Canada T2E 6P8 Tel. (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www bulabs

CHAIN OF CUSTODY RECORD

note: Standard TAT for certain tests are > 5 days - contact your Project Manager for Received in Yallowknife Custody Seal Intact on Cooler? Bottle Order #: Project Manager Carmen McKay NUG 2 4 2021 i'r At TR · mach Z Yes Please provide advance notice for rush projects Turnaround Time (TAT) Required: Laboratory Use Only: Job Specific Rush TAT (if applies to entire submission) By: [emb] C#644511-36-01 Laboratory Use Only Standard TAT = 5-7 Working days for most tests 6162768 (will be applied if Rush TAT is not specified): BV Labs Job #: Temperature (°C) on F + 1099 bag DAG UNITESS STREEWING ACREE TO IN WINTING, WORK SUBJECT TO BY LAST STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE ANALYSIC FOR THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN AMALYTICAL TAT DELAYS.

1. P. ... ALL SANDERS ARE THOUSHER TO ENSURE THE ACCURACY OF THE CHOICE FOR THE CHAIN OF CUSTODY MAY RESULT IN AMALYTICAL TAT DELAYS. NU MN 3 MM M M Limited Sample # jars used and not submitted C00480 20368099-7000-1001 20368099-6000-1001 PAH in Water by GC/MS PROJECT INFORMATION: Regulated Metals (CCME/AT1)
- Dissolved REQUESTED (PLEASE BE SPECIFIC) Date: (YY/MM/DD) Time Routine Water CCME BTEX and F1-F2 in Project Name Sampled By: Barium on ICP using Fusion Extraction (True Barium) Project: P.O. # Site #: Heralus (Chantium Sulphate / nitrate Sulphate / nitrate Sulphate / Japan > lios ni (BS+S3/S3) BIC SCALE Analysis SWANCH B (Vials) 2 7 1 > 7 > iloS ni 44-14 bns X3T8 174 #6340 GOLDER ASSOCIATES LTD. 5 AL! Regulated Metals - Soils > Fax Aurelie Belavance 2800, 700 -2nd Street SW CALGARY AB T2P 2W2 REPORT TO: abellavance@golder.com Metals Field Filtered ? (Y/N) 7 les 18:00 NATAJ HA (403) 299-5600 1545 155 -Time Sampled 1535 1546 538 530 1513 るのと SAMPLES MUST BE KEPT GOOL ( < 10°C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS Jelyny) Attention: Date Sampled Address Tel: Email 21/08/21 (403) 299-5606 ナロー 99 60-TP21-93-02 101 90 -40-16-100 TP21-96 05 TP-96-03 GOLDER ASSOCIATES LTD. 66-1601 400-1-92 69-1-90T 16-100 16-1001 Q 791 DUR ACCOUNTS PAYABLE RELINQUISHED BY: (Signat Sample Barcode Label Regulatory Criteria CCME Other Company Name ATI 2 

Bureau Veritas Canada (2019) Inc.

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CHAIN OF CUSTODY RECORD

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Standard TAT = 5-7 Working days for most lests.

Please note: Standard TAT for certain lests are > 5 days - contact your Project Manager for details 245 Custody Seal Intact on Cooler? Project Manager: Bottle Order #: Carmen McKay Received in Yellowknife Yes Please provide advance notice for rush projects By: J.Merc. Ar Sp: 98 Laboratory Use Only: Turnaround Time (TAT) Required: AUG 24 2021 Job Specific Rush TAT (if applies to entire submiss Laboratory Use Only 225 (will be applied if Rush TAT is not specified). C162768 Temp: BV Labs Job #: Temperature (°C) on R Rush Confirmation Number MM Limited Sample # jars used and not submitted C00480 20368099-7000-1001 20368099-6000-1001 PAH in Water by GC/MS PROJECT INFORMATION: panjossin -Regulated Metals (CCME/AT1) ANALYSIS REQUESTED (PLEASE BE SPECIFIC) 06:91 Routine Water Water BTEX and F1-F2 in 26/80/ 1600 Project Name Barium on ICP using Fusion Extraction (True Barium) P.O. # Site #: Sulphate / nitrate BIC SCALE Analysis (F2/F2+F3B) in soil (Vials) \*\* #6340 GOLDER ASSOCIATES LTD.

Aurelie Belavance
2800, 700 -2nd Street SW
CALGARY AB T2P 2W2
(403) 239-5600 MUHUCHA MY BTEX and F1-F4 in Soil RECEIVED BY: (Signatur Regulated Metals - Soils REPORT TO: Metals Field Filtered ? (Y / N ) abellavance@golder.com R Soil Matrix 18:00 NATASHA Time Sampled 15:25 10:1 SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BY LABS 2 ANGBE SIAMEDI Date Sampled Attention: Address Email Tel 21/08/21 (403) 299-5606 canadaaccountspayableinvoices@golder.com Sample (Location) Identification TP21-93-06 40-56-169T , #254 GOLDER ASSOCIATES LTD.
ACCOUNTS PAYABLE
2800, 700 -2nd Street SW
CALGARY AB T2P 2W2
(905) 567-6100 Ext. 1167 TAN INVOICE TO: PETER Sample Barcoue Laber Regulatory Criteria: CCME MM BUREAU Other Company Name: ATI 4 Attention.

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RESULT IN ANALYTICAL TAT DELAYS.
\*\* ALL SAMPLES ARE HELD FOR 80 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER. UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY WWW.BYLABS.COMPTERIS AND.CONDITIONS.

White: BV Labs

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Bureau Veritas Canada (2019) Inc.

GOLDER ASSOCIATES LTD.

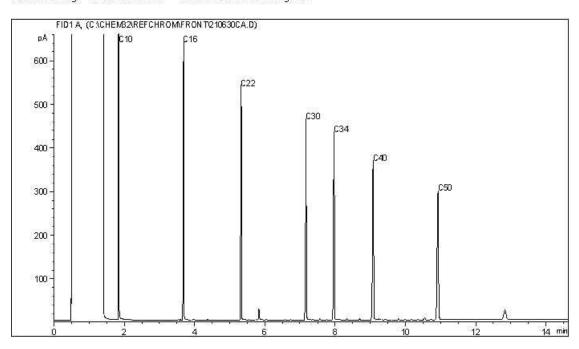
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-126-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

BV Labs Job #: C162768 Report Date: 2021/09/09

BV Labs Sample: AEP482 Lab-Dup

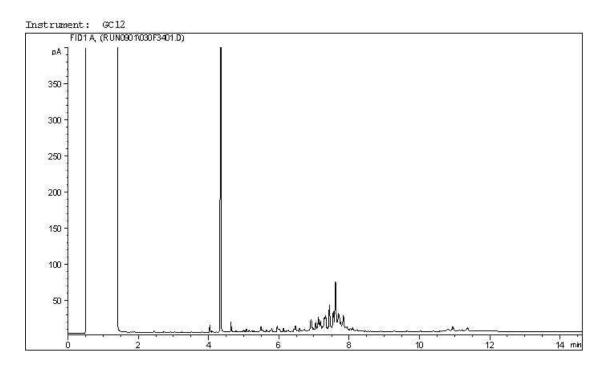
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

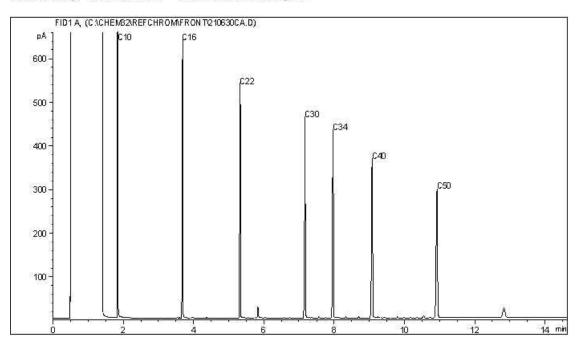
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-126-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	T	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-126-04

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

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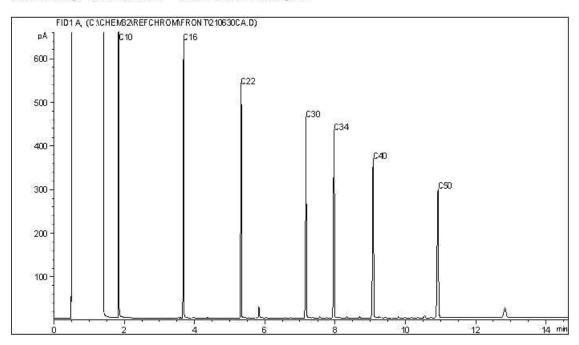
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150

100

2 4 5 8 10 12 14 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-126-06

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

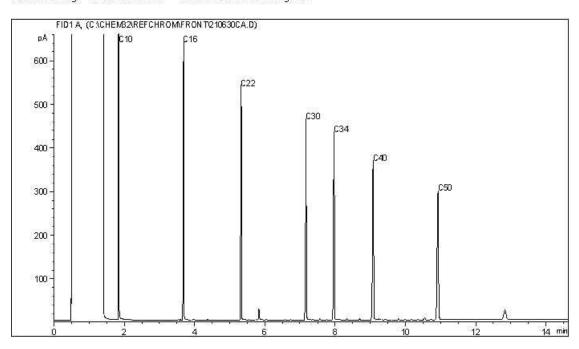
Instrument: GC12

FID1A (RUN901033F3701D)

pA

300250100100502 4 5 8 10 12 14 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

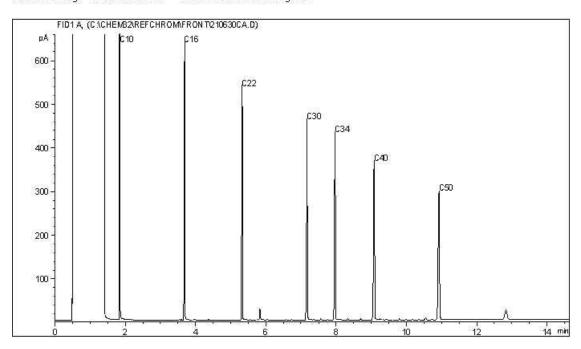
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-142-01

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

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GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

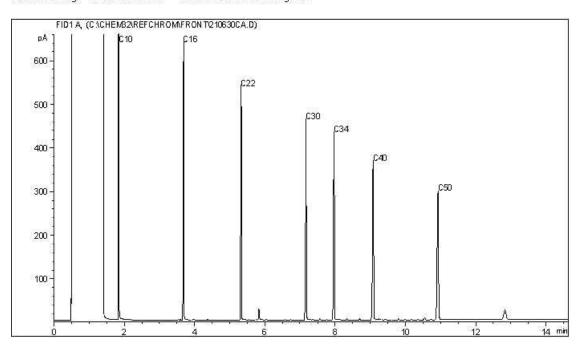
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-142-03

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

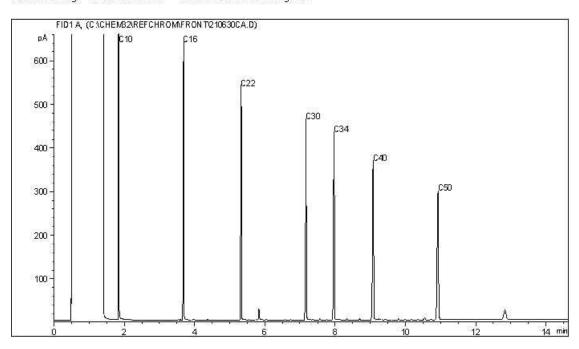
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-142-05

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-123-01

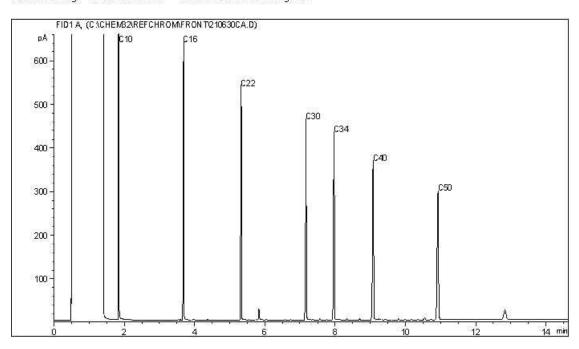
### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

FID1A (RUN9901037F4101.D)

pA

300 
250 
100 
100 
50 -

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-123-04

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Instrument: GC12

FID1A (RUN0901038F4201.D)

pA

330

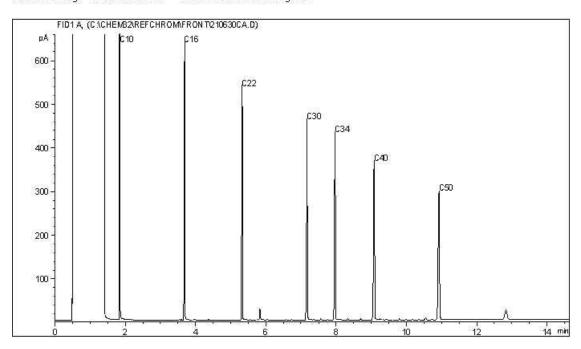
250

150

100

2 4 5 8 10 12 14 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-123-06

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

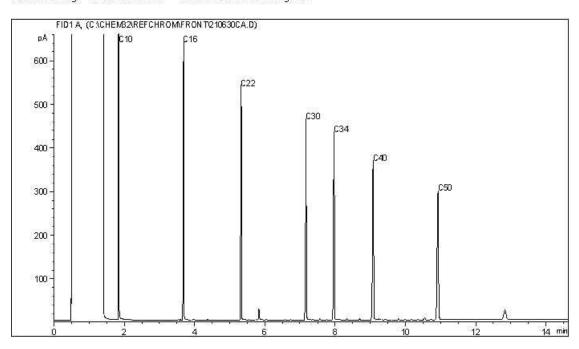
Instrument: GC12

FID1A (RUN0901040F4401.D)

pA

330025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

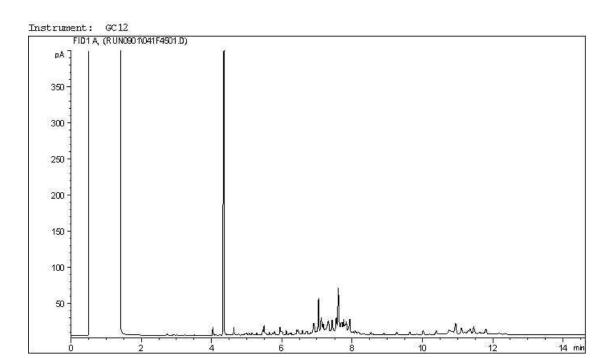
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

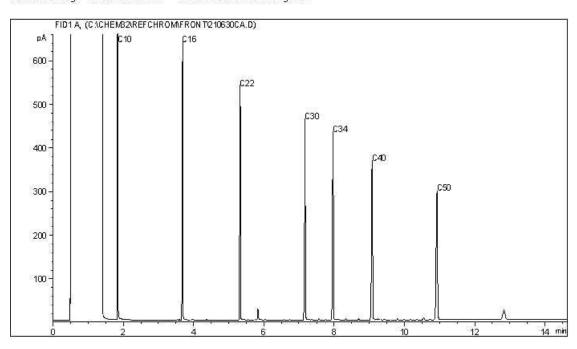
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-BH19-110-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4 -	C12	Diesel:	c8 -	C22
Varsol:	c8 -	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	C16	Crude Oils:	c3 -	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

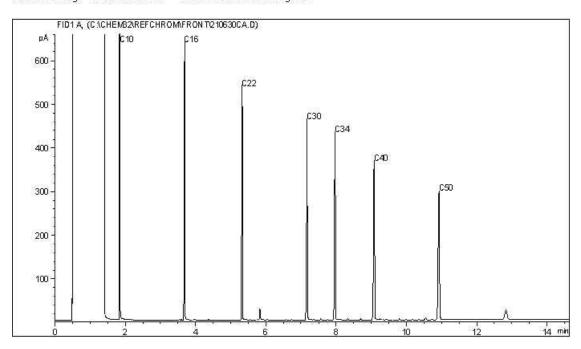
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-BH19-110-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

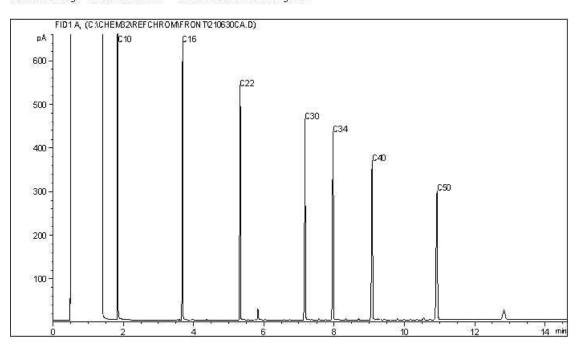
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-BH19-110-05

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP 0

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

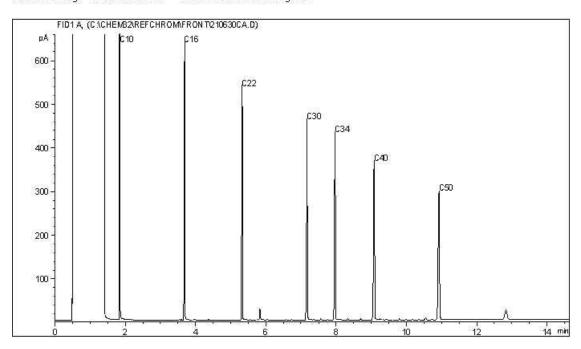
Instrument: GC12

FID1A (RUN901044F4801D)

pA

300250100100502 4 5 8 10 12 14 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-124-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

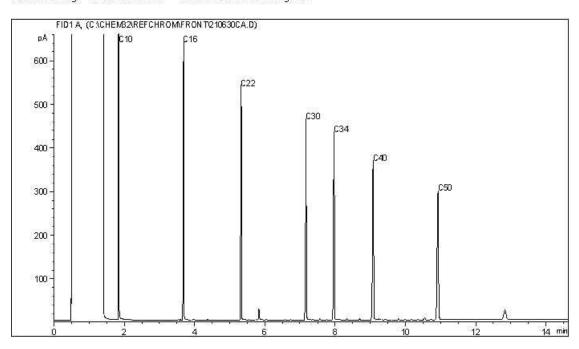
Instrument: GC12

FID1A, (RUN001045F4901.D)

pA

400
200
200
2 4 5 8 10 12 14 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-124-04

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

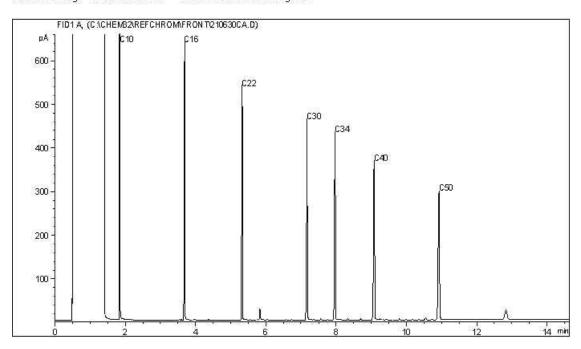
Instrument: GC12

FID1 A, (RUN0001047F5101.D)

pA

30025015010030-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

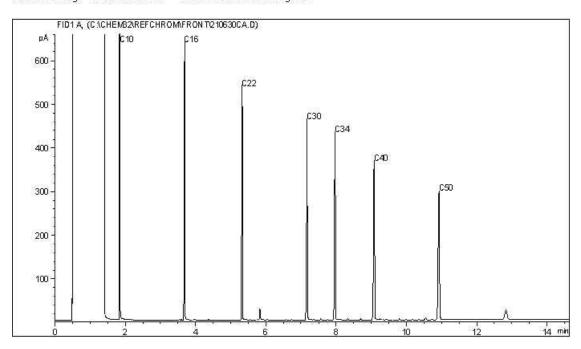
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-124-06

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-125-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

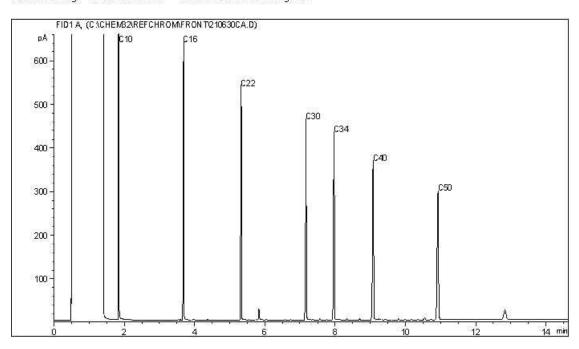
Instrument: GC12

FID1 A (RUN0901097F5801.D)

pA

35025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-125-04

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

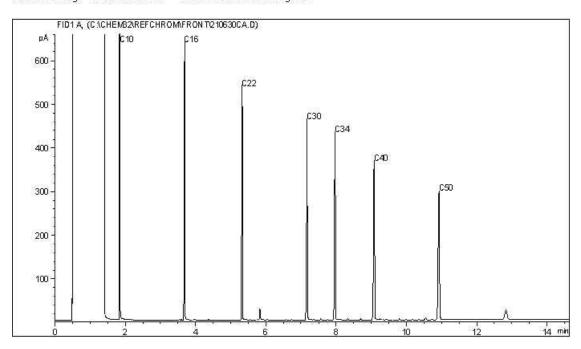
Instrument: GC12

FID1A (RUN0901096F5501D)

pA

30025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP P

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Instrument: GC12

FID1A (RUN901050F5401D)

pA

300

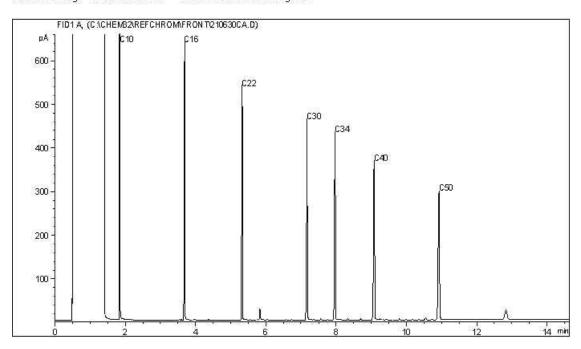
250

100

100

2 4 5 8 10 12 14 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12 Diesel: C8 - C22
Varsol: C8 - C12 Lubricating Oils: C20 - C40
Kerosene: C7 - C16 Crude Oils: C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

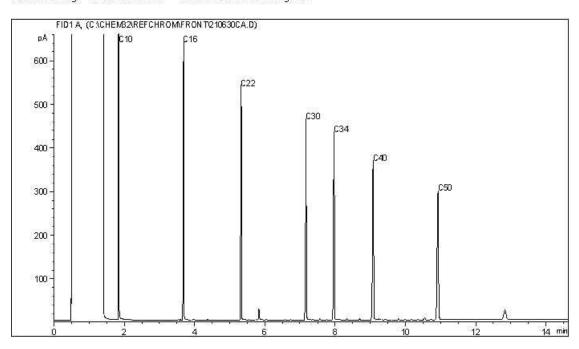
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

14 min

Client ID: TP21-125-05

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

10 min

Client ID: TP21-125-08

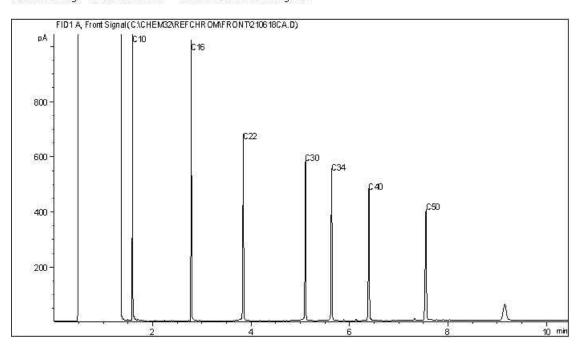
#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Instrument: GC13

FID1 A Front Signal (RUN0901/020F2001.D)

pA
30025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

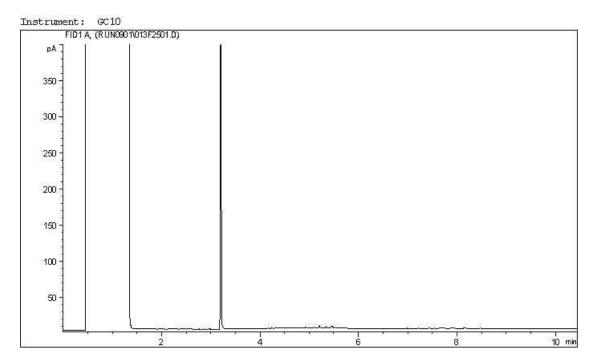
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

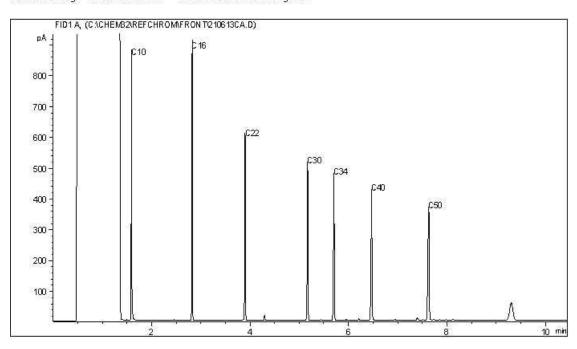
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-94-01

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	170	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

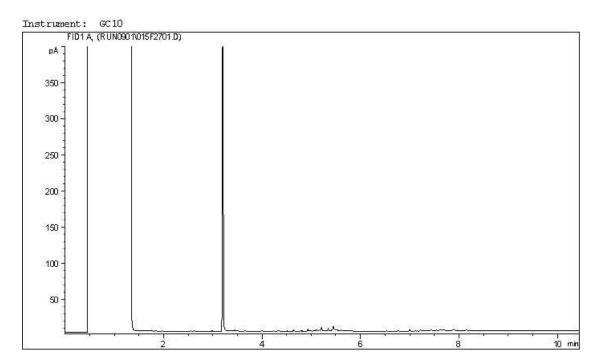
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

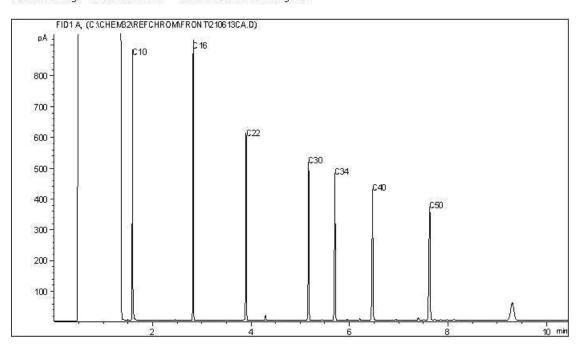
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-94-03

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

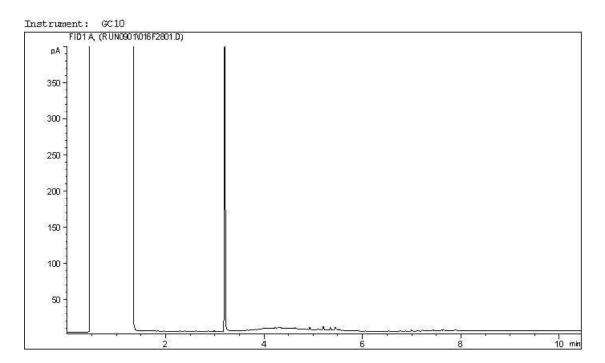
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

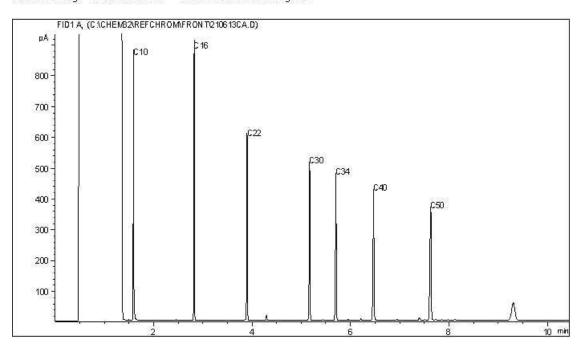
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-94-05

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

GOLDER ASSOCIATES LTD.

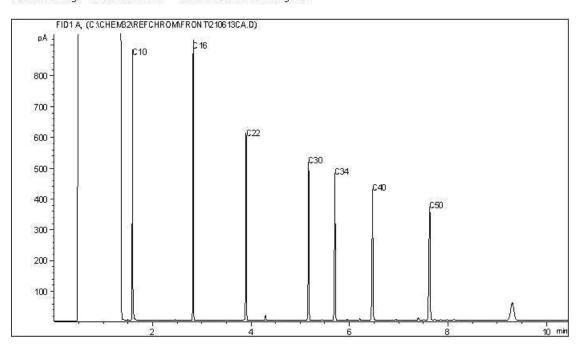
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-95-01

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

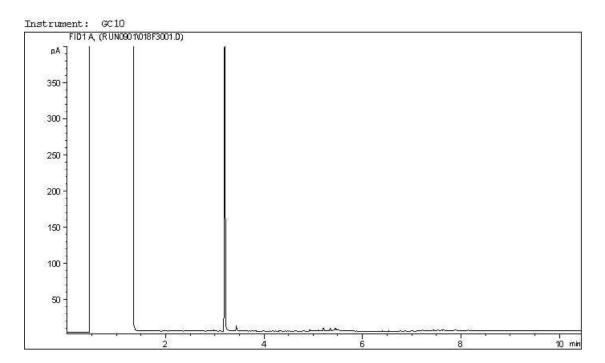
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

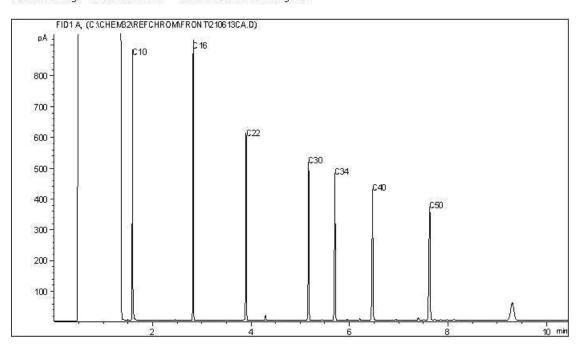
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-95-03

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

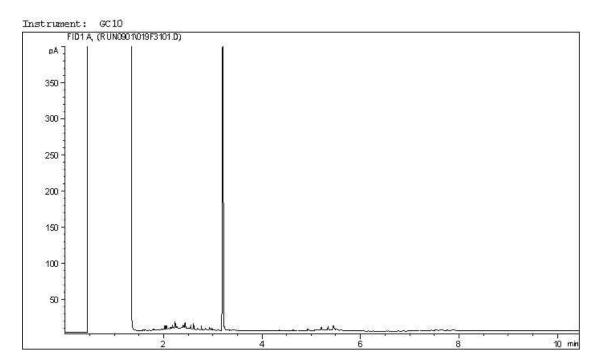
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

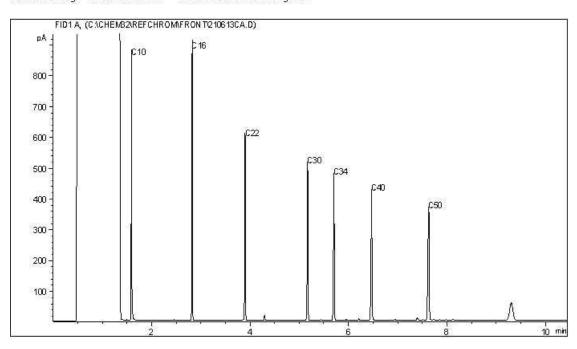
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-95-06

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

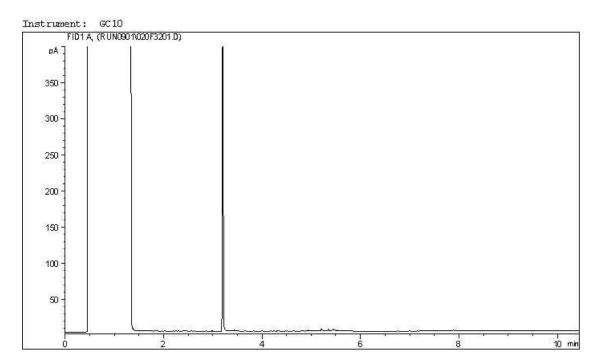
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

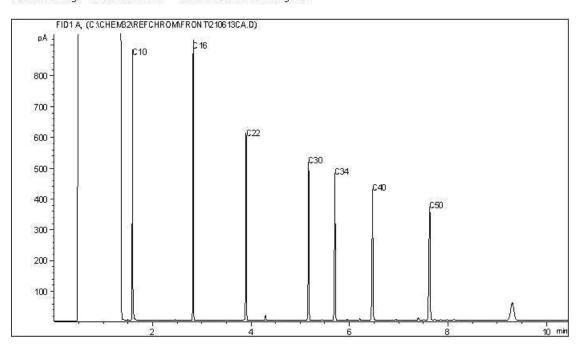
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-95-08

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

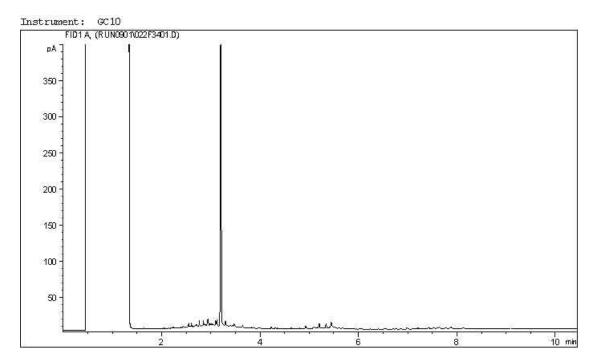
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

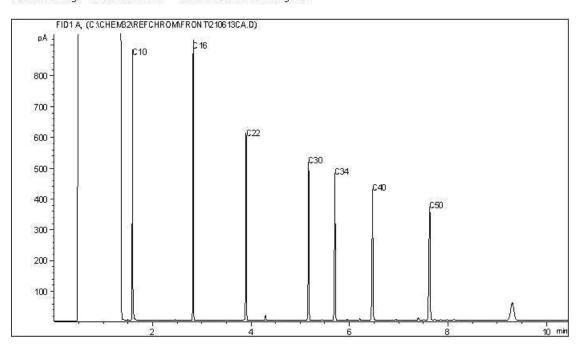
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP Q

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	170	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

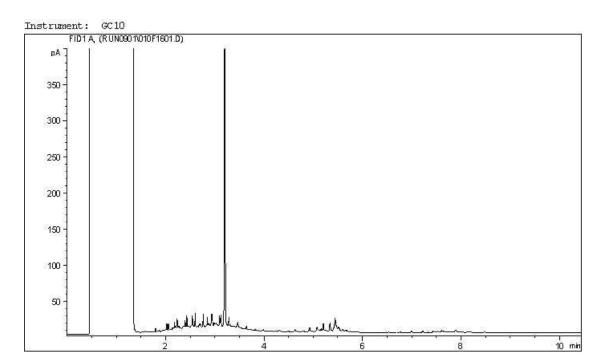
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

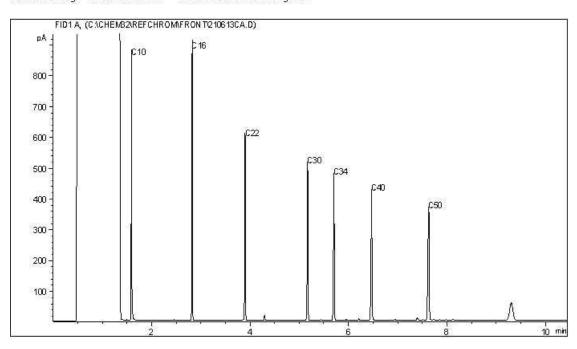
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-96-01

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	-	C22
Varsol:	c8	9 <del>4</del> 9	C12	Lubricating Oils:	c20 -	-	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	_	C60+

BV Labs Job #: C162768 Report Date: 2021/09/09

BV Labs Sample: AEP520 Lab-Dup

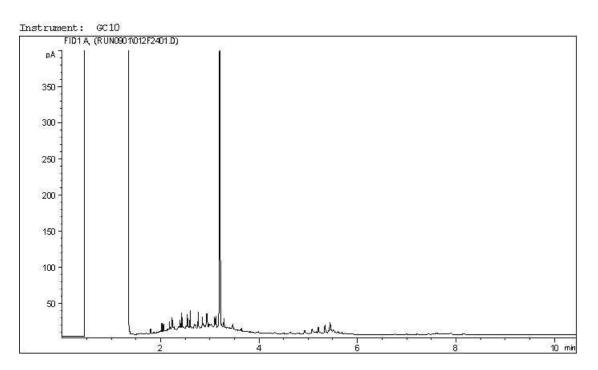
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

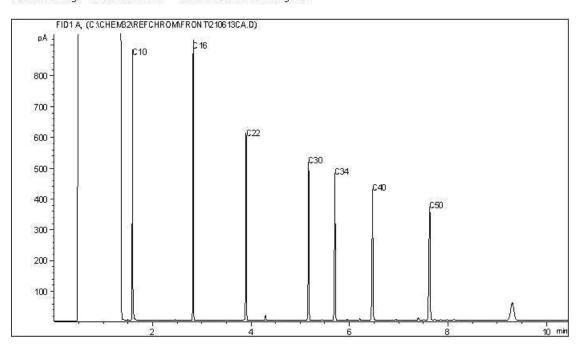
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-96-01

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

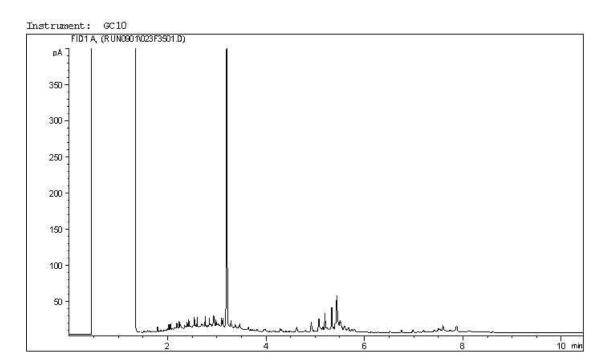
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Client Project #: 20368099-6000-1001

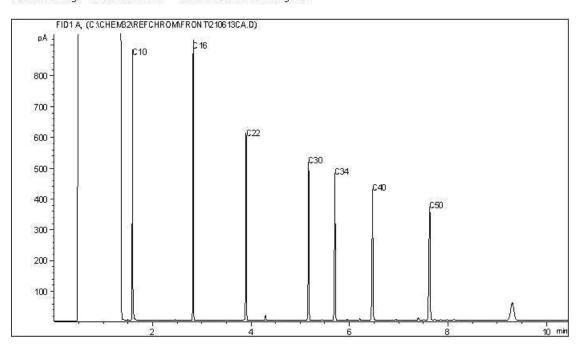
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-96-03

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	-	C22
Varsol:	c8	9 <del>4</del> 9	C12	Lubricating Oils:	c20 -	-	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	_	C60+

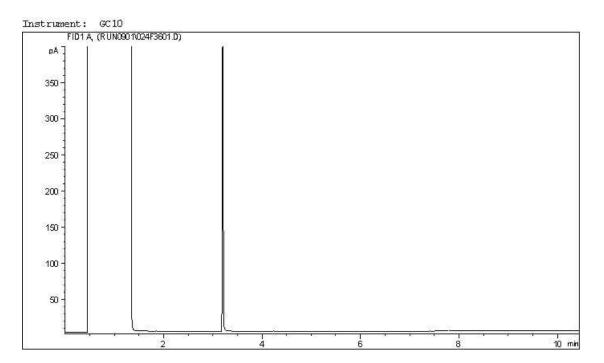
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

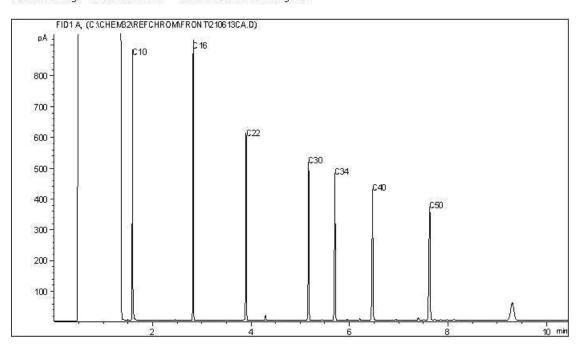
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-96-05

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

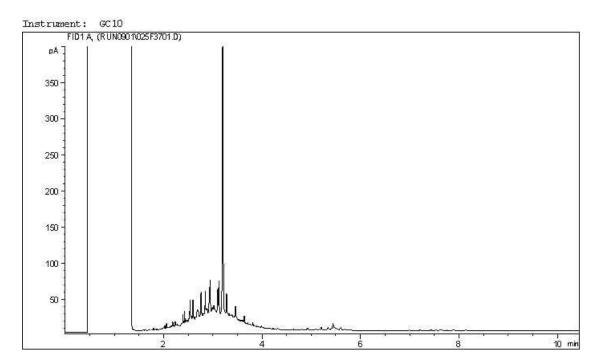
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

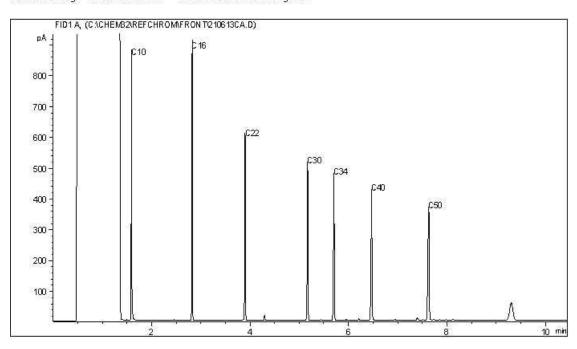
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-91-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

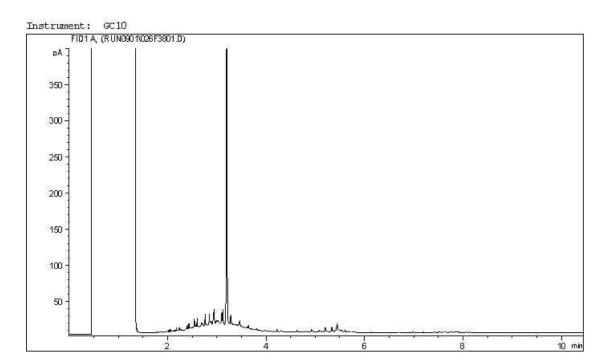
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

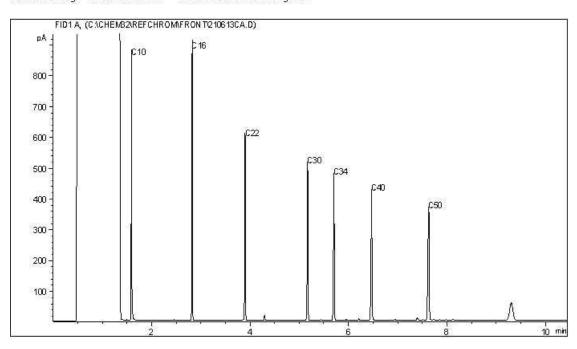
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-91-04

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -		C22
Varsol:	c8	9 <del>4</del> 9	C12	Lubricating Oils:	c20 -	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -		C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-91-06

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Instrument: GC10

FID1A (RUN0901027F3901.D)

pA

390

290

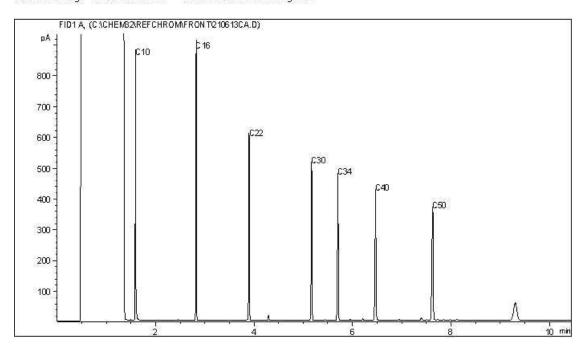
190

100

50

10 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

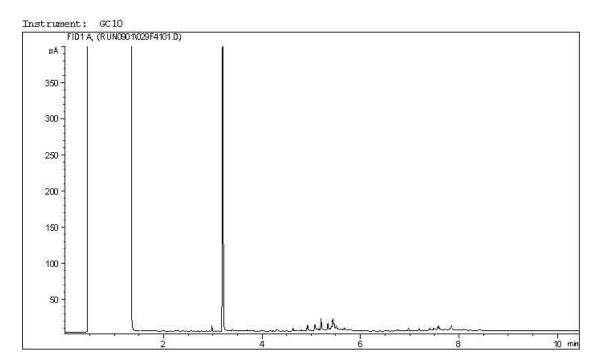
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

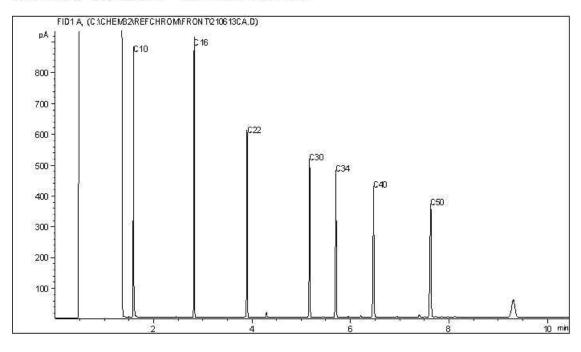
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-92-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

GOLDER ASSOCIATES LTD.

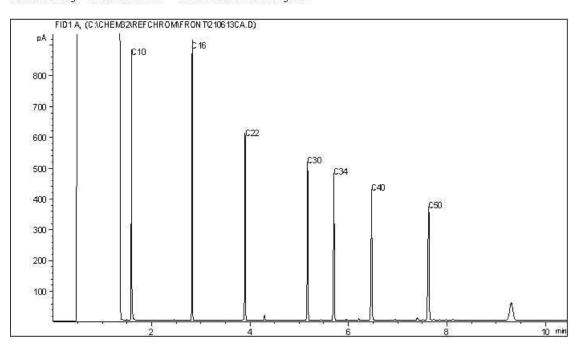
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-92-04

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-92-06

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Instrument: GC10

FID1A (RUN0901031F4301.D)

pA

330

250

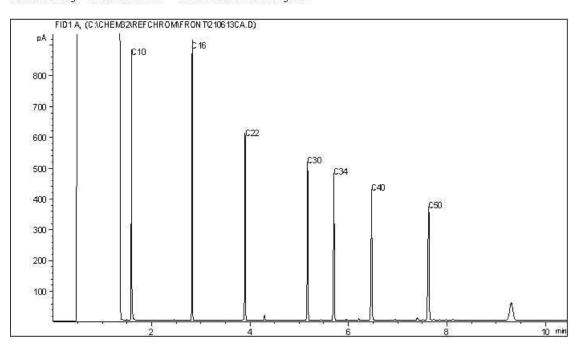
150

100

50

10 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

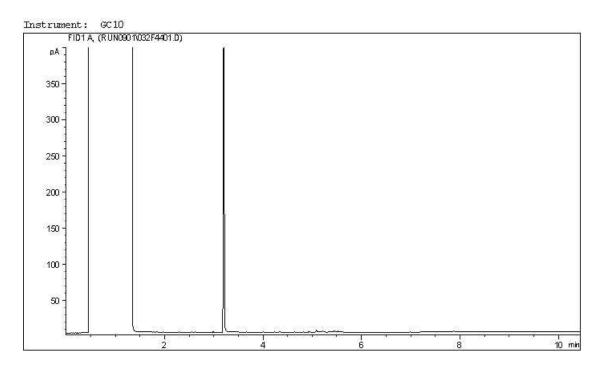
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

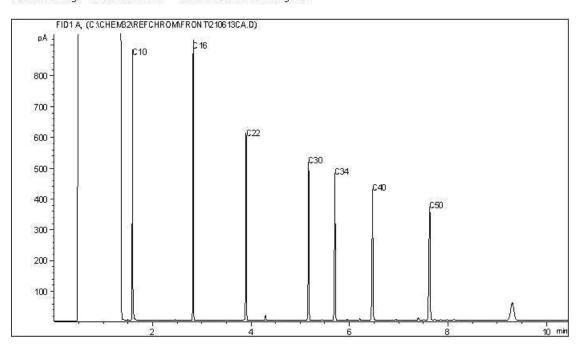
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP R

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	-	C16	Crude Oils:	C3	-	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-93-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Instrument: GC10

FID1A (RUN0901033F4501.D)

pA

300

250

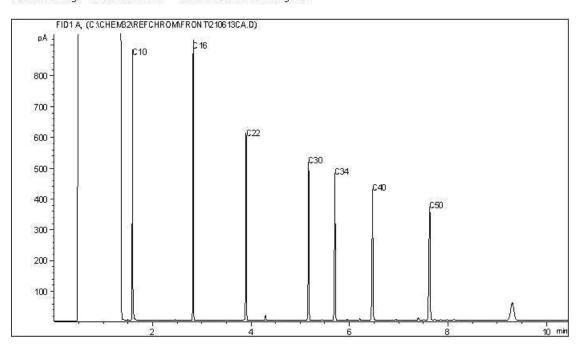
100

100

50

10 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

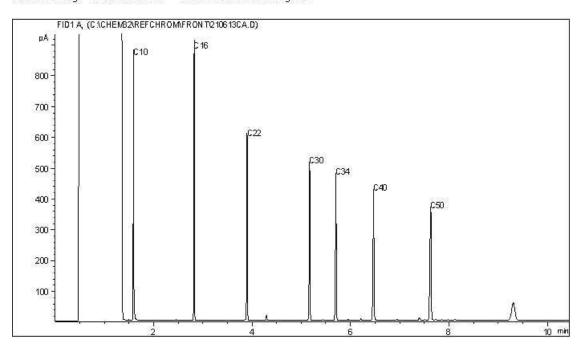
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-93-04

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

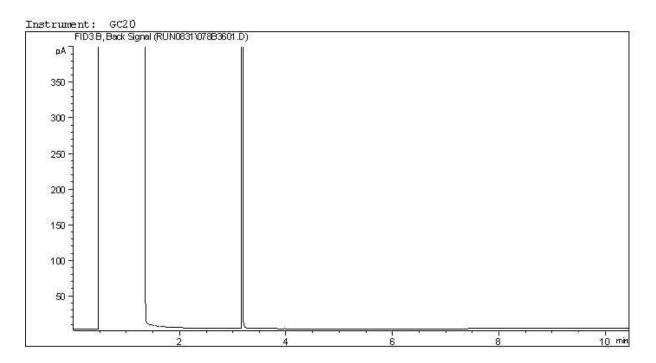
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

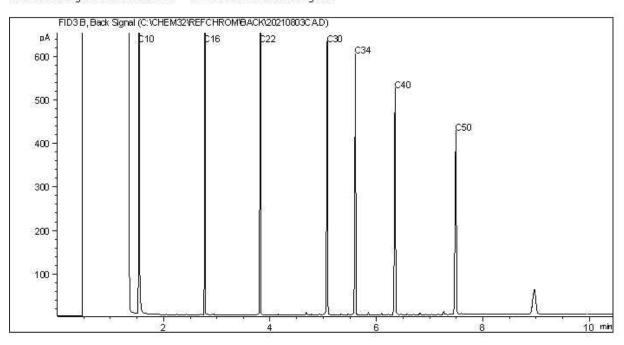
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-93-06

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	c8 -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

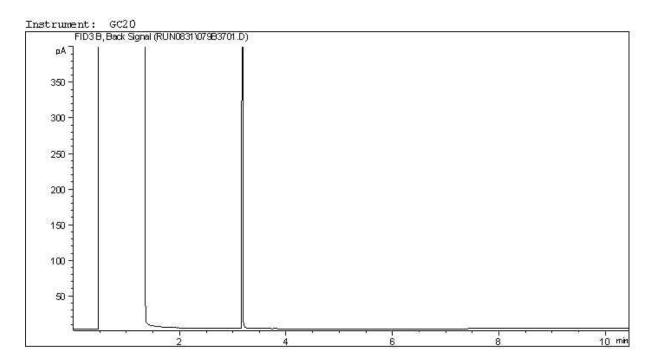
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

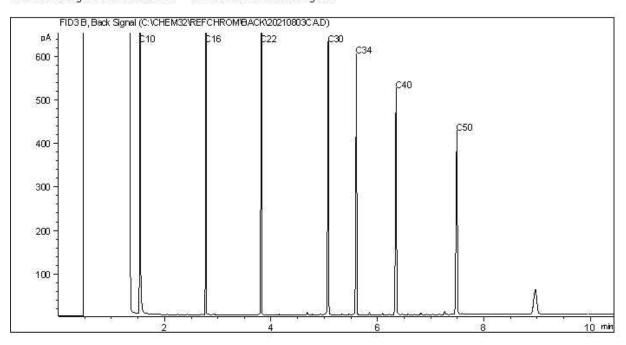
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-93-06

#### CCME Hydrocarbons (F2-F4)+F3A/B in soil Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	_	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

# GOLDER DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farewell				Sampling Date: August 21, 2021				
Golder Project Number:	20368099	9-6000-100	l	Laboratory:	Bureau Veritas Edmonton			
Lab Submission Number: (	C162768							
Was the Cooler Received at the lab under a sealed and intact custody seal?  Was proper chain of custody of the samples documented and kept?  Were sample temperatures acceptable when they reached lab?:  Were all samples analyzed and extracted within hold times?:  Has lab warranted all tests were in statistical control in CoA?:  Was sufficient sample provided for the requested analysis?  Has lab warranted all samples were analyzed with limited headspace present?:  Yes  Yes								
Has lab warranted all samples were	e anaiyze	a with limit	ea neaas <sub>l</sub>	pace present?:	Yes			
Are All Laboratory QC Within Ac	•	`		ot Applicable)?				
a	Yes	No	NA	Ta .	Comments			
Surrogate Recovery	37	X			ry for D10-o-Xylene (157%)			
Method Blank Concentration	X				eptance criteria (50-140%). Matrix			
Laboratory Duplicate RPD	X	37			r soluble nitrate plus nitrite (51%)			
Matrix Spike Recovery		X			ance criteria of (75-125%).			
Blank Spike Recovery	X				oratory QC results are within			
				acceptance criteri	a.			
Are All Field QC Samples Within	Alert Lin	nits (Yes, N	o, Not A <sub>l</sub>	oplicable)?				
	Yes	No	NA		Comments			
Field Blank Concentration			X	All field QC sam	ples are within			
Trip Blank Concentration			X	alert limits.				
Field Duplicate RPD	X							
Is data considered reliable (Yes/No/Suspect)?:  Yes  If answer is "No" or "Suspect", describe and provide rationale:								
Data Reviewed by (Print):		bert er 10, 2021		Data Reviewed by	(Signature): Onito Collect			
		10,2021						



Your C.O.C. #: 644255-01-01

**Attention: PETER TAN** 

GOLDER ASSOCIATES LTD 16820-107 AVE EDMONTON, AB CANADA T5P 4C3

Report Date: 2021/09/21

Report #: R3074550 Version: 2 - Revision

# **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164600 Received: 2021/08/31, 08:35

Sample Matrix: Water # Samples Received: 7

·		Date	Date		
Analyses	Quantity	Extracted	Analyzed	<b>Laboratory Method</b>	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH (1)	2	N/A	2021/09/02	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID (1)	5	N/A	2021/09/03	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	5	N/A	2021/09/04		Auto Calc
Cadmium - low level CCME - Dissolved (1)	1	N/A	2021/09/07		Auto Calc
Cadmium - low level CCME - Dissolved (1)	1	N/A	2021/09/09		Auto Calc
Chloride/Sulphate by Auto Colourimetry (1)	2	N/A	2021/09/03	AB SOP-00020	SM23-4500-CI/SO4-E m
Conductivity @25C (1)	2	N/A	2021/09/02	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons (F2-F4 in water) (1, 2)	5	2021/09/03	2021/09/04	AB SOP-00037	CCME PHC-CWS m
Hardness (1)	2	N/A	2021/09/05		Auto Calc
Elements by ICP - Dissolved (1, 3)	1	N/A	2021/09/04	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Dissolved (1, 3)	1	N/A	2021/09/09	AB SOP-00042	EPA 6010d R5 m
Elements by ICP-Dissolved-Lab Filtered (1, 3)	1	N/A	2021/09/04	AB SOP-00042	EPA 6010d R5 m
Elements by ICPMS - Dissolved (1, 3)	1	N/A	2021/09/07	AB SOP-00043	EPA 6020b R2 m
Elements by ICPMS - Dissolved (1, 3)	1	N/A	2021/09/08	AB SOP-00043	EPA 6020b R2 m
Ion Balance (1)	2	N/A	2021/09/05		Auto Calc
Sum of cations, anions (1)	1	N/A	2021/09/05		Auto Calc
Nitrate and Nitrite (1)	2	N/A	2021/09/02		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water (1)	2	N/A	2021/09/02	AB SOP-00091	SM 23 4500 NO3m
Nitrate (as N) (1)	2	2021/09/01	2021/09/02		Auto Calc
Benzo[a]pyrene Equivalency (1, 4)	4	N/A	2021/09/05		Auto Calc
Benzo[a]pyrene Equivalency (1, 4)	1	N/A	2021/09/08		Auto Calc
PAH in Water by GC/MS (1)	4	2021/09/03	2021/09/05	AB SOP-00037 / AB SOP-00003	EPA 3510C/8270E m
PAH in Water by GC/MS (1)	1	2021/09/07	2021/09/08	AB SOP-00037 / AB SOP-00003	EPA 3510C/8270E m
Total LMW, HMW, Total PAH Calc (1)	4	N/A	2021/09/05		Auto Calc
Total LMW, HMW, Total PAH Calc (1)	1	N/A	2021/09/08		Auto Calc
pH @25°C (1, 5)	2	N/A	2021/09/02	AB SOP-00005	SM 23 4500-H+B m
Total Dissolved Solids (Calculated) (1)	2	N/A	2021/09/05		Auto Calc

#### Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau



Your C.O.C. #: 644255-01-01

Attention: PETER TAN
GOLDER ASSOCIATES LTD

16820-107 AVE EDMONTON, AB CANADA T5P 4C3

Report Date: 2021/09/21

Report #: R3074550 Version: 2 - Revision

#### **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164600 Received: 2021/08/31, 08:35

Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

- \* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
- (1) This test was performed by Bureau Veritas Calgary, 4000 19 St. , Calgary, AB, T2E 6P8  $\,$
- (2) Silica gel clean up employed.
- (3) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
- (4) B[a]P TPE is calculated using 1/2 of the RDL for non detect results as per Alberta Environment instructions. This protocol may not apply in other jurisdictions.
- (5) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

#### **Encryption Key**



Bureau Veritas

21 Sep 2021 15:55:54

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Cynny Hagen, Key Account Specialist Email: Cynny.HAGEN@bureauveritas.com

Phone# (403)735-2273

\_\_\_\_\_

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Report Date: 2021/09/21

**GOLDER ASSOCIATES LTD** Sampler Initials: PT

## **RESULTS OF CHEMICAL ANALYSES OF WATER**

BV Labs ID		AEZ785			AEZ786			AEZ787		
Compline Date		2021/08/28			2021/08/28			2021/08/29		
Sampling Date		13:30			14:00			09:00		
COC Number		644255-01-01			644255-01-01			644255-01-01		
	UNITS	P19-5	RDL	QC Batch	P19-4	RDL	QC Batch	P19-5	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L							400	0.50	A339501
Ion Balance (% Difference)	%							3.3	N/A	A339504
Dissolved Nitrate (N)	mg/L							<0.010	0.010	A339247
Dissolved Nitrate (NO3)	mg/L							<0.044	0.044	A339437
Dissolved Nitrite (NO2)	mg/L							<0.033	0.033	A339437
Calculated Total Dissolved Solids	mg/L							520	10	A339241
Elements	•									
Dissolved Cadmium (Cd)	ug/L	0.065	0.020	A339434						
Misc. Inorganics										
Conductivity	uS/cm							920	2.0	A340458
рН	рН							7.15	N/A	A340457
Anions	•			•						
Alkalinity (PP as CaCO3)	mg/L							<1.0	1.0	A340456
Alkalinity (Total as CaCO3)	mg/L							360	1.0	A340456
Bicarbonate (HCO3)	mg/L							440	1.0	A340456
Carbonate (CO3)	mg/L							<1.0	1.0	A340456
Hydroxide (OH)	mg/L							<1.0	1.0	A340456
Dissolved Chloride (Cl)	mg/L							50	1.0	A341958
Dissolved Sulphate (SO4)	mg/L							50	1.0	A341958
Nutrients	•		•	•		•				
Dissolved Nitrite (N)	mg/L							<0.010	0.010	A340069
Dissolved Nitrate plus Nitrite (N)	mg/L							<0.010	0.010	A340069
Polycyclic Aromatics			•		•	•		•		
Low Molecular Weight PAH`s	ug/L	12	0.20	A339505	<0.20	0.20	A339505			
High Molecular Weight PAH`s	ug/L	<0.050	0.050	A339505	<0.050	0.050	A339505			
Total PAH	ug/L	12	0.20	A339505	<0.20	0.20	A339505			
RDL = Reportable Detection Limit			•			•				
$N/\Delta = Not Applicable$										

N/A = Not Applicable



GOLDER ASSOCIATES LTD Sampler Initials: PT

## **RESULTS OF CHEMICAL ANALYSES OF WATER**

BV Labs ID		AEZ788	AEZ789			AEZ790		
Sampling Data		2021/08/29	2021/08/29			2021/08/29		
Sampling Date		09:20	14:00			11:00		
COC Number		644255-01-01	644255-01-01			644255-01-01		
	UNITS	P19-5D	P21-TB	RDL	QC Batch	P19-4	RDL	QC Batch
Calculated Parameters								
Anion Sum	meq/L					15	N/A	A339240
Cation Sum	meq/L					15	N/A	A339240
Hardness (CaCO3)	mg/L					660	0.50	A339245
Ion Balance (% Difference)	%					2.9	N/A	A339504
Dissolved Nitrate (N)	mg/L					18	0.25	A339247
Dissolved Nitrate (NO3)	mg/L					80	1.1	A339437
Dissolved Nitrite (NO2)	mg/L					0.73	0.033	A339437
Calculated Total Dissolved Solids	mg/L					880	10	A339241
Elements	•		•					
Dissolved Cadmium (Cd)	ug/L					0.034	0.020	A339434
Misc. Inorganics	•			•	•		•	•
Conductivity	uS/cm					1300	2.0	A340458
рН	рН					7.54	N/A	A340457
Anions								
Alkalinity (PP as CaCO3)	mg/L					<1.0	1.0	A340456
Alkalinity (Total as CaCO3)	mg/L					260	1.0	A340456
Bicarbonate (HCO3)	mg/L					320	1.0	A340456
Carbonate (CO3)	mg/L					<1.0	1.0	A340456
Hydroxide (OH)	mg/L					<1.0	1.0	A340456
Dissolved Chloride (Cl)	mg/L					55	1.0	A341958
Dissolved Sulphate (SO4)	mg/L					310	5.0	A341958
Nutrients	•	•	•	•	•	•	•	•
Dissolved Nitrite (N)	mg/L					0.22	0.010	A340069
Dissolved Nitrate plus Nitrite (N)	mg/L					18	0.25	A340069
Polycyclic Aromatics	•	•	•	•	•		•	-
Low Molecular Weight PAH`s	ug/L	20	<0.20	0.20	A339505			
High Molecular Weight PAH`s	ug/L	<0.050	<0.050	0.050	A339505			
Total PAH	ug/L	20	<0.20	0.20	A339505			
RDL = Reportable Detection Limit								
N/A = Not Applicable								



GOLDER ASSOCIATES LTD Sampler Initials: PT

## **RESULTS OF CHEMICAL ANALYSES OF WATER**

BV Labs ID		AEZ791		
Sampling Date		2021/08/29 14:20		
COC Number		644255-01-01		
	UNITS	P21-FB	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH's	ug/L	<0.20	0.20	A339505
High Molecular Weight PAH`s	ug/L	<0.050	0.050	A339505
Total PAH	ug/L	<0.20	0.20	A339505
	•			



GOLDER ASSOCIATES LTD Sampler Initials: PT

# PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		AEZ785	AEZ786	AEZ788	AEZ789	AEZ791					
Compling Date		2021/08/28	2021/08/28	2021/08/29	2021/08/29	2021/08/29					
Sampling Date		13:30	14:00	09:20	14:00	14:20					
COC Number		644255-01-01	644255-01-01	644255-01-01	644255-01-01	644255-01-01					
	UNITS	P19-5	P19-4	P19-5D	P21-TB	P21-FB	RDL	QC Batch			
Ext. Pet. Hydrocarbon											
F2 (C10-C16 Hydrocarbons)	mg/L	0.36	<0.10	0.43	<0.10	<0.10	0.10	A339935			
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A339935			
F4 (C34-C50 Hydrocarbons)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	A339935			
Surrogate Recovery (%)	Surrogate Recovery (%)										
O-TERPHENYL (sur.)	%	105	101	103	106	101		A339935			
RDL = Reportable Detection L	imit										



GOLDER ASSOCIATES LTD Sampler Initials: PT

# SEMIVOLATILE ORGANICS BY GC-MS (WATER)

BV Labs ID		AEZ785	AEZ786	AEZ788	AEZ789	AEZ791		
Sampling Date		2021/08/28	2021/08/28	2021/08/29	2021/08/29	2021/08/29		
sampling Date		13:30	14:00	09:20	14:00	14:20		
COC Number		644255-01-01	644255-01-01	644255-01-01	644255-01-01	644255-01-01		
	UNITS	P19-5	P19-4	P19-5D	P21-TB	P21-FB	RDL	QC Batch
Polycyclic Aromatics								
B[a]P TPE Total Potency Equivalents	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A338303
Acenaphthene	ug/L	0.13	<0.10	0.21	<0.10	<0.10	0.10	A339934
Acenaphthylene	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A339934
Acridine	ug/L	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A339934
Anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A339934
Benzo(a)anthracene	ug/L	<0.0085	<0.0085	<0.0085	<0.0085	<0.0085	0.0085	A339934
Benzo(b&j)fluoranthene	ug/L	<0.0085	<0.0085	<0.0085	<0.0085	<0.0085	0.0085	A339934
Benzo(k)fluoranthene	ug/L	<0.0085	<0.0085	<0.0085	<0.0085	<0.0085	0.0085	A339934
Benzo(g,h,i)perylene	ug/L	<0.0085	<0.0085	<0.0085	<0.0085	<0.0085	0.0085	A339934
Benzo(c)phenanthrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A339934
Benzo(a)pyrene	ug/L	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075	0.0075	A339934
Benzo(e)pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A339934
Chrysene	ug/L	0.021	<0.0085	0.015	<0.0085	<0.0085	0.0085	A339934
Dibenz(a,h)anthracene	ug/L	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075	0.0075	A339934
Fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A339934
Fluorene	ug/L	0.27	<0.050	0.45	<0.050	<0.050	0.050	A339934
Indeno(1,2,3-cd)pyrene	ug/L	<0.0085	<0.0085	<0.0085	<0.0085	<0.0085	0.0085	A339934
1-Methylnaphthalene	ug/L	2.3	<0.10	3.7	<0.10	<0.10	0.10	A339934
2-Methylnaphthalene	ug/L	8.4	<0.10	16	<0.10	<0.10	0.10	A339934
Naphthalene	ug/L	2.8	<0.10	3.9	<0.10	<0.10	0.10	A339934
Phenanthrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A339934
Perylene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A339934
Pyrene	ug/L	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A339934
Quinoline	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	A339934
Surrogate Recovery (%)								
D10-ANTHRACENE (sur.)	%	86	108	110	109	103		A339934
D8-ACENAPHTHYLENE (sur.)	%	75	99	97	100	83		A339934
D8-NAPHTHALENE (sur.)	%	53	73	66	80	63		A339934
TERPHENYL-D14 (sur.)	%	74	87	95	94	97		A339934



BV Labs Job #: C164600 GOLDER ASSOCIATES LTD Report Date: 2021/09/21 Sampler Initials: PT

# **ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)**

BV Labs ID		AEZ785			AEZ787			AEZ790		
DV Labs 1D		2021/08/28			2021/08/29			2021/08/29		
Sampling Date		13:30			09:00			11:00		
COC Number		644255-01-01			644255-01-01			644255-01-01		
	UNITS	P19-5	RDL	QC Batch	P19-5	RDL	QC Batch	P19-4	RDL	QC Batch
Elements						•			•	
Dissolved Aluminum (Al)	mg/L	0.031	0.0030	A340769				0.010	0.0030	A340771
Dissolved Antimony (Sb)	mg/L	<0.00060	0.00060	A340769				<0.00060	0.00060	A340771
Dissolved Arsenic (As)	mg/L	0.011	0.00020	A340769				0.00074	0.00020	A340771
Dissolved Barium (Ba)	mg/L	0.18	0.010	A343870				0.074	0.010	A341798
Dissolved Beryllium (Be)	mg/L	<0.0010	0.0010	A340769				<0.0010	0.0010	A340771
Dissolved Boron (B)	mg/L	0.034	0.020	A343870				0.061	0.020	A341798
Dissolved Calcium (Ca)	mg/L	110	0.30	A343870				160	0.30	A341798
Dissolved Chromium (Cr)	mg/L	0.0022	0.0010	A340769				0.0012	0.0010	A340771
Dissolved Cobalt (Co)	mg/L	0.0080	0.00030	A340769				<0.00030	0.00030	A340771
Dissolved Copper (Cu)	mg/L	0.0010	0.00020	A340769				0.0060	0.00020	A340771
Dissolved Iron (Fe)	mg/L	18	0.060	A343870				<0.060	0.060	A341798
Dissolved Lead (Pb)	mg/L	<0.00020	0.00020	A340769				<0.00020	0.00020	A340771
Dissolved Lithium (Li)	mg/L	<0.020	0.020	A343870				<0.020	0.020	A341798
Dissolved Magnesium (Mg)	mg/L	32	0.20	A343870				65	0.20	A341798
Dissolved Manganese (Mn)	mg/L	1.9	0.0040	A343870				0.011	0.0040	A341798
Dissolved Molybdenum (Mo)	mg/L	0.0015	0.00020	A340769				0.00081	0.00020	A340771
Dissolved Nickel (Ni)	mg/L	0.018	0.00050	A340769				0.0068	0.00050	A340771
Dissolved Phosphorus (P)	mg/L	<0.10	0.10	A343870				<0.10	0.10	A341798
Dissolved Potassium (K)	mg/L	36	0.30	A343870				5.9	0.30	A341798
Dissolved Selenium (Se)	mg/L	0.00033	0.00020	A340769				0.0010	0.00020	A340771
Dissolved Silicon (Si)	mg/L	4.7	0.10	A343870				1.9	0.10	A341798
Dissolved Silver (Ag)	mg/L	<0.00010	0.00010	A340769				<0.00010	0.00010	A340771
Dissolved Sodium (Na)	mg/L	27	0.50	A343870				48	0.50	A341798
Dissolved Strontium (Sr)	mg/L	0.47	0.020	A343870				0.48	0.020	A341798
Dissolved Sulphur (S)	mg/L	17	0.20	A343870				110	0.20	A341798
Dissolved Thallium (TI)	mg/L	<0.00020	0.00020	A340769				<0.00020	0.00020	A340771
Dissolved Tin (Sn)	mg/L	<0.0010	0.0010	A340769				<0.0010	0.0010	A340771
Dissolved Titanium (Ti)	mg/L	<0.0010	0.0010	A340769				<0.0010	0.0010	A340771
Dissolved Uranium (U)	mg/L	0.00067	0.00010	A340769				0.014	0.00010	A340771
Dissolved Vanadium (V)	mg/L	0.0030	0.0010	A340769				<0.0010	0.0010	A340771
Dissolved Zinc (Zn)	mg/L	0.025	0.0030	A340769				0.017	0.0030	A340771
Lab Filtered Elements		-			· · · · · · · · · · · · · · · · · · ·			· ·	•	
Dissolved Calcium (Ca)	mg/L				110	0.30	A340078			
RDL = Reportable Detection Li	mit									



BV Labs Job #: C164600 GOLDER ASSOCIATES LTD Report Date: 2021/09/21 Sampler Initials: PT

# **ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)**

BV Labs ID		AEZ785			AEZ787			AEZ790		
Sampling Date		2021/08/28			2021/08/29			2021/08/29		
Sampling Date		13:30			09:00			11:00		
COC Number		644255-01-01			644255-01-01			644255-01-01		
	UNITS	P19-5	RDL	QC Batch	P19-5	RDL	QC Batch	P19-4	RDL	QC Batch
Dissolved Iron (Fe)	mg/L				1.1	0.060	A340078			
Dissolved Magnesium (Mg)	mg/L				34	0.20	A340078			
Dissolved Manganese (Mn)	mg/L				1.8	0.0040	A340078			
Dissolved Potassium (K)	mg/L				34	0.30	A340078			
Dissolved Sodium (Na)	mg/L				28	0.50	A340078			
RDL = Reportable Detection Li	mit									



GOLDER ASSOCIATES LTD Sampler Initials: PT

# **VOLATILE ORGANICS BY GC-MS (WATER)**

BV Labs ID		AEZ785	AEZ786	AEZ788	AEZ789	A F7701		
DV Labs ID						AEZ791		
Sampling Date		2021/08/28	2021/08/28	2021/08/29	2021/08/29	2021/08/29		
Sampling Date		13:30	14:00	09:20	14:00	14:20		
COC Number		644255-01-01	644255-01-01	644255-01-01	644255-01-01	644255-01-01		
	UNITS	P19-5	P19-4	P19-5D	P21-TB	P21-FB	RDL	QC Batch
Volatiles								
Benzene	mg/L	0.00075	<0.00040	0.0010	<0.00040	<0.00040	0.00040	A340414
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.0011	0.00040	A340414
Ethylbenzene	mg/L	0.0018	<0.00040	0.0025	<0.00040	<0.00040	0.00040	A340414
m & p-Xylene	mg/L	0.0014	<0.00080	0.0017	<0.00080	<0.00080	0.00080	A340414
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	A340414
Xylenes (Total)	mg/L	0.0014	<0.00089	0.0017	<0.00089	<0.00089	0.00089	A339195
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A339195
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A340414
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	100	101	102	102	103		A340414
4-Bromofluorobenzene (sur.)	%	99	98	98	99	99		A340414
D4-1,2-Dichloroethane (sur.)	%	100	101	104	98	99		A340414
RDL = Reportable Detection Lir	nit						•	



GOLDER ASSOCIATES LTD Sampler Initials: PT

## **GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1 0.7°C

revised report: Generate EDD

Sample AEZ787 [P19-5]: NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample AEZ790 [P19-4]: NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Results relate only to the items tested.



Report Date: 2021/09/21

GOLDER ASSOCIATES LTD Sampler Initials: PT

## **QUALITY ASSURANCE REPORT**

			QUALITY ASSURA	WELL WELL OWN				
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A339934	NK3	Matrix Spike	D10-ANTHRACENE (sur.)	2021/09/05		106	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2021/09/05		95	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/05		70	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/05		93	%	50 - 130
			Acenaphthene	2021/09/05		88	%	50 - 130
			Acenaphthylene	2021/09/05		93	%	50 - 130
			Acridine	2021/09/05		85	%	50 - 130
			Anthracene	2021/09/05		88	%	50 - 130
			Benzo(a)anthracene	2021/09/05		96	%	50 - 130
			Benzo(b&j)fluoranthene	2021/09/05		91	%	50 - 130
			Benzo(k)fluoranthene	2021/09/05		92	%	50 - 130
			Benzo(g,h,i)perylene	2021/09/05		91	%	50 - 130
			Benzo(c)phenanthrene	2021/09/05		91	%	50 - 130
			Benzo(a)pyrene	2021/09/05		97	%	50 - 130
			Benzo(e)pyrene	2021/09/05		86	%	50 - 130
			Chrysene	2021/09/05		94	%	50 - 130
			Dibenz(a,h)anthracene	2021/09/05		92	%	50 - 130
			Fluoranthene	2021/09/05		94	%	50 - 130
			Fluorene	2021/09/05		97	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2021/09/05		97	%	50 - 130
			1-Methylnaphthalene	2021/09/05		60	%	50 - 130
			2-Methylnaphthalene	2021/09/05		73	%	50 - 130
			Naphthalene	2021/09/05		73	%	50 - 130
			Phenanthrene	2021/09/05		94	%	50 - 130
			Perylene	2021/09/05		90	%	50 - 130
			Pyrene	2021/09/05		94	%	50 - 130
			Quinoline	2021/09/05		102	%	50 - 130
A339934	NK3	Spiked Blank	D10-ANTHRACENE (sur.)	2021/09/05		109	%	50 - 130
		- P	D8-ACENAPHTHYLENE (sur.)	2021/09/05		95	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/05		68	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/05		95	%	50 - 130
			Acenaphthene	2021/09/05		85	%	50 - 130
			Acenaphthylene	2021/09/05		92	%	50 - 130
			Acridine	2021/09/05		92	%	50 - 130
			Anthracene	2021/09/05		89	%	50 - 130
			Benzo(a)anthracene	2021/09/05		100	%	50 - 130
			Benzo(b&j)fluoranthene	2021/09/05		95	%	50 - 130
			Benzo(k)fluoranthene	2021/09/05		97	%	50 - 130
			Benzo(g,h,i)perylene	2021/09/05		98	%	50 - 130
			Benzo(c)phenanthrene	2021/09/05		93	%	50 - 130
			Benzo(a)pyrene	2021/09/05		104	%	50 - 130
			Benzo(e)pyrene	2021/09/05		92	%	50 - 130
			Chrysene	2021/09/05		97	% %	50 - 130
				2021/09/05			% %	50 - 130
			Dibenz(a,h)anthracene			100		
			Fluoranthene	2021/09/05		97	%	50 - 130
			Fluorene	2021/09/05		94	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2021/09/05		104	%	50 - 130
			1-Methylnaphthalene	2021/09/05		58	%	50 - 130
			2-Methylnaphthalene	2021/09/05		69	%	50 - 130
			Naphthalene	2021/09/05		75	%	50 - 130
			Phenanthrene	2021/09/05		94	%	50 - 130
			Perylene	2021/09/05		96	%	50 - 130
			Pyrene	2021/09/05		98	%	50 - 130
			Quinoline	2021/09/05		98	%	50 - 130
A339934	NK3	Method Blank	D10-ANTHRACENE (sur.)	2021/09/05		106	%	50 - 130



BV Labs Job #: C164600 GOLDER ASSOCIATES LTD Report Date: 2021/09/21 Sampler Initials: PT

			· · · · · · · · · · · · · · · · · · ·	REPORT(CONT D)				
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			D8-ACENAPHTHYLENE (sur.)	2021/09/05		90	%	50 - 130
			D8-NAPHTHALENE (sur.)	2021/09/05		68	%	50 - 130
			TERPHENYL-D14 (sur.)	2021/09/05		89	%	50 - 130
			Acenaphthene	2021/09/05	<0.10		ug/L	
			Acenaphthylene	2021/09/05	<0.10		ug/L	
			Acridine	2021/09/05	<0.040		ug/L	
			Anthracene	2021/09/05	<0.010		ug/L	
			Benzo(a)anthracene	2021/09/05	<0.0085		ug/L	
			Benzo(b&j)fluoranthene	2021/09/05	<0.0085		ug/L	
			Benzo(k)fluoranthene	2021/09/05	<0.0085		ug/L	
			Benzo(g,h,i)perylene	2021/09/05	<0.0085		ug/L	
			Benzo(c)phenanthrene	2021/09/05	<0.050		ug/L	
			Benzo(a)pyrene	2021/09/05	<0.0075		ug/L	
			Benzo(e)pyrene	2021/09/05	<0.050		ug/L	
			Chrysene	2021/09/05	<0.0085		ug/L	
			Dibenz(a,h)anthracene	2021/09/05	< 0.0075		ug/L	
			Fluoranthene	2021/09/05	<0.010		ug/L	
			Fluorene	2021/09/05	< 0.050		ug/L	
			Indeno(1,2,3-cd)pyrene	2021/09/05	<0.0085		ug/L	
			1-Methylnaphthalene	2021/09/05	<0.10		ug/L	
			2-Methylnaphthalene	2021/09/05	<0.10		ug/L	
			Naphthalene	2021/09/05	<0.10		ug/L	
			Phenanthrene	2021/09/05	<0.050		ug/L	
			Perylene	2021/09/05	<0.050		ug/L	
			Pyrene	2021/09/05	<0.020		ug/L	
			Quinoline	2021/09/05	<0.20		ug/L	
A339934	NK3	RPD	Acenaphthene	2021/09/05	5.3		%	30
A333334	IVICS	III D	Acenaphthylene	2021/09/05	7.1		%	30
			Acridine	2021/09/05	8.5		%	30
			Anthracene	2021/09/05	2.0		% %	30
					NC		% %	30
			Benzo(a)anthracene	2021/09/05				
			Benzo(b&j)fluoranthene	2021/09/05	NC		%	30
			Benzo(k)fluoranthene	2021/09/05	NC		%	30
			Benzo(g,h,i)perylene	2021/09/05	NC		%	30
			Benzo(c)phenanthrene	2021/09/05	NC		%	30
			Benzo(a)pyrene	2021/09/05	NC		%	30
			Benzo(e)pyrene	2021/09/05	NC		%	30
			Chrysene	2021/09/05	NC		%	30
			Dibenz(a,h)anthracene	2021/09/05	NC		%	30
			Fluoranthene	2021/09/05	27		%	30
			Fluorene	2021/09/05	7.4		%	30
			Indeno(1,2,3-cd)pyrene	2021/09/05	NC		%	30
			1-Methylnaphthalene	2021/09/05	4.6		%	30
			2-Methylnaphthalene	2021/09/05	NC		%	30
			Naphthalene	2021/09/05	6.8		%	30
			Phenanthrene	2021/09/05	NC		%	30
			Perylene	2021/09/05	NC		%	30
			Pyrene	2021/09/05	6.7		%	30
			Quinoline	2021/09/05	NC		%	30
A339935	EC0	Matrix Spike	O-TERPHENYL (sur.)	2021/09/04		101	%	60 - 140
		•	F2 (C10-C16 Hydrocarbons)	2021/09/04		101	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/04		100	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/04		144 (1)	%	60 - 140
A339935	EC0	Spiked Blank	O-TERPHENYL (sur.)	2021/09/04		97	%	60 - 140
. 1333333		opined blatin	F2 (C10-C16 Hydrocarbons)	2021/09/04		90	%	60 - 140



Report Date: 2021/09/21

GOLDER ASSOCIATES LTD Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			F3 (C16-C34 Hydrocarbons)	2021/09/04		92	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/04		90	%	60 - 140
A339935	EC0	Method Blank	O-TERPHENYL (sur.)	2021/09/04		98	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/04	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2021/09/04	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2021/09/04	<0.20		mg/L	
A339935	EC0	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/04	23		%	30
			F3 (C16-C34 Hydrocarbons)	2021/09/04	22		%	30
			F4 (C34-C50 Hydrocarbons)	2021/09/04	NC		%	30
A340069	SKM	Matrix Spike	Dissolved Nitrite (N)	2021/09/02		105	%	80 - 120
			Dissolved Nitrate plus Nitrite (N)	2021/09/02		133 (1)	%	80 - 120
A340069	SKM	Spiked Blank	Dissolved Nitrite (N)	2021/09/02		102	%	80 - 120
			Dissolved Nitrate plus Nitrite (N)	2021/09/02		102	%	80 - 120
A340069	SKM	Method Blank	Dissolved Nitrite (N)	2021/09/02	<0.010		mg/L	
			Dissolved Nitrate plus Nitrite (N)	2021/09/02	<0.010		mg/L	
A340069	SKM	RPD	Dissolved Nitrite (N)	2021/09/02	6.9		%	20
			Dissolved Nitrate plus Nitrite (N)	2021/09/02	5.8		%	20
A340078	JAB	Matrix Spike	Dissolved Calcium (Ca)	2021/09/04		102	%	80 - 120
			Dissolved Iron (Fe)	2021/09/04		120	%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/04		109	%	80 - 120
			Dissolved Manganese (Mn)	2021/09/04		105	%	80 - 120
			Dissolved Potassium (K)	2021/09/04		104	%	80 - 120
			Dissolved Sodium (Na)	2021/09/04		99	%	80 - 120
4340078	JAB	Spiked Blank	Dissolved Calcium (Ca)	2021/09/04		101	%	80 - 120
			Dissolved Iron (Fe)	2021/09/04		113	%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/04		107	%	80 - 120
			Dissolved Manganese (Mn)	2021/09/04		106	%	80 - 120
			Dissolved Potassium (K)	2021/09/04		103	%	80 - 120
			Dissolved Sodium (Na)	2021/09/04		98	%	80 - 120
A340078	JAB	Method Blank	Dissolved Calcium (Ca)	2021/09/04	<0.30		mg/L	
			Dissolved Iron (Fe)	2021/09/04	<0.060		mg/L	
			Dissolved Magnesium (Mg)	2021/09/04	<0.20		mg/L	
			Dissolved Manganese (Mn)	2021/09/04	<0.0040		mg/L	
			Dissolved Potassium (K)	2021/09/04	<0.30		mg/L	
			Dissolved Sodium (Na)	2021/09/04	<0.50		mg/L	
4340078	JAB	RPD	Dissolved Calcium (Ca)	2021/09/05	2.4		%	20
			Dissolved Iron (Fe)	2021/09/05	3.2		%	20
			Dissolved Magnesium (Mg)	2021/09/05	0.85		%	20
			Dissolved Manganese (Mn)	2021/09/05	4.0		%	20
			Dissolved Potassium (K)	2021/09/05	14		%	20
			Dissolved Sodium (Na)	2021/09/05	2.8		%	20
340414	DO1	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/03		102	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/03		99	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/03		102	%	50 - 140
			Benzene	2021/09/03		96	%	50 - 140
			Toluene	2021/09/03		99	%	50 - 140
			Ethylbenzene	2021/09/03		102	%	50 - 140
			m & p-Xylene	2021/09/03		97	%	50 - 140
			o-Xylene	2021/09/03		99	%	50 - 140
			F1 (C6-C10)	2021/09/03		112	%	60 - 140
A340414	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/03		100	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/03		102	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/03		100	%	50 - 140
			Benzene	2021/09/03		94	%	60 - 130
			Toluene	2021/09/03		98	%	60 - 130



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Report Date: 2021/09/21 Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Ethylbenzene	2021/09/03		101	%	60 - 130
			m & p-Xylene	2021/09/03		98	%	60 - 130
			o-Xylene	2021/09/03		99	%	60 - 130
			F1 (C6-C10)	2021/09/03		97	%	60 - 140
A340414	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/03		102	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/03		98	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/03		100	%	50 - 140
			Benzene	2021/09/03	<0.00040		mg/L	
			Toluene	2021/09/03	<0.00040		mg/L	
			Ethylbenzene	2021/09/03	<0.00040		mg/L	
			m & p-Xylene	2021/09/03	<0.00080		mg/L	
			o-Xylene	2021/09/03	<0.00040		mg/L	
			F1 (C6-C10)	2021/09/03	<0.10		mg/L	
A340414	DO1	RPD	Benzene	2021/09/03	NC		%	30
			Toluene	2021/09/03	NC		%	30
			Ethylbenzene	2021/09/03	NC		%	30
			m & p-Xylene	2021/09/03	NC		%	30
			o-Xylene	2021/09/03	NC		%	30
			F1 (C6-C10)	2021/09/03	NC		%	30
A340456	IK0	Spiked Blank	Alkalinity (Total as CaCO3)	2021/09/02		97	%	80 - 120
A340456	IK0	Method Blank	Alkalinity (PP as CaCO3)	2021/09/02	<1.0		mg/L	
			Alkalinity (Total as CaCO3)	2021/09/02	<1.0		mg/L	
			Bicarbonate (HCO3)	2021/09/02	<1.0		mg/L	
			Carbonate (CO3)	2021/09/02	<1.0		mg/L	
			Hydroxide (OH)	2021/09/02	<1.0		mg/L	
A340456	IK0	RPD	Alkalinity (PP as CaCO3)	2021/09/02	NC		%	20
			Alkalinity (Total as CaCO3)	2021/09/02	1.0		%	20
			Bicarbonate (HCO3)	2021/09/02	0.30		%	20
			Carbonate (CO3)	2021/09/02	NC		%	20
			Hydroxide (OH)	2021/09/02	NC		%	20
A340457	IK0	Spiked Blank	рН	2021/09/02		100	%	97 - 103
A340457	IK0	RPD	рН	2021/09/02	0.36		%	N/A
A340458	IK0	Spiked Blank	Conductivity	2021/09/02		102	%	90 - 110
A340458	IK0	Method Blank	Conductivity	2021/09/02	<2.0		uS/cm	
A340458	IK0	RPD	Conductivity	2021/09/02	0.34		%	10
A340769	LQ1	Matrix Spike	Dissolved Aluminum (Al)	2021/09/07		111	%	80 - 120
			Dissolved Antimony (Sb)	2021/09/07		112	%	80 - 120
			Dissolved Arsenic (As)	2021/09/07		106	%	80 - 120
			Dissolved Beryllium (Be)	2021/09/07		111	%	80 - 120
			Dissolved Chromium (Cr)	2021/09/07		107	%	80 - 120
			Dissolved Cobalt (Co)	2021/09/07		105	%	80 - 120
			Dissolved Copper (Cu)	2021/09/07		107	%	80 - 120
			Dissolved Lead (Pb)	2021/09/07		106	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/09/07		109	%	80 - 120
			Dissolved Nickel (Ni)	2021/09/07		105	%	80 - 120
			Dissolved Selenium (Se)	2021/09/07		109	%	80 - 120
			Dissolved Silver (Ag)	2021/09/07		105	%	80 - 120
			Dissolved Thallium (TI)	2021/09/07		105	%	80 - 120
			Dissolved Tin (Sn)	2021/09/07		109	%	80 - 120
			Dissolved Titanium (Ti)	2021/09/07		109	%	80 - 120
			Dissolved Uranium (U)	2021/09/07		104	%	80 - 120
			Dissolved Vanadium (V)	2021/09/07		109	%	80 - 120
			Dissolved Zinc (Zn)	2021/09/07		111	%	80 - 120
A340769	LQ1	Spiked Blank	Dissolved Aluminum (Al)	2021/09/07		112	%	80 - 120
	-~-	- p	Dissolved Antimony (Sb)	2021/09/07		112	%	80 - 120



BV Labs Job #: C164600 GOLDER ASSOCIATES LTD Report Date: 2021/09/21 Sampler Initials: PT

04/00			QUALITY ASSURANCE					
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Arsenic (As)	2021/09/07		105	%	80 - 120
			Dissolved Beryllium (Be)	2021/09/07		103	%	80 - 120
			Dissolved Chromium (Cr)	2021/09/07		106	%	80 - 120
			Dissolved Cobalt (Co)	2021/09/07		105	%	80 - 120
			Dissolved Copper (Cu)	2021/09/07		105	%	80 - 120
			Dissolved Lead (Pb)	2021/09/07		106	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/09/07		112	%	80 - 120
			Dissolved Nickel (Ni)	2021/09/07		107	%	80 - 120
			Dissolved Selenium (Se)	2021/09/07		110	%	80 - 120
			Dissolved Silver (Ag)	2021/09/07		107	%	80 - 120
			Dissolved Thallium (TI)	2021/09/07		103	%	80 - 120
			Dissolved Tin (Sn)	2021/09/07		110	%	80 - 120
			Dissolved Titanium (Ti)	2021/09/07		110	%	80 - 120
			Dissolved Uranium (U)	2021/09/07		106	%	80 - 120
			Dissolved Vanadium (V)	2021/09/07		111	%	80 - 120
			Dissolved Zinc (Zn)	2021/09/07		109	%	80 - 120
A340769	LQ1	Method Blank	Dissolved Aluminum (AI)	2021/09/07	<0.0030		mg/L	
			Dissolved Antimony (Sb)	2021/09/07	<0.00060		mg/L	
			Dissolved Arsenic (As)	2021/09/07	<0.00020		mg/L	
			Dissolved Beryllium (Be)	2021/09/07	<0.0010		mg/L	
			Dissolved Chromium (Cr)	2021/09/07	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2021/09/07	<0.00030		mg/L	
			Dissolved Copper (Cu)	2021/09/07	<0.00020		mg/L	
			Dissolved Lead (Pb)	2021/09/07	<0.00020		mg/L	
			Dissolved Molybdenum (Mo)	2021/09/07	<0.00020		mg/L	
			Dissolved Nickel (Ni)	2021/09/07	<0.00050		mg/L	
			Dissolved Selenium (Se)	2021/09/07	<0.00020		mg/L	
			Dissolved Silver (Ag)	2021/09/07	<0.00010		mg/L	
			Dissolved Thallium (TI)	2021/09/07	<0.00020		mg/L	
			Dissolved Tin (Sn)	2021/09/07	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2021/09/07	<0.0010		mg/L	
			Dissolved Uranium (U)	2021/09/07	<0.00010		mg/L	
			Dissolved Vanadium (V)	2021/09/07	<0.0010		mg/L	
			Dissolved Zinc (Zn)	2021/09/07	<0.0030		mg/L	
A340769	LQ1	RPD	Dissolved Aluminum (AI)	2021/09/07	NC		%	20
			Dissolved Antimony (Sb)	2021/09/07	NC		%	20
			Dissolved Arsenic (As)	2021/09/07	NC		%	20
			Dissolved Beryllium (Be)	2021/09/07	NC		%	20
			Dissolved Chromium (Cr)	2021/09/07	NC		%	20
			Dissolved Cobalt (Co)	2021/09/07	NC		%	20
			Dissolved Copper (Cu)	2021/09/07	NC		%	20
			Dissolved Lead (Pb)	2021/09/07	NC		%	20
			Dissolved Molybdenum (Mo)	2021/09/07	NC		%	20
			Dissolved Nickel (Ni)	2021/09/07	NC		%	20
			Dissolved Selenium (Se)	2021/09/07	NC		%	20
			Dissolved Silver (Ag)	2021/09/07	NC		%	20
			Dissolved Thallium (TI)	2021/09/07	NC		%	20
			Dissolved Tin (Sn)	2021/09/07	NC		%	20
			Dissolved Titanium (Ti)	2021/09/07	NC		%	20
			Dissolved Uranium (U)	2021/09/07	NC		%	20
			Dissolved Vanadium (V)	2021/09/07	8.2		%	20
			Dissolved Zinc (Zn)	2021/09/07	NC		%	20
A340771	LQ1	Matrix Spike	Dissolved Aluminum (AI)	2021/09/09		NC	%	80 - 120
			Dissolved Antimony (Sb)	2021/09/09		105	%	80 - 120
			Dissolved Arsenic (As)	2021/09/09		98	%	80 - 120



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04/06			QUALITY ASSURANCE	- ( ,				
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
Dato		ασ . γρο	Dissolved Beryllium (Be)	2021/09/09	74.40	105	%	80 - 120
			Dissolved Chromium (Cr)	2021/09/09		100	%	80 - 120
			Dissolved Cobalt (Co)	2021/09/09		101	%	80 - 120
			Dissolved Copper (Cu)	2021/09/09		98	%	80 - 120
			Dissolved Lead (Pb)	2021/09/09		101	%	80 - 120
			Dissolved Lead (FB) Dissolved Molybdenum (Mo)			105	%	80 - 120
				2021/09/09		97		
			Dissolved Nickel (Ni)	2021/09/09			%	80 - 120
			Dissolved Selenium (Se)	2021/09/09		105	%	80 - 120
			Dissolved Silver (Ag)	2021/09/09		102	%	80 - 120
			Dissolved Thallium (TI)	2021/09/09		102	%	80 - 120
			Dissolved Tin (Sn)	2021/09/09		109	%	80 - 120
			Dissolved Titanium (Ti)	2021/09/09		109	%	80 - 120
			Dissolved Uranium (U)	2021/09/09		99	%	80 - 120
			Dissolved Vanadium (V)	2021/09/09		103	%	80 - 120
			Dissolved Zinc (Zn)	2021/09/09		104	%	80 - 120
A340771	LQ1	Spiked Blank	Dissolved Aluminum (AI)	2021/09/09		121 (1)	%	80 - 120
			Dissolved Antimony (Sb)	2021/09/09		112	%	80 - 120
			Dissolved Arsenic (As)	2021/09/09		105	%	80 - 120
			Dissolved Beryllium (Be)	2021/09/09		110	%	80 - 120
			Dissolved Chromium (Cr)	2021/09/09		107	%	80 - 120
			Dissolved Cobalt (Co)	2021/09/09		104	%	80 - 120
			Dissolved Copper (Cu)	2021/09/09		105	%	80 - 120
			Dissolved Lead (Pb)	2021/09/09		106	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/09/09		109	%	80 - 120
			Dissolved Nickel (Ni)	2021/09/09		105	%	80 - 120
			Dissolved Selenium (Se)	2021/09/09		112	%	80 - 120
			Dissolved Silver (Ag)	2021/09/09		107	%	80 - 120
			Dissolved Thallium (TI)	2021/09/09		105	%	80 - 120
			Dissolved Trialitati (Tr)	2021/09/09		112	%	80 - 120
			Dissolved Titl (Sil)  Dissolved Titanium (Ti)	2021/09/09		103	%	80 - 120
			. ,					
			Dissolved Variations (V)	2021/09/09		103	%	80 - 120
			Dissolved Vanadium (V)	2021/09/09		111	%	80 - 120
4040774			Dissolved Zinc (Zn)	2021/09/09	.0.0000	103	%	80 - 120
A340771	LQ1	Method Blank	Dissolved Aluminum (Al)	2021/09/09	<0.0030		mg/L	
			Dissolved Antimony (Sb)	2021/09/09	<0.00060		mg/L	
			Dissolved Arsenic (As)	2021/09/09	<0.00020		mg/L	
			Dissolved Beryllium (Be)	2021/09/09	<0.0010		mg/L	
			Dissolved Chromium (Cr)	2021/09/09	<0.0010		mg/L	
			Dissolved Cobalt (Co)	2021/09/09	<0.00030		mg/L	
			Dissolved Copper (Cu)	2021/09/09	<0.00020		mg/L	
			Dissolved Lead (Pb)	2021/09/09	<0.00020		mg/L	
			Dissolved Molybdenum (Mo)	2021/09/09	<0.00020		mg/L	
			Dissolved Nickel (Ni)	2021/09/09	<0.00050		mg/L	
			Dissolved Selenium (Se)	2021/09/09	<0.00020		mg/L	
			Dissolved Silver (Ag)	2021/09/09	<0.00010		mg/L	
			Dissolved Thallium (TI)	2021/09/09	<0.00020		mg/L	
			Dissolved Tin (Sn)	2021/09/09	<0.0010		mg/L	
			Dissolved Titanium (Ti)	2021/09/09	<0.0010		mg/L	
			Dissolved Uranium (U)	2021/09/09	<0.00010		mg/L	
			Dissolved Vanadium (V)	2021/09/09	<0.0010		mg/L	
			Dissolved Variation (V)  Dissolved Zinc (Zn)	2021/09/09	<0.0010		mg/L	
A340771	LQ1	RPD	Dissolved Aluminum (AI)	2021/09/09	0.82		mg/L %	20
A34U//I	LQI	NYU	` '					20
			Dissolved Arrania (As)	2021/09/09	NC		%	20
			Dissolved Arsenic (As)	2021/09/09	NC NC		%	20
			Dissolved Beryllium (Be)	2021/09/09	NC		%	20



GOLDER ASSOCIATES LTD Sampler Initials: PT

QA/QC						_		
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Chromium (Cr)	2021/09/09	NC		%	20
			Dissolved Cobalt (Co)	2021/09/09	7.9		%	20
			Dissolved Copper (Cu)	2021/09/09	12		%	20
			Dissolved Lead (Pb)	2021/09/09	4.0		%	20
			Dissolved Molybdenum (Mo)	2021/09/09	NC		%	20
			Dissolved Nickel (Ni)	2021/09/09	0.78		%	20
			Dissolved Selenium (Se)	2021/09/09	NC		%	20
			Dissolved Silver (Ag)	2021/09/09	NC		%	20
			Dissolved Thallium (TI)	2021/09/09	NC		%	20
			Dissolved Tin (Sn)	2021/09/09	NC		%	20
			Dissolved Titanium (Ti)	2021/09/09	17		%	20
			Dissolved Uranium (U)	2021/09/09	8.3		%	20
			Dissolved Vanadium (V)	2021/09/09	5.9		%	20
			Dissolved Zinc (Zn)	2021/09/09	1.0		%	20
A341798	JAB	Matrix Spike	Dissolved Barium (Ba)	2021/09/04		9.0 (2)	%	80 - 120
			Dissolved Boron (B)	2021/09/04		95	%	80 - 120
			Dissolved Calcium (Ca)	2021/09/04		NC	%	80 - 120
			Dissolved Iron (Fe)	2021/09/04		NC	%	80 - 120
			Dissolved Lithium (Li)	2021/09/04		98	%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/04		NC	%	80 - 120
			Dissolved Manganese (Mn)	2021/09/04		91	%	80 - 120
			Dissolved Phosphorus (P)	2021/09/04		101	%	80 - 120
			Dissolved Potassium (K)	2021/09/04		100	%	80 - 120
			Dissolved Silicon (Si)	2021/09/04		NC	%	80 - 120
			Dissolved Sodium (Na)	2021/09/04		96	%	80 - 120
			Dissolved Strontium (Sr)	2021/09/04		NC	%	80 - 120
			Dissolved Sulphur (S)	2021/09/04		NC	%	80 - 120
A341798	JAB	Spiked Blank	Dissolved Barium (Ba)	2021/09/04		98	%	80 - 120
A341730	170	эрікей Бійтік	Dissolved Boron (B)	2021/09/04		96	%	80 - 120
			Dissolved Bolon (B) Dissolved Calcium (Ca)	2021/09/04		100	% %	80 - 120 80 - 120
			Dissolved Iron (Fe)	2021/09/04		106	%	80 - 120
			Dissolved Lithium (Li)	2021/09/04		100	%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/04		106	%	80 - 120
			Dissolved Manganese (Mn)	2021/09/04		102	%	80 - 120
			Dissolved Phosphorus (P)	2021/09/04		104	%	80 - 120
			Dissolved Potassium (K)	2021/09/04		102	%	80 - 120
			Dissolved Silicon (Si)	2021/09/04		98	%	80 - 120
			Dissolved Sodium (Na)	2021/09/04		97	%	80 - 120
			Dissolved Strontium (Sr)	2021/09/04		97	%	80 - 120
			Dissolved Sulphur (S)	2021/09/04		101	%	80 - 120
A341798	JAB	Method Blank	Dissolved Barium (Ba)	2021/09/04	<0.010		mg/L	
			Dissolved Boron (B)	2021/09/04	<0.020		mg/L	
			Dissolved Calcium (Ca)	2021/09/04	<0.30		mg/L	
			Dissolved Iron (Fe)	2021/09/04	<0.060		mg/L	
			Dissolved Lithium (Li)	2021/09/04	<0.020		mg/L	
			Dissolved Magnesium (Mg)	2021/09/04	<0.20		mg/L	
			Dissolved Manganese (Mn)	2021/09/04	<0.0040		mg/L	
			Dissolved Phosphorus (P)	2021/09/04	<0.10		mg/L	
			Dissolved Potassium (K)	2021/09/04	< 0.30		mg/L	
			Dissolved Silicon (Si)	2021/09/04	<0.10		mg/L	
			Dissolved Sodium (Na)	2021/09/04	<0.50		mg/L	
			Dissolved Strontium (Sr)	2021/09/04	<0.020		mg/L	
			Dissolved Sulphur (S)	2021/09/04	<0.20		mg/L	
A341798	JAB	RPD	Dissolved Calcium (Ca)	2021/09/05	0.039		%	20
			Dissolved Iron (Fe)	2021/09/05	0.039		%	20



Report Date: 2021/09/21

GOLDER ASSOCIATES LTD Sampler Initials: PT

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Magnesium (Mg)	2021/09/05	1.0	•	%	20
			Dissolved Manganese (Mn)	2021/09/05	0.47		%	20
			Dissolved Potassium (K)	2021/09/05	0.25		%	20
			Dissolved Sodium (Na)	2021/09/05	0.52		%	20
A341958	NR	Matrix Spike	Dissolved Chloride (CI)	2021/09/03		102	%	80 - 120
			Dissolved Sulphate (SO4)	2021/09/03		115	%	80 - 120
A341958	NR	Spiked Blank	Dissolved Chloride (Cl)	2021/09/03		103	%	80 - 120
		•	Dissolved Sulphate (SO4)	2021/09/03		99	%	80 - 120
A341958	NR	Method Blank	Dissolved Chloride (CI)	2021/09/03	<1.0		mg/L	
			Dissolved Sulphate (SO4)	2021/09/03	<1.0		mg/L	
A341958	NR	RPD	Dissolved Chloride (CI)	2021/09/03	11		%	20
			Dissolved Sulphate (SO4)	2021/09/03	NC		%	20
A343870	MPU	Matrix Spike	Dissolved Barium (Ba)	2021/09/09		9.5 (1)	%	80 - 120
			Dissolved Boron (B)	2021/09/09		83	%	80 - 120
			Dissolved Calcium (Ca)	2021/09/09		NC	%	80 - 120
			Dissolved Iron (Fe)	2021/09/09		100	%	80 - 120
			Dissolved Lithium (Li)	2021/09/09		86	%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/09		NC	%	80 - 120
			Dissolved Manganese (Mn)	2021/09/09		96	%	80 - 120
			Dissolved Manganese (Will)  Dissolved Phosphorus (P)	2021/09/09		98	%	80 - 120
			Dissolved Priosphorus (F)  Dissolved Potassium (K)	2021/09/09		94	%	80 - 120
			Dissolved Fotassidii (K)  Dissolved Silicon (Si)	2021/09/09		78 (1)	% %	80 - 120
			Dissolved Silicon (SI)  Dissolved Sodium (Na)	2021/09/09		NC	%	80 - 120
			Dissolved Strontium (Sr)	2021/09/09		NC		80 - 120 80 - 120
			` '	• •			%	
4242070	MADLI	Cuilead Dlaule	Dissolved Sulphur (S)	2021/09/09		NC	%	80 - 120
A343870	MPU	Spiked Blank	Dissolved Barium (Ba)	2021/09/09		95	%	80 - 120
			Dissolved Boron (B)	2021/09/09		94	%	80 - 120
			Dissolved Calcium (Ca)	2021/09/09		96	%	80 - 120
			Dissolved Iron (Fe)	2021/09/09		98	%	80 - 120
			Dissolved Lithium (Li)	2021/09/09		94	%	80 - 120
			Dissolved Magnesium (Mg)	2021/09/09		100	%	80 - 120
			Dissolved Manganese (Mn)	2021/09/09		93	%	80 - 120
			Dissolved Phosphorus (P)	2021/09/09		100	%	80 - 120
			Dissolved Potassium (K)	2021/09/09		97	%	80 - 120
			Dissolved Silicon (Si)	2021/09/09		93	%	80 - 120
			Dissolved Sodium (Na)	2021/09/09		93	%	80 - 120
			Dissolved Strontium (Sr)	2021/09/09		94	%	80 - 120
			Dissolved Sulphur (S)	2021/09/09		96	%	80 - 120
A343870	MPU	Method Blank	Dissolved Barium (Ba)	2021/09/09	<0.010		mg/L	
			Dissolved Boron (B)	2021/09/09	<0.020		mg/L	
			Dissolved Calcium (Ca)	2021/09/09	<0.30		mg/L	
			Dissolved Iron (Fe)	2021/09/09	<0.060		mg/L	
			Dissolved Lithium (Li)	2021/09/09	<0.020		mg/L	
			Dissolved Magnesium (Mg)	2021/09/09	<0.20		mg/L	
			Dissolved Manganese (Mn)	2021/09/09	<0.0040		mg/L	
			Dissolved Phosphorus (P)	2021/09/09	<0.10		mg/L	
			Dissolved Potassium (K)	2021/09/09	<0.30		mg/L	
			Dissolved Silicon (Si)	2021/09/09	<0.10		mg/L	
			Dissolved Sodium (Na)	2021/09/09	<0.50		mg/L	
			Dissolved Strontium (Sr)	2021/09/09	<0.020		mg/L	
			Dissolved Sulphur (S)	2021/09/09	<0.20		mg/L	
A343870	MPU	RPD	Dissolved Calcium (Ca)	2021/09/09	0.33		%	20
			Dissolved Magnesium (Mg)	2021/09/09	0.97		%	20
			Dissolved Potassium (K)	2021/09/09	11		%	20



GOLDER ASSOCIATES LTD Sampler Initials: PT

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	•		Dissolved Sodium (Na)	2021/09/09	0.53		%	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

- (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
- (2) Matrix spike exceeds acceptance limits due to matrix interference.



GOLDER ASSOCIATES LTD Sampler Initials: PT

### **VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by:

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Sandy Yuan, M.Sc., QP, Scientific Specialist

Meranica Felk

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Bureau Veritas Laboratories 4000 19st N.E. Calgary, Alberta Canada 72E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvlabs.com

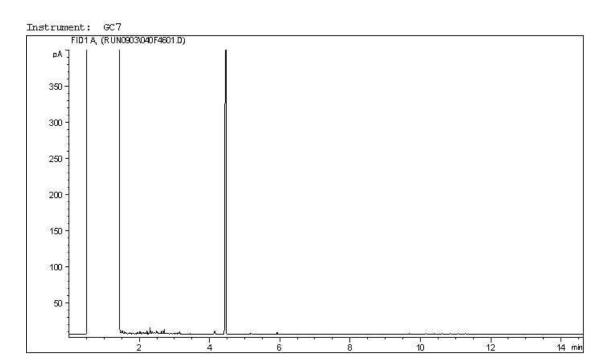
Chain Of Custody Record

		INVOICE TO:		0.71		ormation			1			Project Information	rmation		Laboratory Use Only	_	
dr.	Company Name #2045 GOL	#2045 GOLDER ASSOCIATES LTD	Cor	Company Name #634	000	5	755	S OC WATE	25 2	D Quotation #	# 5				BV Labs Job#	Bottle Order #:	
Contact	Contact Name ACCOUNTS PAYABLE 16820-107 AVE	S PAYABLE IVE	Cor	Contact Name PETER	TAN	Area 20-10	LA	GEL ST.	LAVAN S	Project #	.2.				000/35/10	644255	×
	. ,	EDMONTON AB T5P 4C3			calgaby	A.	et o	60	030	Project Name	Vame				Chain Of Custody Record	Project Manager	
Phone Email		Fax SPayableInvoices@	74	Phone (780) Email peter	(780) 483-3499 Fex. peter_tan@golder.com , <a href="https://cross.org/lines/2004/1/2">Cross.org/lines/2004/1/2</a>	0 1	bel.	ava	MCP @	Site #	Site # Sampled By COM				C#644255-01-01	Carmen McKay	
P 02	Regulatory Criteria			Special Instructions						An	Analysis Requested	pe pe			Turnaround Time (TAT) Required	) Required	
			Similar ist.			( N	(11)							100	Please provide advance notice for rush projects	for rush projects	16
	1		Shelle	She Uclg regolder.com	Nev-com	(N/	A/3M		ui Þ=		Rece	sived in	Received in Yellowknife		Regular (Standard) TAT (will be applied if Rush TAT is not specified)	×	
	CCME		Poull	Pour 11 Hy code		Water Y)∫b			4-1-1 b		. A	0 6	35 12	Stand	Standard TAT = 5-7 Working days for most tests. Please note. Shandard TAT for certain tests such as BOD and Dioxins/Furans are > 5 rave. To mainer when the relatile.	as BOD and Dioxins/Furans are > 5	
			J	131396	一一一	2000	_		ns X	ter		AUG 3	1 2021	S dob	Job Specific Rush TAT (if applies to entire submission)	sion)	
	Note: For regula	Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form	se use the Drinking Water	Chain of Custody Forn	n		/ pə		(3T8	isW.		1721	Fred	Date F Rush C	Date Required: Tis Rush Confirmation Number	Time Required:	
	Sample	Samples musk be kept cool ( < 10°C ) from time of sampling until delivery to BV Labs	time of sampling until deliver	ry to BV Labs	<b>建</b>	_	-	ŀ		enit	d	- dund		-		(call lab for #)	
	Sample Barcode Label	Sample (Location) Identification	cation Date Sampled	oled Time Sampled	ed Matrix	-	Reg	НАЧ	CCI	Коп	)	2.		# of Bottles	Comments	nents	
	1	1 P19-5	JEHMY86	0851 Jeh	200	2	>	>	>					עח			
_		P-019-4	Je piny se	0011 166	14.0	2		>	>					N		min volume for PAH (Ibotileonly	1
		6-61	Chumpe	60500 KJ	0 H20	2				>				R	reutine -	same well as above	
_		P19-5D	KHAMA BE	04:30 KM	O Hro	Z		>	>					7			
_		Pal-TB	Elample S	sorbi Kla	His	3		>	>					7			
_		P-919	eldumpe.	10:11 16	o Hro	>	>			>				h)	Coutre sourced	e il am > same well	
_		PAI-FB	18 MARINE	Ochl 166		>		>	7					h	Brex-only bue ulal, min, Vo	1941. Min. Vol.	
_																	
_	7					- 5									2021/09/01		
1 1	RELINQUISHED BY: (Signature/Print)	ature/Print)	(MM/DD)	$\overline{}$	. (	ED BY: (\$	RECEIVED BY: (Signature/Print)	rint)		Date: ()	Date: (YY/MM/DD)	Time	# jars used and		M M M Lab Use Only		
- 1	000	- (A-Bollawalle	100/00/10	16:39	U Dawi	47	Wibre	rea	Q	201/08	08/0	300		Time Sensitive	Temperature (°C) on Receipt Cus	Custody Seal Intact on Cooler?	
> II	NLESS OTHERWISE AGREED 1 OR VIEWING AT WWW.BVLABS.	UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS' FOR VIEWING AT WWW.BYLABS, COMTERMS-AND-CONDITIONS.	I IN THIS CHAIN OF CUSTODY	IS SUBJECT TO BV LAR	3S' STANDARD TERM	S AND C	NOITIONS	SIGNING	OF THIS CH	AIN OF CUSTO	DY DOCUMENT	T IS ACKNOWLE	DGMENT AND ACC	EPTANCE OF OU	RE AVAILABLE	White: BV Labs Yellow: Client	
	I IS THE RESPONSIBILITY OF TA	IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.	ACCURACY OF THE CHAIN O	OF CUSTODY RECORD.	AN INCOMPLETE CH	AIN OF C	JSTODY N	AY RESUL	T IN ANALYT	CAL TAT DEL	AYS.						-

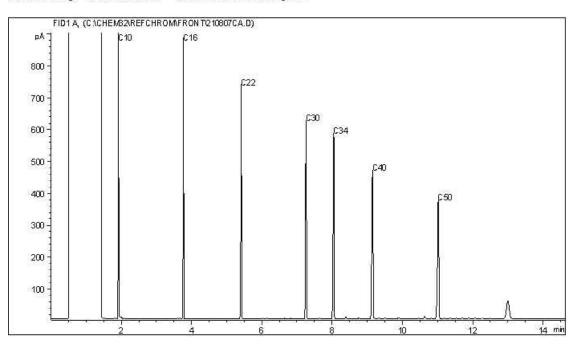
Bureau Veritas Canada (2019) Inc.

(S=4 & INT)

### CCME Hydrocarbons (F2-F4 in water) Chromatogram



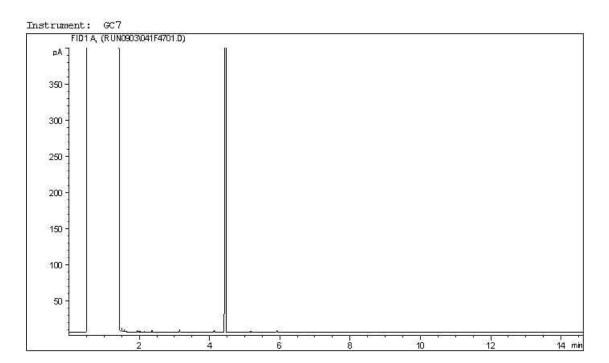
Carbon Range Distribution - Reference Chromatogram



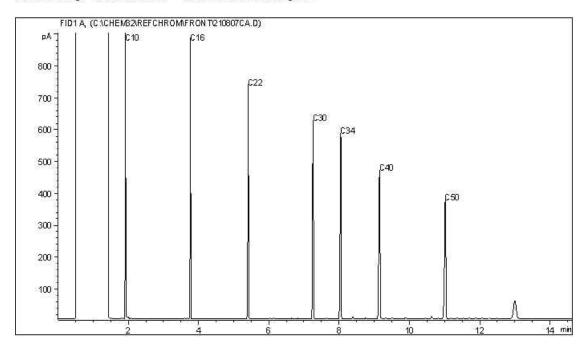
TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	c8	1	C22
Varsol:	c8	-	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7		C16	Crude Oils:	C3	4	C60+

### CCME Hydrocarbons (F2-F4 in water) Chromatogram



Carbon Range Distribution - Reference Chromatogram



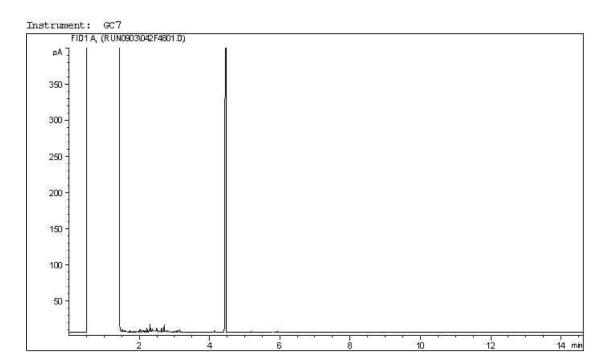
TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

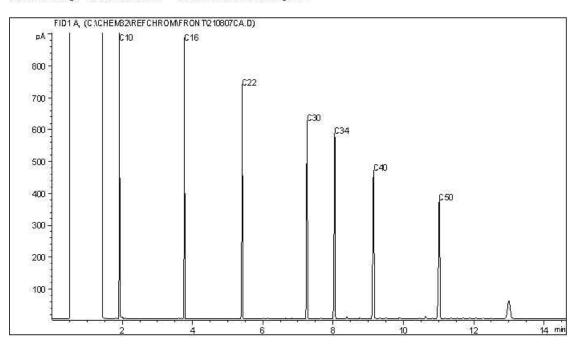
 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

### CCME Hydrocarbons (F2-F4 in water) Chromatogram



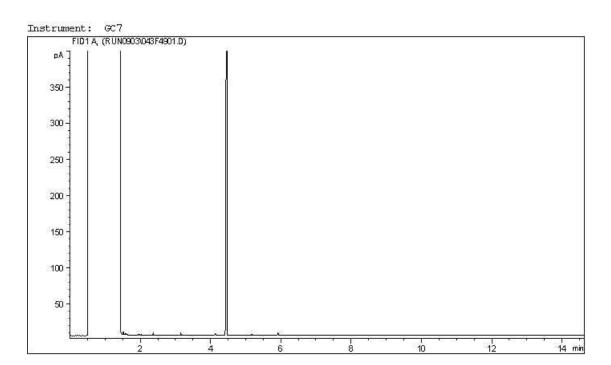
Carbon Range Distribution - Reference Chromatogram



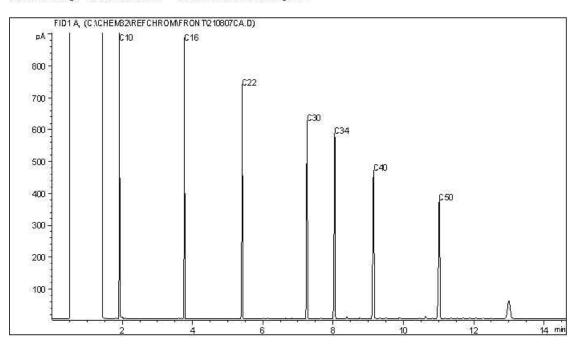
TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4 -	C12	Diesel:	c8		C22
Varsol:	c8 -	C12	Lubricating Oils:	C20	9 <del>4</del> 4	C40
Kerosene:	c7 -	C16	Crude Oils:	C3	-	C60+

### **CCME Hydrocarbons (F2-F4 in water) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



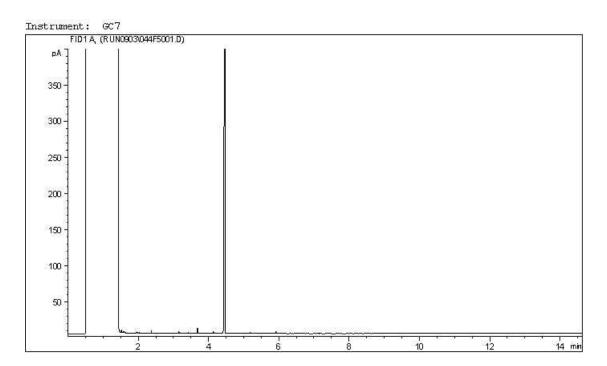
TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

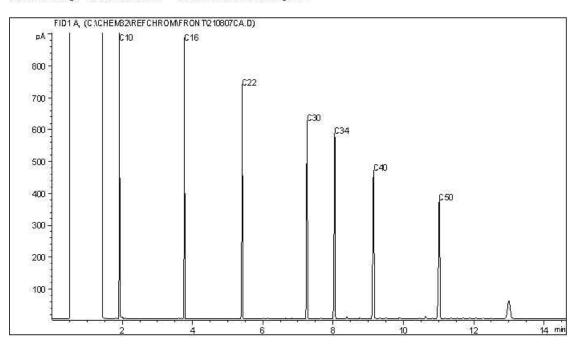
 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

### CCME Hydrocarbons (F2-F4 in water) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

# GOLDER DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farew	ell		<u>.</u>	Sampling Date: August 28 and 29, 2021
Golder Project Number:	20368099	9-6000-100	1	Laboratory: Bureau Veritas Edmonton
Lab Submission Number:	C164600		-	
Was the Cooler Received at the lat Was proper chain of custody of the Were sample temperatures accepta Were all samples analyzed and ext Has lab warranted all tests were in Was sufficient sample provided fo Has lab warranted all samples wer	e samples able when racted wi statistica r the requ	documented they reach thin hold to all control in dested analy	ed and kepted lab?: imes?: imes?: i CoA?: ysis?	Yes
Are All Laboratory QC Within Ac	ceptance	Criteria (Y	es, No, N	ot Applicable)?
	Yes	No	NA	Comments
Surrogate Recovery	X			All remaining laboratory QC results are within
Method Blank Concentration	X			acceptance criteria, please see QA/QC
Laboratory Duplicate RPD	X			appendix.
Matrix Spike Recovery		X		
Blank Spike Recovery		X		
Are All Field QC Samples Within	Alert Lin	nits (Yes, N	No, Not A	pplicable)?
	Yes	No	NA	Comments
Field Blank Concentration	X	110	11/1	Samples P19-5 and P19-5D exceed the alert limits for
Trip Blank Concentration	X			dissolved iron (177%) and 2-methylnaphthalene (62%).
_	Λ	X		` ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
Field Duplicate RPD		Λ		All remaining field QC samples are within alert limits.
Is data considered reliable (Yes/No If answer is "No" or "Suspect", de			ationale:	Yes
Data Reviewed by (Print):	Anita Col	bert	-	Data Reviewed by (Signature): Ondo Collect
Date:	Septembe	er 27, 2021	-	



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

### **Attention: Aurelie Belavance**

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-65-01, 644511-66-01, 644511-63-01, 644511-64-01

Report Date: 2021/12/24 Report #: R3113759

Version: 3 - Revision

## **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164643 Received: 2021/08/31, 08:35

Sample Matrix: Soil # Samples Received: 38

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	<b>Laboratory Method</b>	Analytical Method
Barium on ICP using Fusion Extraction (1)	3	2021/09/15	2021/09/16	AB SOP-00044 / AB SOP- 00042	EPA 6010d R5 m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	38	N/A	2021/09/07	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	38	N/A	2021/09/08		Auto Calc
Hexavalent Chromium (1, 3)	3	2021/09/07	2021/09/07	AB SOP-00063	SM 23 3500-Cr B m
CCME Hydrocarbons (F2-F4)+F3A/B in soil (1, 4)	1	2021/09/05	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 5)	20	2021/09/03	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 5)	18	2021/09/05	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2/F2+F3B) in soil (1, 6)	1	N/A	2021/12/23		Auto Calc
Elements by ICPMS - Soils (1)	3	2021/09/05	2021/09/06	AB SOP-00001 / AB SOP- 00043	EPA 6020b R2 m
Moisture (1)	20	N/A	2021/09/04	AB SOP-00002	CCME PHC-CWS m
Moisture (1)	18	N/A	2021/09/05	AB SOP-00002	CCME PHC-CWS m
Nitrite-N and Nitrate-N (soluble) (1)	3	2021/09/05	2021/09/07	AB SOP-00033 / AB SOP- 00023	SM 23 4110 B m
Soluble lons (1)	3	2021/09/05	2021/09/07	AB SOP-00033 / AB SOP- 00042	EPA 6010d R5 m
Soluble Paste (1)	3	2021/09/05	2021/09/05	AB SOP-00033	Carter 2nd ed 15.2 m
Soluble Boron Calculation (1)	3	N/A	2021/09/09		Auto Calc
Soluble Ions Calculation (1)	3	N/A	2021/09/04		Auto Calc

#### **Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

**Attention: Aurelie Belavance** 

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-65-01, 644511-66-01, 644511-63-01, 644511-64-01

Report Date: 2021/12/24

Report #: R3113759 Version: 3 - Revision

### **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164643 Received: 2021/08/31, 08:35

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

- \* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
- (1) This test was performed by Bureau Veritas Calgary, 4000 19 St., Calgary, AB, T2E 6P8
- (2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.
- (3) Some soil samples may react with the Cr(VI) spike reducing it to Cr(III). These samples are highly unlikely to contain native hexavalent chromium. Thus a failed spike recovery does not invalidate a negative result on the native sample.
- (4) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories
- conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.
- (5) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.
- (6) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

### **Attention: Aurelie Belavance**

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-65-01, 644511-66-01, 644511-63-01, 644511-64-01

Report Date: 2021/12/24

Report #: R3113759 Version: 3 - Revision

## **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164643 Received: 2021/08/31, 08:35

**Encryption Key** 



Bureau Veritas

24 Dec 2021 12:54:11

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Cynny Hagen, Key Account Specialist Email: Cynny.HAGEN@bureauveritas.com

Phone# (403)735-2273

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

<u> </u>									
Bureau Veritas ID		AFA000	AFA000	AFA001	AFA002	AFA003	AFA004		
Sampling Date		2021/08/28	2021/08/28	2021/08/28	2021/08/28	2021/08/28	2021/08/28		
Jamping Date		09:09	09:09	09:10	09:15	09:29	09:30		
COC Number		644511-65-01	644511-65-01	644511-65-01	644511-65-01	644511-65-01	644511-65-01		
	UNITS	TP21-65-01	TP21-65-01 Lab-Dup	TP21-65-03	TP21-65-06	TP21-66-01	TP21-66-03	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	59	N/A	370	<10	200	150	10	A341987
F3 (C16-C34 Hydrocarbons)	mg/kg	200	N/A	560	<50	270	400	50	A341987
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	N/A	<50	<50	<50	55	50	A341987
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	Yes	Yes	Yes	N/A	A341987
Physical Properties								•	
Moisture	%	11	N/A	7.7	17	13	15	0.30	A341981
Volatiles	•	•							
Xylenes (Total)	mg/kg	<0.045	N/A	<0.045	<0.045	<0.045	<0.045	0.045	A340245
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	<10	<10	<10	<10	10	A340245
Field Preserved Volatiles	•	•							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	A341576
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	1.0	0.050	A341576
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A341576
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	A341576
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A341576
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	<10	<10	10	A341576
Surrogate Recovery (%)	-	•	-	•	•	•	•	·	<u>,                                      </u>
1,4-Difluorobenzene (sur.)	%	98	97	98	98	97	98	N/A	A341576
4-Bromofluorobenzene (sur.)	%	102	103	102	102	101	103	N/A	A341576
D10-o-Xylene (sur.)	%	104	105	96	104	102	96	N/A	A341576
D4-1,2-Dichloroethane (sur.)	%	107	107	106	104	105	106	N/A	A341576
O-TERPHENYL (sur.)	%	107	N/A	117	101	100	109	N/A	A341987

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA005		AFA006	AFA006		AFA007		
Sampling Date		2021/08/28		2021/08/28	2021/08/28		2021/08/28		
Janipinig Date		09:39		09:49	09:49		09:50		
COC Number		644511-65-01		644511-65-01	644511-65-01		644511-65-01		
	UNITS	TP21-66-06	RDL	TP21-67-02	TP21-67-02 Lab-Dup	RDL	TP21-67-04	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	10	47	N/A	10	<26 (1)	26	A341987
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	50	270	N/A	50	270 (1)	130	A341987
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	53	N/A	50	<130 (1)	130	A341987
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	N/A	N/A	Yes	N/A	A341987
Physical Properties			•						
Moisture	%	21	0.30	20	21	0.30	61	0.30	A341981
Volatiles	•		•					•	
Xylenes (Total)	mg/kg	<0.045	0.045	<0.045	N/A	0.045	<0.19	0.19	A340245
F1 (C6-C10) - BTEX	mg/kg	<16	16	<10	N/A	10	<29	29	A340245
Field Preserved Volatiles		•	•					•	
Benzene	mg/kg	<0.0050	0.0050	<0.0050	N/A	0.0050	<0.014 (2)	0.014	A341576
Toluene	mg/kg	0.11	0.050	0.40	N/A	0.050	9.0 (3)	0.21	A341576
Ethylbenzene	mg/kg	<0.010	0.010	<0.010	N/A	0.010	<0.015 (2)	0.015	A341576
m & p-Xylene	mg/kg	<0.040	0.040	<0.040	N/A	0.040	<0.17 (3)	0.17	A341576
o-Xylene	mg/kg	<0.020	0.020	<0.020	N/A	0.020	<0.084 (3)	0.084	A341576
F1 (C6-C10)	mg/kg	<16 (4)	16	<10	N/A	10	<29 (2)	29	A341576
Surrogate Recovery (%)	•	•			•	•			
1,4-Difluorobenzene (sur.)	%	97	N/A	96	N/A	N/A	99	N/A	A341576
4-Bromofluorobenzene (sur.)	%	102	N/A	104	N/A	N/A	101	N/A	A341576
D10-o-Xylene (sur.)	%	98	N/A	109	N/A	N/A	105	N/A	A341576
D4-1,2-Dichloroethane (sur.)	%	105	N/A	105	N/A	N/A	106	N/A	A341576
O-TERPHENYL (sur.)	%	105	N/A	103	N/A	N/A	103	N/A	A341987
		•	•	•	•	•	•		

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limit reported based on MDL and sample weight used for analysis.
- (3) Detection limits raised based on sample weight used for analysis.
- (4) Detection limit raised due to interferent.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA008	AFA009	AFA010		AFA011		AFA012		
Sampling Date		2021/08/28	2021/08/28	2021/08/28		2021/08/28		2021/08/28		
Sampling Date		09:57	09:57	10:07		10:20		10:21		
COC Number		644511-65-01	644511-65-01	644511-66-01		644511-66-01		644511-66-01		
	UNITS	TP21-67-06	DUP-JJ	TP21-68-04	RDL	TP21-68-05	RDL	TP21-68-06	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	83	10	61 (1)	24	<10	10	A341987
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	270	50	1000 (1)	120	<50	50	A341987
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	50	260 (1)	120	<50	50	A341987
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	N/A	Yes	N/A	Yes	N/A	A341987
Physical Properties										
Moisture	%	18	15	15	0.30	58	0.30	17	0.30	A341981
Volatiles					•					
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	0.045	<0.15	0.15	<0.045	0.045	A340245
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	10	<23	23	<10	10	A340245
Field Preserved Volatiles	•	•	•	•	·	•		•		
Benzene	mg/kg	<0.0050	<0.0050	0.0076	0.0050	<0.011 (2)	0.011	<0.0050	0.0050	A341576
Toluene	mg/kg	<0.050	<0.050	0.51	0.050	2.2 (3)	0.17	<0.050	0.050	A341576
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	<0.012 (2)	0.012	<0.010	0.010	A341576
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	<0.13 (3)	0.13	<0.040	0.040	A341576
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.020	<0.067 (3)	0.067	<0.020	0.020	A341576
F1 (C6-C10)	mg/kg	<10	<10	<10	10	<23 (2)	23	<10	10	A341576
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	97	97	98	N/A	97	N/A	98	N/A	A341576
4-Bromofluorobenzene (sur.)	%	103	101	103	N/A	101	N/A	102	N/A	A341576
D10-o-Xylene (sur.)	%	105	110	96	N/A	104	N/A	97	N/A	A341576
D4-1,2-Dichloroethane (sur.)	%	104	106	105	N/A	107	N/A	106	N/A	A341576
O-TERPHENYL (sur.)	%	99	103	101	N/A	104	N/A	101	N/A	A341987
		•	•	•				•		

RDL = Reportable Detection Limit

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limit reported based on MDL and sample weight used for analysis.
- (3) Detection limits raised based on sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

•									
Bureau Veritas ID		AFA013	AFA014	AFA015	AFA016	AFA016	AFA017		
Sampling Date		2021/08/28	2021/08/28	2021/08/28	2021/08/28	2021/08/28	2021/08/28		
Jamping Date		10:30	10:40	10:51	11:00	11:00	11:00		
COC Number		644511-66-01	644511-66-01	644511-66-01	644511-66-01	644511-66-01	644511-66-01		
	UNITS	TP21-69-03	TP21-69-06	TP21-70-03	TP21-70-06	TP21-70-06 Lab-Dup	DUP-KK	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	340	<10	32	<10	<10	<10	10	A341987
F3 (C16-C34 Hydrocarbons)	mg/kg	280	<50	150	<50	<50	<50	50	A341987
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	<50	<50	50	A341987
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A341987
Physical Properties	•							•	
Moisture	%	12	14	9.2	19	N/A	20	0.30	A341981
Volatiles	•								,
Xylenes (Total)	mg/kg	<0.045	0.35	<0.045	<0.045	N/A	<0.045	0.045	A340245
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	N/A	<10	10	A340245
Field Preserved Volatiles	-		-	•	•	•	•	ē	,
Benzene	mg/kg	<0.0050	0.0079	<0.0050	<0.0050	N/A	<0.0050	0.0050	A341576
Toluene	mg/kg	0.42	0.36	0.069	<0.050	N/A	<0.050	0.050	A341576
Ethylbenzene	mg/kg	<0.010	0.073	0.016	<0.010	N/A	<0.010	0.010	A341576
m & p-Xylene	mg/kg	<0.040	0.20	<0.040	<0.040	N/A	<0.040	0.040	A341576
o-Xylene	mg/kg	<0.020	0.15	0.025	<0.020	N/A	<0.020	0.020	A341576
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	N/A	<10	10	A341576
Surrogate Recovery (%)	•	•	-	•	•	•	•	=	,
1,4-Difluorobenzene (sur.)	%	98	96	95	98	N/A	97	N/A	A341576
4-Bromofluorobenzene (sur.)	%	103	102	101	103	N/A	103	N/A	A341576
D10-o-Xylene (sur.)	%	99	97	94	103	N/A	102	N/A	A341576
D4-1,2-Dichloroethane (sur.)	%	105	105	105	106	N/A	106	N/A	A341576
O-TERPHENYL (sur.)	%	103	104	101	100	102	99	N/A	A341987

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA018	AFA019		AFA020	AFA020	AFA021		
Compling Date		2021/08/28	2021/08/28		2021/08/28	2021/08/28	2021/08/28		
Sampling Date		10:52	13:42		13:43	13:43	13:55		
COC Number		644511-66-01	644511-63-01		644511-63-01	644511-63-01	644511-63-01		
	UNITS	TP21-70-04	TP21-71-02	QC Batch	TP21-71-04	TP21-71-04 Lab-Dup	TP21-71-06	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	110	30	A341987	70	N/A	<10	10	A342518
F3 (C16-C34 Hydrocarbons)	mg/kg	200	100	A341987	160	N/A	79	50	A342518
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	A341987	<50	N/A	<50	50	A342518
Reached Baseline at C50	mg/kg	Yes	Yes	A341987	Yes	N/A	Yes	N/A	A342518
Physical Properties									
Moisture	%	9.8	10	A341981	6.2	N/A	15	0.30	A342517
Volatiles	•	•					•	•	•
Xylenes (Total)	mg/kg	0.094	0.13	A340245	<0.045	N/A	<0.045	0.045	A340245
F1 (C6-C10) - BTEX	mg/kg	<10	<10	A340245	<10	N/A	<10	10	A340245
Field Preserved Volatiles	•	•	•	•	•	•	•	•	
Benzene	mg/kg	<0.0050	<0.0050	A341576	<0.0050	<0.0050	<0.0050	0.0050	A341580
Toluene	mg/kg	<0.050	0.47	A341576	<0.050	<0.050	<0.050	0.050	A341580
Ethylbenzene	mg/kg	0.025	0.023	A341576	<0.010	<0.010	<0.010	0.010	A341580
m & p-Xylene	mg/kg	0.049	0.089	A341576	<0.040	<0.040	<0.040	0.040	A341580
o-Xylene	mg/kg	0.045	0.037	A341576	<0.020	<0.020	<0.020	0.020	A341580
F1 (C6-C10)	mg/kg	<10	<10	A341576	<10	<10	<10	10	A341580
Surrogate Recovery (%)							•		
1,4-Difluorobenzene (sur.)	%	98	98	A341576	97	99	98	N/A	A341580
4-Bromofluorobenzene (sur.)	%	103	103	A341576	102	104	103	N/A	A341580
D10-o-Xylene (sur.)	%	99	101	A341576	103	104	103	N/A	A341580
D4-1,2-Dichloroethane (sur.)	%	106	106	A341576	105	104	106	N/A	A341580
O-TERPHENYL (sur.)	%	103	104	A341987	132	N/A	106	N/A	A342518
BBL Barastella Batastian Lin						,			

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

									·
Bureau Veritas ID		AFA022	AFA022	AFA023	AFA024	AFA025	AFA026		
Sampling Date		2021/08/28	2021/08/28	2021/08/28	2021/08/28	2021/08/28	2021/08/28		
Jamping Date		14:05	14:05	14:16	14:17	14:26	14:34		
COC Number		644511-63-01	644511-63-01	644511-63-01	644511-63-01	644511-63-01	644511-63-01		
	UNITS	TP21-72-03	TP21-72-03 Lab-Dup	TP21-72-05	TP21-72-06	TP21-83-04	TP21-83-05	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	89	62	<10	<10	170	28	10	A342518
F3 (C16-C34 Hydrocarbons)	mg/kg	160	180	<50	<50	390	590	50	A342518
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	52	170	50	A342518
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A342518
Physical Properties									
Moisture	%	7.3	N/A	12	17	9.3	21	0.30	A342517
Volatiles	•								
Xylenes (Total)	mg/kg	<0.045	N/A	<0.045	<0.045	0.14	<0.045	0.045	A340245
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	<10	<10	<10	<10	10	A340245
Field Preserved Volatiles	•								
Benzene	mg/kg	<0.0050	N/A	<0.0050	<0.0050	0.0074	<0.0050	0.0050	A341580
Toluene	mg/kg	<0.050	N/A	<0.050	<0.050	0.45	0.76	0.050	A341580
Ethylbenzene	mg/kg	<0.010	N/A	<0.010	<0.010	0.019	<0.010	0.010	A341580
m & p-Xylene	mg/kg	<0.040	N/A	<0.040	<0.040	0.090	<0.040	0.040	A341580
o-Xylene	mg/kg	<0.020	N/A	<0.020	<0.020	0.046	<0.020	0.020	A341580
F1 (C6-C10)	mg/kg	<10	N/A	<10	<10	<10	<10	10	A341580
Surrogate Recovery (%)	•								
1,4-Difluorobenzene (sur.)	%	98	N/A	97	96	97	100	N/A	A341580
4-Bromofluorobenzene (sur.)	%	100	N/A	101	106	103	107	N/A	A341580
D10-o-Xylene (sur.)	%	97	N/A	100	102	106	100	N/A	A341580
D4-1,2-Dichloroethane (sur.)	%	106	N/A	106	105	105	107	N/A	A341580
O-TERPHENYL (sur.)	%	109	105	111	110	107	107	N/A	A342518

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

## AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA027	AFA028		AFA031	AFA032	AFA033		
		2021/08/28	2021/08/28		2021/08/28	2021/08/28	2021/08/28		
Sampling Date		14:35	14:44		14:45	14:53	14:53		
COC Number		644511-63-01	644511-63-01		644511-64-01	644511-64-01	644511-64-01		
	UNITS	TP21-83-06	TP21-84-03	QC Batch	TP21-84-04	TP21-84-05	DUP-LL	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	90	A342518	93	49	97	10	A342518
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	290	A342518	230	520	360	50	A342518
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	A342518	<50	150	71	50	A342518
Reached Baseline at C50	mg/kg	Yes	Yes	A342518	Yes	Yes	Yes	N/A	A342518
Physical Properties				•					
Moisture	%	15	13	A342517	7.8	18	13	0.30	A342517
Volatiles									
Xylenes (Total)	mg/kg	<0.045	0.058	A340245	<0.045	0.048	0.18	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<10	<10	A340245	36	36 <10		10	A340320
Field Preserved Volatiles									
Benzene	mg/kg	<0.0050	<0.0050	A341580	<0.0050	0.0099	0.016	0.0050	A341580
Toluene	mg/kg	<0.050	<0.050	A341580	<0.050	0.10	0.13	0.050	A341580
Ethylbenzene	mg/kg	<0.010	<0.010	A341580	<0.010	0.021	0.028	0.010	A341580
m & p-Xylene	mg/kg	<0.040	0.058	A341580	<0.040	<0.040	0.11	0.040	A341580
o-Xylene	mg/kg	<0.020	<0.020	A341580	<0.020	0.048	0.071	0.020	A341580
F1 (C6-C10)	mg/kg	<10	<10	A341580	36	<10	<10	10	A341580
Surrogate Recovery (%)		•	•	-		•	•	•	•
1,4-Difluorobenzene (sur.)	%	96	97	A341580	97	94	98	N/A	A341580
4-Bromofluorobenzene (sur.)	%	102	103	A341580	101	102	105	N/A	A341580
D10-o-Xylene (sur.)	%	103	106	A341580	99	105	109	N/A	A341580
D4-1,2-Dichloroethane (sur.)	%	105	107	A341580	105	104	107	N/A	A341580
O-TERPHENYL (sur.)	%	111	113	A342518	110	107	116	N/A	A342518
PDL - Papartable Detection Lie	~:+							•	•

RDL = Reportable Detection Limit



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA034	İ	AFA035		AFA036	AFA037	AFA038		
Buleau Ventas ib		2021/08/28		2021/08/28		2021/08/28	2021/08/28	2021/08/28		
Sampling Date		15:06		15:07		15:14	15:26	15:33		
COC Number		644511-64-01		644511-64-01		644511-64-01	644511-64-01	644511-64-01		
	UNITS	TP21-85-03	RDL	TP21-85-04	RDL	TP21-85-05	TP21-86-03	TP21-86-05	RDL	QC Batch
Ext. Pet. Hydrocarbon			1 1122						1	
•		42	10	47.(4)	20	40	40	40	40	4242540
F2 (C10-C16 Hydrocarbons)	mg/kg		10	47 (1)	20	<10	<10	<10	10	A342518
F3 (C16-C34 Hydrocarbons)	mg/kg		50	540 (1)	100	53	<50	<50	50	A342518
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	50	160 (1)	100	<50	<50	<50	50	A342518
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	N/A	Yes	Yes	Yes	N/A	A342518
Physical Properties										
Moisture	%	9.0	0.30	51	0.30	16	4.3	16	0.30	A342517
Volatiles					•				•	
Xylenes (Total)	mg/kg	<0.045	0.045	4.3	0.10	0.36	<0.045	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	<10	10	<23	23	<10	<10	<10	10	A340320
Field Preserved Volatiles	•									
Benzene	mg/kg	<0.0050	0.0050	<0.010 (2)	0.010	0.0094	<0.0050	<0.0050	0.0050	A341580
Toluene	mg/kg	<0.050	0.050	6.3 (3)	0.12	0.60	0.058	0.20	0.050	A341580
Ethylbenzene	mg/kg	<0.010	0.010	0.50 (3)	0.023	0.062	<0.010	<0.010	0.010	A341580
m & p-Xylene	mg/kg	<0.040	0.040	3.0 (3)	0.092	0.23	<0.040	<0.040	0.040	A341580
o-Xylene	mg/kg	<0.020	0.020	1.3 (3)	0.046	0.13	<0.020	<0.020	0.020	A341580
F1 (C6-C10)	mg/kg	<10	10	<23 (3)	23	<10	<10	<10	10	A341580
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	97	N/A	98	N/A	98	97	97	N/A	A341580
4-Bromofluorobenzene (sur.)	%	102	N/A	99	N/A	103	99	103	N/A	A341580
D10-o-Xylene (sur.)	%	115	N/A	111	N/A	98	105	111	N/A	A341580
D4-1,2-Dichloroethane (sur.)	%	105	N/A	107	N/A	106	106	106	N/A	A341580
O-TERPHENYL (sur.)	%	114	N/A	110	N/A	102	103	105	N/A	A342518
PDI - Papartable Detection Lie		•		•		•	•	•		•

RDL = Reportable Detection Limit

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limit reported based on MDL and sample weight used for analysis.
- (3) Detection limits raised based on sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

## AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA038	AFA039		
Sampling Date		2021/08/28 15:33	2021/08/28 15:34		
COC Number		644511-64-01	644511-64-01		
	UNITS	TP21-86-05 Lab-Dup	TP21-86-06	RDL	QC Batch
Ext. Pet. Hydrocarbon		•	•	· ·	
F2 (C10-C16 Hydrocarbons)	mg/kg	N/A	14	10	A342518
F3 (C16-C34 Hydrocarbons)	mg/kg	N/A	64	50	A342518
F4 (C34-C50 Hydrocarbons)	mg/kg	N/A	<50	50	A342518
Reached Baseline at C50	mg/kg	N/A	Yes	N/A	A342518
Physical Properties					
Moisture	%	17	12	0.30	A342517
Volatiles	•				
Xylenes (Total)	mg/kg	N/A	<0.045	0.045	A340320
F1 (C6-C10) - BTEX	mg/kg	N/A	<10	10	A340320
Field Preserved Volatiles	•				
Benzene	mg/kg	N/A	<0.0050	0.0050	A341580
Toluene	mg/kg	N/A	0.23	0.050	A341580
Ethylbenzene	mg/kg	N/A	<0.010	0.010	A341580
m & p-Xylene	mg/kg	N/A	<0.040	0.040	A341580
o-Xylene	mg/kg	N/A	<0.020	0.020	A341580
F1 (C6-C10)	mg/kg	N/A	<10	10	A341580
Surrogate Recovery (%)	•	•		•	
1,4-Difluorobenzene (sur.)	%	N/A	97	N/A	A341580
4-Bromofluorobenzene (sur.)	%	N/A	104	N/A	A341580
D10-o-Xylene (sur.)	%	N/A	101	N/A	A341580
D4-1,2-Dichloroethane (sur.)	%	N/A	105	N/A	A341580
O-TERPHENYL (sur.)	%	N/A	101	N/A	A342518
RDL = Reportable Detection Li	mit				
Lab-Dup = Laboratory Initiated	l Duplica	te			
N/A = Not Applicable					



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

## **AT1 REGULATED METALS - SOILS (SOIL)**

Bureau Veritas ID		AFA003		AFA004		AFA005		
Sampling Date		2021/08/28		2021/08/28		2021/08/28		
Sampling Date		09:29		09:30		09:39		
COC Number		644511-65-01		644511-65-01		644511-65-01		
	UNITS	TP21-66-01	RDL	TP21-66-03	RDL	TP21-66-06	RDL	QC Batch
Calculated Parameters								
Calculated Boron (B)	mg/kg	<0.039	0.039	<0.061	0.061	<0.032	0.032	A339887
Elements	•				•			
Hex. Chromium (Cr 6+)	mg/kg	<0.080	0.080	<0.080	0.080	<0.080	0.080	A343760
Soluble Parameters	•							
Soluble Boron (B)	mg/L	<0.10	0.10	<0.10	0.10	<0.10	0.10	A343801
Saturation %	%	39	N/A	61	N/A	32	N/A	A342449
Soluble Sulphate (SO4)	mg/L	460	5.0	62	5.0	47	5.0	A343801
Elements								
Total Antimony (Sb)	mg/kg	<0.50	0.50	<0.50	0.50	<0.50	0.50	A342492
Total Arsenic (As)	mg/kg	5.9	1.0	4.7	1.0	5.8	1.0	A342492
Total Barium (Ba)	mg/kg	1800	1.0	1000	1.0	150	1.0	A342492
Total Beryllium (Be)	mg/kg	<0.40	0.40	<0.40	0.40	<0.40	0.40	A342492
Total Cadmium (Cd)	mg/kg	0.14	0.050	0.13	0.050	0.080	0.050	A342492
Total Chromium (Cr)	mg/kg	72	1.0	40	1.0	12	1.0	A342492
Total Cobalt (Co)	mg/kg	4.8	0.50	3.9	0.50	3.5	0.50	A342492
Total Copper (Cu)	mg/kg	10	1.0	8.1	1.0	4.9	1.0	A342492
Total Lead (Pb)	mg/kg	13	0.50	8.8	0.50	4.2	0.50	A342492
Total Mercury (Hg)	mg/kg	0.057	0.050	0.054	0.050	<0.050	0.050	A342492
Total Molybdenum (Mo)	mg/kg	2.1	0.40	1.2	0.40	0.57	0.40	A342492
Total Nickel (Ni)	mg/kg	39	1.0	23	1.0	12	1.0	A342492
Total Selenium (Se)	mg/kg	<0.50	0.50	<0.50	0.50	<0.50	0.50	A342492
Total Silver (Ag)	mg/kg	<0.20	0.20	<0.20	0.20	<0.20	0.20	A342492
Total Thallium (TI)	mg/kg	<0.10	0.10	<0.10	0.10	<0.10	0.10	A342492
Total Tin (Sn)	mg/kg	<1.0	1.0	<1.0	1.0	<1.0	1.0	A342492
Total Uranium (U)	mg/kg	0.52	0.20	0.45	0.20	0.38	0.20	A342492
Total Vanadium (V)	mg/kg	18	1.0	15	1.0	15	1.0	A342492
Total Zinc (Zn)	mg/kg	35	10	29	10	24	10	A342492
RDL = Reportable Detection	Limit							



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### **RESULTS OF CHEMICAL ANALYSES OF SOIL**

Bureau Veritas ID		AFA003		AFA004		AFA005			
Sampling Date		2021/08/28 09:29		2021/08/28 09:30		2021/08/28 09:39			
COC Number		644511-65-01		644511-65-01		644511-65-01			
	UNITS	TP21-66-01	RDL	TP21-66-03	RDL	TP21-66-06	RDL	QC Batch	
Calculated Parameters	Calculated Parameters								
Calculated Sulphate (SO4)	mg/kg	180	1.9	38	3.1	15	1.6	A340250	
Calculated Nitrate (N)	mg/kg	<0.078	0.078	<0.12	0.12	<0.064	0.064	A340250	
Soluble Parameters									
Soluble Nitrate (N)	mg/L	0.30	0.20	<0.20	0.20	0.38	0.20	A343137	
RDL = Reportable Detection Limit									



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

# PETROLEUM HYDROCARBONS (CCME)

h				
Bureau Veritas ID		AFA026		
Sampling Date		2021/08/28		
Jamping Date		14:34		
COC Number		644511-63-01		
	UNITS	TP21-83-05	RDL	QC Batch
Ext. Pet. Hydrocarbon				
F3 (C16-C34 Hydrocarbons)	mg/kg	590	71	A454259
F3A (C16-C22)	mg/kg	68	50	A457151
F3B (C22-C34)	mg/kg	520	50	A457151
F2% (BIC)	mg/kg	5.1	N/A	A454259
Surrogate Recovery (%)				
O-TERPHENYL (sur.)	%	107	N/A	A457151
RDL = Reportable Detection I	imit			
N/A = Not Applicable				



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

# **ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)**

Bureau Veritas ID		AFA003	AFA004	AFA005		
Sampling Date		2021/08/28	2021/08/28	2021/08/28		
		09:29	09:30	09:39		
COC Number		644511-65-01	644511-65-01	644511-65-01		
	UNITS	TP21-66-01	TP21-66-03	TP21-66-06	RDL	QC Batch
Elements						
	_					
Total Fusion Barium (Ba)	mg/kg	2100	2000	760	50	A352608



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### **GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	9.3°C
Package 3	5.7°C
Package 4	4.7°C
Package 5	6.0°C
Package 6	5.7°C
Package 7	5.7°C
Package 8	5.7°C
Package 9	5.3°C

Version #3: Report reissued to include results for F3A/F3B/Chromatogram on sample TP21-83-05/AFA026 as per client request received 2021/12/16.

#### HYDROCARBON RESEMBLANCE

The reported hydrocarbon resemblance was obtained by visual comparison of the sample chromatogram with a library of reference product chromatograms. Since variables such as the degree and type of weathering and the presence of non-petrogenic hydrocarbons cannot be duplicated in reference spectra, the resemblance information must be regarded as approximate and qualitative and as such, Bureau Veritas Laboratories can assume no liability for any conclusions drawn from these data.

Sample AFA026 [TP21-83-05]: The CCME F2-F4 chromatographic peak profile is consistent with biogenic organic material (e.g. peat). Chromatograms of biogenic organic material may contain peak patterns spanning the C18 to C50 range, but they are most commonly characterized by a profile of unevenly distributed sharp peaks between C28 and C34. The impacts are not consistent with a petroleum product or crude oil.

Results relate only to the items tested.



Bureau Veritas Job #: C164643 Report Date: 2021/12/24 GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

# **QUALITY ASSURANCE REPORT**

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A341576	DO1	Matrix Spike [AFA000-02]	1,4-Difluorobenzene (sur.)	2021/09/07	74.45	91	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		100	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		93	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		103	%	50 - 140
			Benzene	2021/09/07		88	%	50 - 140
			Toluene	2021/09/07		88	%	50 - 140
			Ethylbenzene	2021/09/07		97	%	50 - 140
			m & p-Xylene	2021/09/07		91	%	50 - 140
			o-Xylene	2021/09/07		95	%	50 - 140
			F1 (C6-C10)	2021/09/07		93	%	60 - 140
A341576	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/07		86	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		91	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		79	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		100	%	50 - 140
			Benzene	2021/09/07		74	%	60 - 130
			Toluene	2021/09/07		79	%	60 - 130
			Ethylbenzene	2021/09/07		82	%	60 - 130
			m & p-Xylene	2021/09/07		80	%	60 - 130
			o-Xylene	2021/09/07		73	%	60 - 130
			F1 (C6-C10)	2021/09/07		81	%	60 - 140
A341576	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/07		96	%	50 - 140
7,541570	DOI	Wictioa Blank	4-Bromofluorobenzene (sur.)	2021/09/07		102	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		86	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		107	%	50 - 140
			Benzene	2021/09/07	<0.0050	107	mg/kg	30 140
			Toluene	2021/09/07	<0.050		mg/kg	
			Ethylbenzene	2021/09/07	<0.010		mg/kg	
			m & p-Xylene	2021/09/07	<0.010		mg/kg	
			o-Xylene	2021/09/07	<0.040		mg/kg	
			F1 (C6-C10)	2021/09/07	<10		mg/kg	
A341576	DO1	RPD [AFA000-02]	Benzene	2021/09/07	NC		///g/ kg %	50
A341370	DOI	KFD [Al A000-02]	Toluene	2021/09/07	NC		%	50
			Ethylbenzene	2021/09/07	NC		%	50
			m & p-Xylene	2021/09/07	NC		%	50
			o-Xylene	2021/09/07	NC		%	50
			F1 (C6-C10)	2021/09/07	NC		%	30
A341580	DO1	Matrix Spike [AFA020-02]	1,4-Difluorobenzene (sur.)	2021/09/07	NC	97	%	50 - 140
A341300	DOI	Wattix Spike [Al A020-02]	4-Bromofluorobenzene (sur.)	2021/09/07		104	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		111	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		106	%	50 - 140
			Benzene	2021/09/07		99	%	N/A
			Toluene	2021/09/07		103	%	N/A
			Ethylbenzene	2021/09/07		103	% %	N/A N/A
			m & p-Xylene	2021/09/07		107	%	N/A
			o-Xylene	2021/09/07		102	% %	N/A N/A
			6-Aylerie F1 (C6-C10)	2021/09/07		103	% %	N/A N/A
A341580	DO1	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/07		86	% %	50 - 140
M34136U	DOI	Shiven piquir	4-Bromofluorobenzene (sur.)	2021/09/07		92	% %	50 - 140 50 - 140
			D10-o-Xylene (sur.)	2021/09/07		92 85	% %	50 - 140 50 - 140
				2021/09/07		85 97		50 - 140 50 - 140
			D4-1,2-Dichloroethane (sur.)				%	
			Benzene	2021/09/07		77	%	60 - 130



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
Date		ασ.,γρο	Toluene	2021/09/07	74.45	83	%	60 - 130
			Ethylbenzene	2021/09/07		85	%	60 - 130
			m & p-Xylene	2021/09/07		82	%	60 - 130
			o-Xylene	2021/09/07		77	%	60 - 130
			F1 (C6-C10)	2021/09/07		104	%	60 - 140
A341580	DO1	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/07		98	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		103	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		89	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		104	%	50 - 140
			Benzene	2021/09/07	< 0.0050		mg/kg	
			Toluene	2021/09/07	<0.050		mg/kg	
			Ethylbenzene	2021/09/07	<0.010		mg/kg	
			m & p-Xylene	2021/09/07	<0.040		mg/kg	
			o-Xylene	2021/09/07	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/07	<10		mg/kg	
A341580	DO1	RPD [AFA020-02]	Benzene	2021/09/07	NC		%	50
			Toluene	2021/09/07	NC		%	50
			Ethylbenzene	2021/09/07	NC		%	50
			m & p-Xylene	2021/09/07	NC		%	50
			o-Xylene	2021/09/07	NC		%	50
			F1 (C6-C10)	2021/09/07	NC		%	30
A341981	KLG	Method Blank	Moisture	2021/09/04	< 0.30		%	
A341981	KLG	RPD [AFA006-01]	Moisture	2021/09/04	2.4		%	20
A341987	GG3	Matrix Spike [AFA016-01]	O-TERPHENYL (sur.)	2021/09/07		106	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		93	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		97	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		97	%	60 - 140
A341987	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		108	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		98	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		101	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		100	%	60 - 140
A341987	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		111	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/07	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/07	<50		mg/kg	
A341987	GG3	RPD [AFA016-01]	F2 (C10-C16 Hydrocarbons)	2021/09/07	NC		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/07	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/07	NC		%	40
A342449	KKC	QC Standard	Saturation %	2021/09/05		102	%	75 - 125
A342449	KKC	RPD	Saturation %	2021/09/05	2.4		%	12
A342492	KH2	Matrix Spike	Total Antimony (Sb)	2021/09/06		99	%	75 - 125
			Total Arsenic (As)	2021/09/06		NC	%	75 - 125
			Total Barium (Ba)	2021/09/06		125	%	75 - 125
			Total Beryllium (Be)	2021/09/06		98	%	75 - 125
			Total Cadmium (Cd)	2021/09/06		109	%	75 - 125
			Total Chromium (Cr)	2021/09/06		NC	%	75 - 125
			Total Cobalt (Co)	2021/09/06		109	%	75 - 125
			Total Copper (Cu)	2021/09/06		NC	%	75 - 125
			Total Lead (Pb)	2021/09/06		NC	%	75 - 125
			Total Mercury (Hg)	2021/09/06		110	%	75 - 125
			Total Molybdenum (Mo)	2021/09/06		NC	%	75 - 125



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Nickel (Ni)	2021/09/06		NC	%	75 - 125
			Total Selenium (Se)	2021/09/06		111	%	75 - 125
			Total Silver (Ag)	2021/09/06		123	%	75 - 125
			Total Thallium (TI)	2021/09/06		103	%	75 - 125
			Total Tin (Sn)	2021/09/06		103	%	75 - 125
			Total Uranium (U)	2021/09/06		104	%	75 - 125
			Total Vanadium (V)	2021/09/06		108	%	75 - 125
			Total Zinc (Zn)	2021/09/06		NC	%	75 - 125
A342492	KH2	QC Standard	Total Antimony (Sb)	2021/09/07		109	%	15 - 182
			Total Arsenic (As)	2021/09/07		110	%	53 - 147
			Total Barium (Ba)	2021/09/07		108	%	80 - 119
			Total Cadmium (Cd)	2021/09/07		103	%	72 - 128
			Total Chromium (Cr)	2021/09/07		105	%	59 - 141
			Total Cobalt (Co)	2021/09/07		101	%	58 - 142
			Total Copper (Cu)	2021/09/07		109	%	83 - 117
			Total Lead (Pb)	2021/09/07		115	%	79 - 121
			Total Molybdenum (Mo)	2021/09/07		109	%	67 - 133
			Total Nickel (Ni)	2021/09/07		109	%	79 - 121
			Total Silver (Ag)	2021/09/07		107	%	47 - 153
			Total Tin (Sn)	2021/09/07		111	%	67 - 133
			Total Uranium (U)	2021/09/07		102	%	77 - 123
			Total Vanadium (V)	2021/09/07		109	%	79 - 121
			Total Zinc (Zn)	2021/09/07		106	%	79 - 121
A342492	KH2	Spiked Blank	Total Antimony (Sb)	2021/09/06		105	%	80 - 120
715 12 152	11.12	Spinea Blank	Total Arsenic (As)	2021/09/06		105	%	80 - 120
			Total Barium (Ba)	2021/09/06		109	%	80 - 120
			Total Beryllium (Be)	2021/09/06		105	%	80 - 120
			Total Cadmium (Cd)	2021/09/06		107	%	80 - 120
			Total Chromium (Cr)	2021/09/06		105	%	80 - 120
			Total Cobalt (Co)	2021/09/06		106	%	80 - 120
			Total Copper (Cu)	2021/09/06		108	%	80 - 120
			Total Lead (Pb)	2021/09/06		107	%	80 - 120
			Total Mercury (Hg)	2021/09/06		114	%	80 - 120
			Total Melculy (Hg) Total Molybdenum (Mo)	2021/09/06		114	% %	80 - 120
			Total Nickel (Ni)	2021/09/06				
			Total Nicker (NI)  Total Selenium (Se)	2021/09/06		106 107	% %	80 - 120 80 - 120
			Total Silver (Ag)	2021/09/06		107	%	80 - 120
			Total Silver (Ag)  Total Thallium (TI)	2021/09/06		105		80 - 120 80 - 120
							%	
			Total Uranium (U)	2021/09/06 2021/09/06		110	%	80 - 120
			Total Vanadium (V)	2021/09/06		106	%	80 - 120
			Total Vanadium (V)			106	%	80 - 120
A 2 4 2 4 2 2	IV. IO	Makhad Diriri	Total Zinc (Zn)	2021/09/06	40 F.O	105	% 	80 - 120
A342492	KH2	Method Blank	Total Antimony (Sb)	2021/09/06	<0.50		mg/kg	
			Total Parium (Ra)	2021/09/06	<1.0		mg/kg	
			Total Barium (Ba)	2021/09/06	<1.0		mg/kg	
			Total Beryllium (Be)	2021/09/06	<0.40		mg/kg	
			Total Chromium (Cd)	2021/09/06	<0.050		mg/kg	
			Total Chromium (Cr)	2021/09/06	<1.0		mg/kg	
			Total Cobalt (Co)	2021/09/06	<0.50		mg/kg	
			Total Copper (Cu)	2021/09/06	<1.0		mg/kg	
			Total Lead (Pb)	2021/09/06	<0.50		mg/kg	



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Mercury (Hg)	2021/09/06	<0.050		mg/kg	
			Total Molybdenum (Mo)	2021/09/06	<0.40		mg/kg	
			Total Nickel (Ni)	2021/09/06	<1.0		mg/kg	
			Total Selenium (Se)	2021/09/06	<0.50		mg/kg	
			Total Silver (Ag)	2021/09/06	<0.20		mg/kg	
			Total Thallium (TI)	2021/09/06	<0.10		mg/kg	
			Total Tin (Sn)	2021/09/06	<1.0		mg/kg	
			Total Uranium (U)	2021/09/06	<0.20		mg/kg	
			Total Vanadium (V)	2021/09/06	<1.0		mg/kg	
			Total Zinc (Zn)	2021/09/06	<10		mg/kg	
A342492	KH2	RPD	Total Antimony (Sb)	2021/09/07	13		%	30
			Total Arsenic (As)	2021/09/07	4.1		%	30
			Total Barium (Ba)	2021/09/07	27		%	35
			Total Beryllium (Be)	2021/09/07	NC		%	30
			Total Cadmium (Cd)	2021/09/07	5.1		%	30
			Total Chromium (Cr)	2021/09/07	12		%	30
			Total Cobalt (Co)	2021/09/07	4.5		%	30
			Total Copper (Cu)	2021/09/07	2.8		%	30
			Total Lead (Pb)	2021/09/07	22		%	35
			Total Molybdenum (Mo)	2021/09/07	2.6		%	35
			Total Nickel (Ni)	2021/09/07	12		%	30
			Total Selenium (Se)	2021/09/07	NC		%	30
			Total Silver (Ag)	2021/09/07	2.2		%	35
			Total Thallium (TI)	2021/09/07	29		%	30
			Total Tin (Sn)	2021/09/07	27		%	35
			Total Uranium (U)	2021/09/07	28		%	30
			Total Vanadium (V)	2021/09/07	4.6		%	30
			Total Zinc (Zn)	2021/09/07	3.9		%	30
A342517	ARV	Method Blank	Moisture	2021/09/05	<0.30		%	
A342517	ARV	RPD [AFA038-01]	Moisture	2021/09/05	7.8		%	20
A342518	GG3	Matrix Spike [AFA022-01]	O-TERPHENYL (sur.)	2021/09/08	7.10	115	%	60 - 140
, 10 .2020	000		F2 (C10-C16 Hydrocarbons)	2021/09/08		105	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08		115	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/08		111	%	60 - 140
A342518	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/08		112	%	60 - 140
A342310	005	эрікса Біатк	F2 (C10-C16 Hydrocarbons)	2021/09/08		106	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08		111	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/08		107	%	60 - 140
A342518	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/08		128	%	60 - 140
A342310	003	Wiethod Blank	F2 (C10-C16 Hydrocarbons)	2021/09/08	<10	120	mg/kg	00 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/08	<50		mg/kg	
A342518	GG3	RPD [AFA022-01]	F2 (C10-C16 Hydrocarbons)	2021/09/08	36		/// // // // // // // // // // // // //	40
A342310	003	NFD [Al A022-01]	F3 (C16-C34 Hydrocarbons)	2021/09/08	8.7		%	40
				2021/09/08				40
A343137	KDO	Matrix Spike	F4 (C34-C50 Hydrocarbons) Soluble Nitrate (N)	2021/09/08	NC	100	% %	
	KD9	•	` '	2021/09/07		100	%	75 - 125
A343137	KD9	QC Standard	Soluble Nitrate (N)	• •		107 101	%	75 - 125
A343137	KD9	Spiked Blank	Soluble Nitrate (N)	2021/09/07	<0.30	101	% ma/l	80 - 120
A343137	KD9	Method Blank	Soluble Nitrate (N)	2021/09/07	<0.20		mg/L	20
A343137	KD9	RPD	Soluble Nitrate (N)	2021/09/07	4.6		%	30
A343760	NR	Matrix Spike	Hex. Chromium (Cr 6+)	2021/09/07		92	%	75 - 125



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A343760	NR	Spiked Blank	Hex. Chromium (Cr 6+)	2021/09/07		101	%	80 - 120
A343760	NR	Method Blank	Hex. Chromium (Cr 6+)	2021/09/07	<0.080		mg/kg	
A343760	NR	RPD	Hex. Chromium (Cr 6+)	2021/09/07	NC		%	35
A343801	MAP	Matrix Spike	Soluble Boron (B)	2021/09/07		101	%	75 - 125
A343801	MAP	QC Standard	Soluble Sulphate (SO4)	2021/09/07		110	%	75 - 125
A343801	MAP	Spiked Blank	Soluble Boron (B)	2021/09/09		105	%	80 - 120
A343801	MAP	Method Blank	Soluble Boron (B)	2021/09/07	<0.10		mg/L	
			Soluble Sulphate (SO4)	2021/09/07	<5.0		mg/L	
A343801	MAP	RPD	Soluble Boron (B)	2021/09/07	NC		%	30
			Soluble Sulphate (SO4)	2021/09/07	5.4		%	30
A352608	MAP	QC Standard	Total Fusion Barium (Ba)	2021/09/16		85	%	75 - 125
A352608	MAP	Spiked Blank	Total Fusion Barium (Ba)	2021/09/16		93	%	75 - 125
A352608	MAP	Method Blank	Total Fusion Barium (Ba)	2021/09/16	<50		mg/kg	
A352608	MAP	RPD	Total Fusion Barium (Ba)	2021/09/16	12		%	35
A457151	MHF	Spiked Blank	O-TERPHENYL (sur.)	2021/08/24		106	%	60 - 140
			F3A (C16-C22)	2021/08/24		109	%	60 - 140
			F3B (C22-C34)	2021/08/24		112	%	60 - 140
A457151	MHF	Method Blank	O-TERPHENYL (sur.)	2021/08/24		103	%	60 - 140
			F3A (C16-C22)	2021/08/24	<50		mg/kg	
			F3B (C22-C34)	2021/08/24	<50		mg/kg	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: AB

### **VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by:

Gita Pokhrel, Laboratory Supervisor

Sandy Yuan, M.Sc., QP, Scientific Specialist

Vermica feck

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BUREAU			as Laboratories E, Calgary, Alberta Cana	ada T2E 6P8	Tel (403) 291	-3077 Toll-free:800-5	563-6266 Fax	(403) 2	291-9468	www.bvlabs	i.com							C	CHAIN C	OF CUSTODY RECORD	Page i of 4
35	4	INVOICE TO:					REPOR	RT TO:							PROJECT	INFORMA	ATION:			Laboratory Use	Only:
Company Name:	#254 GOLDE	R ASSOCIAT	ES LTD.		Company N	ame: #6340 GC	DLDER AS	SOC	ATES I	TD.			Quotation #:		C0048	)				BV Labs Job #:	Bottle Order #:
Attention:	ACCOUNTS F	CONTRACTOR CONTRACTOR			Attention:	Aurelie Be							.0.#.			99-7000				C164643	
Address:	2800, 700 -2nd				Address:	2800, 700						F	roject:		203680	99-6000	0-1001				644511
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Tel: Email:			ices@golder.com	000	Tel: Email:	abellavano		.com	_ Fax:				ite #: ampled Bv							C#644511-65-01	Carmen McKay
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	***				4175	15 77		ld Filter	lated	AT1 BTEX and F (Vials)	BIC SCALE Analysis (F2/F2+F3B) in soil	Sulphate / nitrate	ICP (	CCME BTEX and Water	Routine Water	Meta d	PAH in Water by	Sample	Job Spec Date Rec	cific Rush TAT (if applies to entire submission puired:	on)
	AMPLES MUST BE	KEPT COOL ( < 10°	C) FROM TIME OF SA	MPLING UN	IL DELIVERY	TO BV LABS		S Fie	Zegı	37E	SCAI 2+F	ate	m or	1 EB 7	l e	lated	\ \ \	Sp	Rush Conf	irmation Number:	all lab for #)
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* IT IS THE RESPON	TERMS-AND-CONDITION SIBILITY OF THE RELIM	ONS. VQUISHER TO ENSUR	SS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS 'STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT  White: BV Labs  White: BV Labs  White: BV Labs  White: BV Labs  AVAILABLE FOR ELECTOR SO AS A FIER SAMPLE ACCURACY OF THE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.  SAMPLES ARE HELD FOR 80 DAYS A FIER SAMPLE RECIBET, FOR SPECIAL REQUISTS CONTACT YOUR PROJECT MANAGER																		

Bureau Veritas Canada (2019) Inc.

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	BUREAU VERITAS		Bureau Veritas Laboratories 4000 19st N.E. Calgary, Alberta Cana	da T2E 6P8	Tel:(403) 29	1-3077 Toll-free:800-	563-6266 Fax	(403)	291-9468	www.bvlabs	.com							С	HAIN C	F CUSTODY RECORD	Р	Page Zof 4
			INVOICE TO:				REPOR	RT TO:							PROJECT	INFORM	ATION:			Laboratory Use	Only:	
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Te	el:		100 Ext: 1167 Fax: (403) 299-56	06	Tel:	(403) 299-		IVZ	Person				Project Nam	10:			San Harriston			COC #:	Project I	Manager:
E	nail:	canadaacco	ountspayableinvoices@golder.com		Email:		ce@golder.	com	_ Fax:				Site #: Sampled By:				-			C#644511-66-01	Carmer	n McKay
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	Other			4-01 6	ining	(000		) ¿ p	etal	1-F4	ysis		ing	F1-F2		0)	GC/MS			te: Standard TAT for certain tests are > 5 days - o	contact your Proje	ect Manager for
				4	1359	544		Filtered ? ( Y / N )	N pe	and F1-F4 in Soil	Anali in s	rate	P us	and	_	tals	5			rific Rush TAT (if applies to entire submission	on)	
				•				eld F	ulate	×	1E/	/ nit	OF.	Ä	Vate	M P	/ater	Sample	Date Req	uired:		
	S.	AMPLES MUST B	E KEPT COOL ( < 10°C ) FROM TIME OF SAM	PLING UN	TIL DELIVER	TO BV LABS		II.	Regulated Metals -	BTE s)	SCA F2+F	hate	um o	Ш <sub>2</sub>	ine V	solve	in Water b	Spe	Rush Conf	rmation Number:	call lab for #)	
	Sample	Barcode Label	Sample (Location) Identification	Da	te Sampled	Time Sampled	Matrix	Metals	AT1	AT1 BTEX (Vials)	BIC SCALE Analysis (F2/F2+F3B) in soil	Sulphate / nitrate	Barium on ICP using Fus Extraction (True Barium)	CCME BTEX and Water	Routine Water	Regulated Metals (CCME/AT1) - Dissolved	PAH	Limited	of Bottle			
1	NIA	1	TP21-68-04	29	Ang/21	10:07	SOIL			V		138	9-28-5		_				3			
2			Ral- 68-05		1	10: 20	1			/								-	3			
3			TP21-68-06		<del>                                     </del>	10:21				V								-	2			
4			Mal- 69-03	+		10:30				V								-	)	Received in Ye	llowknife	ą
6				-						-									3	By. J. Merc	my	
-			TPJ1-69-06			10:40				V	N:								3	@8:	35 AV	
6			TP21-70-03			10:51				V									3	AUG 31	ZUZ1	
7			Mal- 70-06			11:00	-			V									3	(ce to	TK	
8	_	V	BL DUP-KK			11:00	/			V									3	Temp:	ř 1	
9			TP21-70-0	4		10:52		= 8		V									3			
10		V	1	1	/		V			/									7			
	· F			YY/MM/DD		-	RECEIVE	D BY:	(Signatur	e/Print)			Date: (YY/M	M/DD)	Time		s used and		_4	Laboratory Use Only		
(	lee	101 1-	1. Bellavance 21/0	8128	16:3	30 Ju D	owit	1	ibre	cab		20	02/109	101	1510	not	submitted	Time S	ensitive		Custody Seal Intac	ct on Cooler?
. NN	ESS OTHERWI	SE AGREED TO IN V	VRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTIONS:	STODY IS SU	BJECT TO BY	ABS' STANDARD TERM	S AND CONDITI	ONS S	SIGNING OF	Tule cuar	OF CUETO	DA BOOT	ENT IO ACT	LOUIS ED.						See ACTR	Yes	No
: IT	S THE RESPONS	IBILITY OF THE RE	LINQUISHER TO ENSURE THE ACCURACY OF THE C	HAIN OF CU	STODY RECOR	D. AN INCOMPLETE CH	AIN OF CUSTOR	Y MAY	RESULT IN	ANALYTICA	I TAT DELA	LVS.	ENT IS ACKN	IOWLEDGM	ENT AND AC	CEPTANCE	OF OUR TE	RMS WHICH A	RE AVAIL	ABLE FOR VIEWING AT Whi	ite: BV Labs	Yellow: Client
** AL	L SAMPLES ARE	HELD FOR 60 DAY	S AFTER SAMPLE RECEIPT, FOR SPECIAL REQUES	TS CONTAC	T YOUR PROJE	CT MANAGER	-,,				- INT DELP											

Bureau Veritas Canada (2019) Inc.

-	B		EA.	
	mpa enti	27/20	Nan	1e
Ac	dres	SS:		

V V Bureau Veritas Laboratories 4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvlabs.com

# CHAIN OF CUSTODY RECORD

Page 3 of 4

		INVOICE TO:				DEDO														
Company Name	#254 'GOLI	DER ASSOCIATES LTD.			#6240 0	REPO								PROJEC	T INFOR	MATION:			Laboratory Use	Only
Attention:	ACCOUNTS	PAYABLE		Company Attention	Aurelie Be	OLDER AS	SOC	IATES	LTD.			Quotation	#:	C0048	30			1000	BV Labs Job #:	Bottle Order #:
Address:		nd Street SW				-2nd Stree						P.O. #:		20368	099-70	00-1001				
	CALGARY A			Address:	CAL GAR	Y AB T2P 2	t SW			-		Project:		20368	099-60	00-1001			C 164643	
Tel:	(905) 567-61	00 Ext: 1167 Fax: (403) 299-5	306	Tel:	(403) 299-		VVZ					Project Nar	me:						COC #:	644511 Project Manager:
Email:	canadaacco	untspayableinvoices@golder.com		Email:	-	ce@golder	0000	_ Fax: _				Site #:							V II I WITH THE CONTRACT OF TH	r roject manager:
Regulatory Cr	iteria:				ecial Instructions	ce@goider	l Com	1		AN		Sampled B		-					C#644511-63-01	Carmen McKay
ATI			ema	01	100		1		T	T	ML 1 313 F	EQUESTE	D (PLEASE	BE SPEC	IFIC)				Turnaround Time (TAT) Re	quired:
			5ho	Udar	B golder.	LOW1		Soils	75				1		E				Please provide advance notice for ru	ush projects
CCME	Ε.			L	e golder.		ered ? (Y/N)	So	Soil	1		using Fusion e Barium)	.⊑		IA.				(Standard) TAT:	
Other			faci	like	ocle		5	8	7	/0		E E	-F2		I WE	MS			applied if Rush TAT is not specified): d TAT = 5-7 Working days for most tests .	
			611	25951	641		5 pa	Net	1 2	lysis		Sari	正		00	3C/		Please n	ote: Standard TAT for certain tests are > 5 days - c	contact your Project Manager for
			71	9595	14		Itere	De la	and F1-F4 in	in s	ate	ne F	and	1	as	oy (	a)	dotano		
April 10 States	Color or an of the Policies of the	7-1-1					Id F	ılatı	×	3B)	Į.	DE.	X	ate	Me	te	nple	Date Re	cific Rush TAT (if applies to entire submission	on)
* S/	AMPLES MUST BE	KEPT COOL ( < 10°C ) FROM TIME OF SAM	IPLING UN	TIL DELIVERY	TO BV LABS	, ,	Fie	Regulated Metals	E E	CAI	ate /	no r	BT	3	ted	Wa	Sample		firmation Number:	
	Barcode Label	Sample (Location) Identification		ite Sampled	<b>工作的自由工作的基本。</b>		Metals		AT1 BTEX (Vials)	BIC SCALE Analysis (F2/F2+F3B) in soil	Sulphate / nitrate	riac	CCME BTEX and F1-F2 Water	Routine Water	Regulated Metals (CCME/AT1) - Dissolved	PAH in Water by GC/MS	ted		The state of the s	all lab for #)
1 8 1 f A					Time Sampled	Matrix	ž	AT1	Z S	B F	Su	Barium on ICP us Extraction (True E	S ⊗	Rou	Reg Dij	PA	Limited	# of Bottle	Comments	
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3			+-	1					~									3		
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4		tP21 - 72-03			14:05				V						_					
5		FP21-72-05					-		-									3	Received in Ye	llowknife
6					14:16				V									2	By: Jimere	11900
9		1921 - 72-06			14:17				V									)	By: J.Meri	35 Az
7		TP21-83-04						_	1	-								3	AUG 312	2021
8			++		14:26				V									3	See A	
		1P21 - 83 - 05			14:34				V									2	Temp: /	CIR
9	/	TP21 - 83-06			14:35		1		1									5	remp. /	1
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* RE	LINQUISHED BY:		Y/MM/DD)		19.44	V			V									2		
Cece	100	A. Bellavance 21/08	3/28	16:3c	(0) n	RECEIVED					Di	ate: (YY/MN	M/DD)	Time	# jars	used and		2		
	1		-					bre			20	21/09	011	5:00	nots	ubmitted	Time Se		Laboratory Use Only Temperature (°C) on Receipt Cu	atori Continue
UNLESS OTHERWISE	AGREED TO IN WRIT	ING, WORK SUBMITTED ON THIS CHAIN OF CUST	ODY IS SUB	JECT TO BV I A	BS' STANDARD TESTS	AND COURT						- (							See ACTR	ustody Seal Intact on Cooler?
IT IS THE RESPONSIB	ILITY OF THE RELING	ING, WORK SUBMITTED ON THIS CHAIN OF CUS NS. QUISHER TO ENSURE THE ACCURACY OF THE CH	IAIN OF CUS	TODY RECORD	AN INCOMPLETE	AND CONDITION	VS. SIG	NING OF	THIS CHAIN	OF CUSTODY	DOCUME	NT IS ACKNO	OWLEDGME	NT AND ACC	EPTANCE	OF OUR TERM	IS WHICH A	RE AVAILA	ABLE FOR VIEWING AT	Yes No
ALL SAMPLES ARE H	IELD FOR 60 DAYS A	QUISHER TO ENSURE THE ACCURACY OF THE CH FTER SAMPLE RECEIPT, FOR SPECIAL REQUEST:	CONTACT	YOUR PROJECT	MANAGER	N OF CUSTODY	MAY R	ESULT IN	ANALYTICAL	TAT DELAY	S.								White:	: BV Labs Yellow: Client

Page 26 of 68

-																				· 11 · 11	
		Bureau Veritas Laboratories 4000 19st N.E. Calgary, Alber	rta Canada T2E 6P8	3 Tel:(403) 291	-3077 Toll-free 800-56	3-6266 Fax:	403) 29	91-9468 w	ww.bvlabs.	com							C	HAIN OF	CUSTODY RECORD	Page of 4	
BUREAU VERITAS												PROJECT INFORMATION: Laboratory Use Only:							Only		
	#254 COLDE	INVOICE TO:			ama: #6340 GOI	REPOR		ATECI	TD			Contains the C00480							BV Labs Job #: Bottle Order #:		
Company Name:	ACCOUNTS P	R ASSOCIATES LTD.		Company N	Aurelie Bela		SOCIA	AIES L	ID.			Quotation #:				9-7000-1001			2 1/1/10		
Attention:	2800, 700 -2nd		Waller Commence	Attention: Address: 2800, 700 -2nd Street				t SW				P.O. #:			99-6000				C 164643	644511	
Address:	CALGARY AB			_ Address:	CALGARY							Project: Project Name	a.						COC #:	Project Manager:	
Tel:	(00E) ECT C100 Ext: 11C7 (403) 300 EC06			Tel:	(403) 299-50	600		Fax:				Site #:								Carmen McKay	
Email:	canadaaccoun	tspayableinvoices@golder	r.com	Email:	abellavance	e@golder.	com					Sampled By:							C#644511-64-01		
Regulatory Cr	iteria:				cial Instructions					ANA	ALYSIS R	EQUESTED	(PLEASE	BE SPECI	FIC)				Turnaround Time (TAT) R	THE RESERVE OF THE PARTY OF THE	
			RM	cil				10							E				Please provide advance notice for	rush projects	
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Other			fore	ility	code.		red ? ( Y / N )	letal	구.	ysis	1004	Sari	F		0	GC/MS		Please not details	e: Standard TAT for certain tests are > 5 days	- contact your Project Manager for	
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	A CONTRACTOR OF THE CONTRACTOR						ld Fi	ulate	я ×	LE /	/ nit	9 E	ΙX	Water	W pe	/ate	ō	Date Requ			
	ATI  SMULL STATE AND THE RECOLUTION OF SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLED WITH DELIVERY TO BY LABS  Sample Barcode Label Sample (Location) Identification  Date Sampled Matrix  Sample Barcode Label Sample (Location) Identification  Date Sampled Matrix  Sample Barcode Label Sample (Location) Identification  Date Sampled Matrix  Sample Matrix  Sample Barcode Label Sample (Location) Identification  Date Sampled Matrix  Sample Matrix  Sample Matrix  Sample Barcode Label Sample (Location) Identification  Date Sampled Matrix  Sample Matrix																				
Anna San San San San San San San San San			P.W. 2000	ate Sampled	Time Sampled	Matrix	Metal	AT1	Vials	31C S F2/F	din	sariu	CM	Routine	Regu	PAH	Limited	# of Bottles	Commen	its	
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1 NIA		tPal-84-0	4 3	8 Aug (2)	14.45	2010	-		V												
2		TP21-84-0	5		14:53	1			-									3	Received in Y	ellowknife -	
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4		TP21-85-	03		15:06				V									3	@ 8	3:35 Am	
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6			05		15:14				V									3	Set	Kerr	
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( Q P C	RELINQUISHED BY	A. Be lavence	Date: (YY/MM/E	1.6	-			LO TPA			7	or/lo	3/6/	15:0	no	t submitted		Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler'	
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· UNLESS OTHERW	VISE AGREED TO IN WR	ITING, WORK SUBMITTED ON THIS CH	HAIN OF CUSTODY IS	SUBJECT TO BV	LABS' STANDARD TERM	S AND CONDIT	IONS.	SIGNING C	F THIS CHAI	N OF CUSTO	DDY DOCU	MENT IS ACK	NOWLEDGE	MENT AND A	CCEPTANO	E OF OUR TE	RMS WHICH	ARE AVAIL	ABLE FOR VIEWING AT	White: BV Labs Yellow: Clie.	
* IT IS THE RESPON	WWW.BULABS.COM/TERNS-AND-CONDITIONS.  **I IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.  **ALL SAMPLES ARE HELD FOR 50 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER																				
" ALL SAMPLES A	RE HELD FOR 60 DAYS	AFTER SAMPLE RECEIPT, FOR SPECIA	AL REQUESTS CONT.	ACT YOUR PROJ	ECT MANAGER																

Bureau Veritas Canada (2019) Inc.

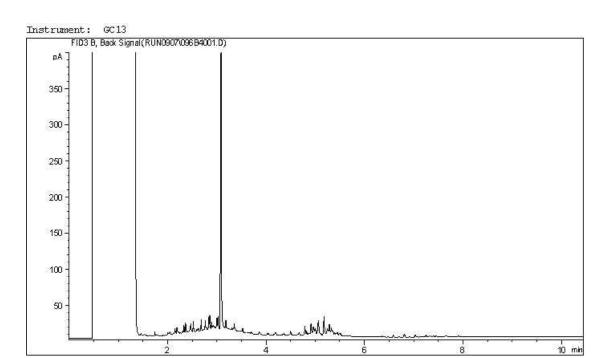
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

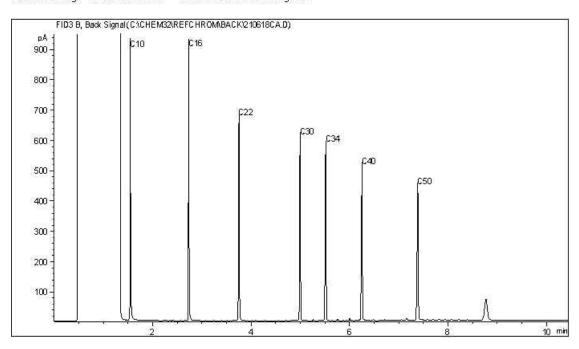
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-65-01

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

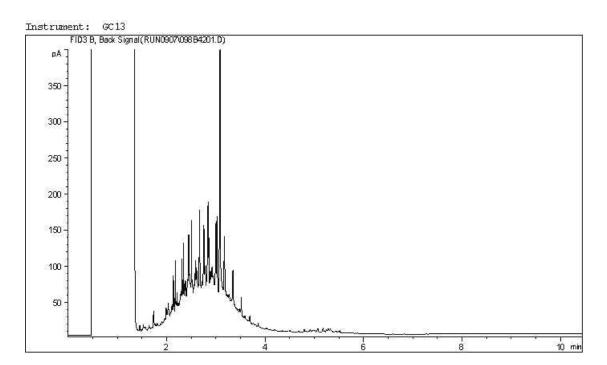
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

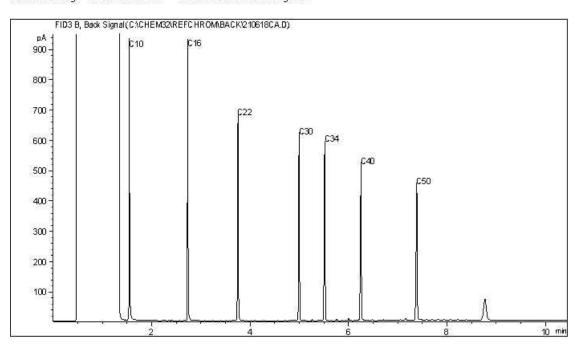
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-65-03

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

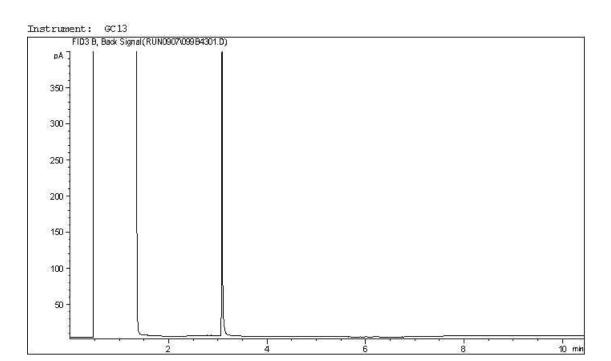
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

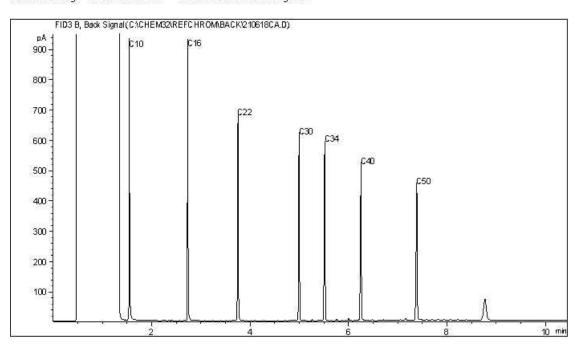
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-65-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

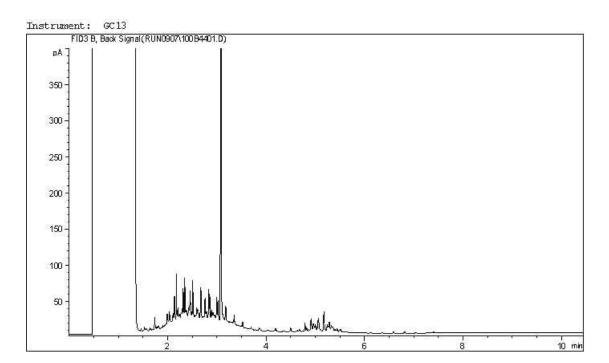
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

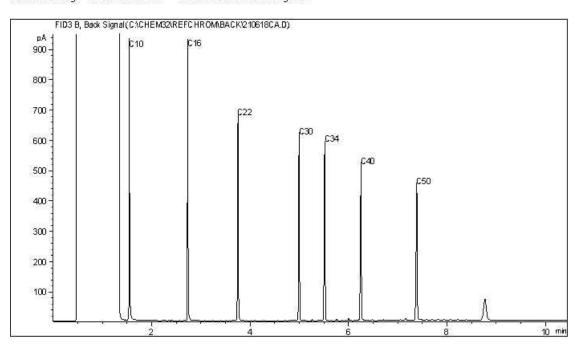
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-66-01

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

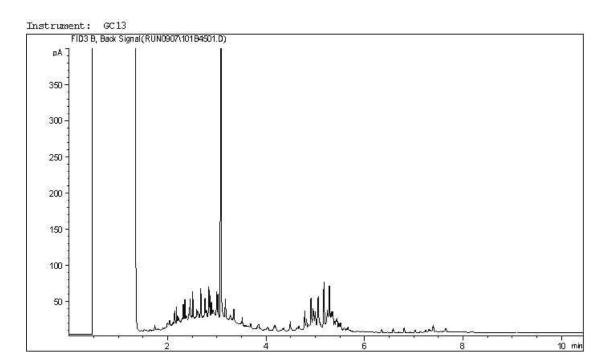
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

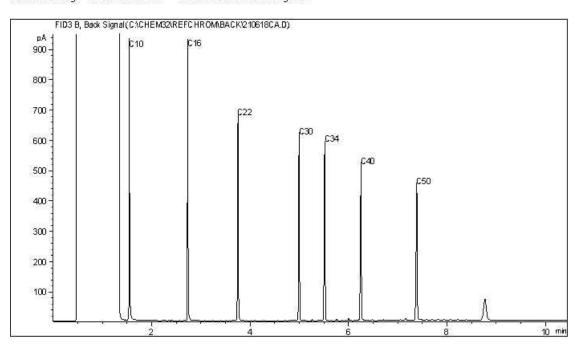
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-66-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

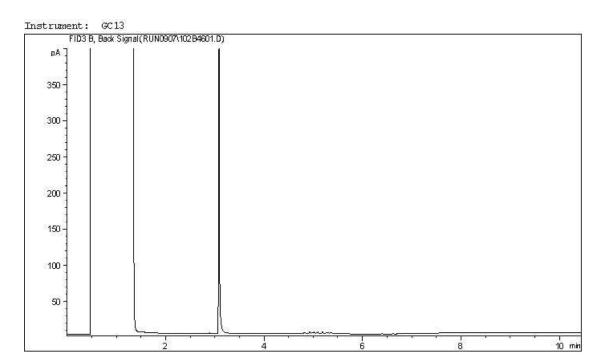
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

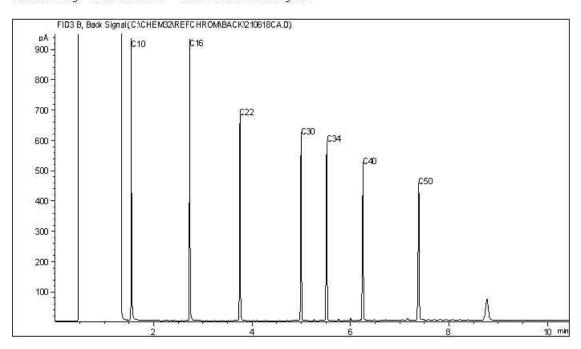
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-66-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

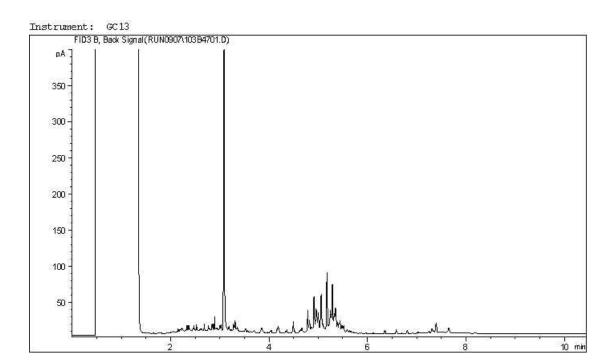
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

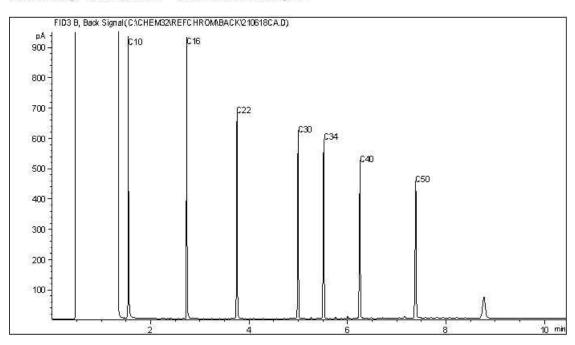
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-67-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

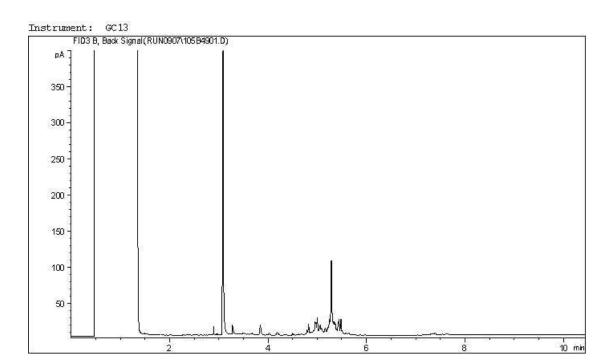
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

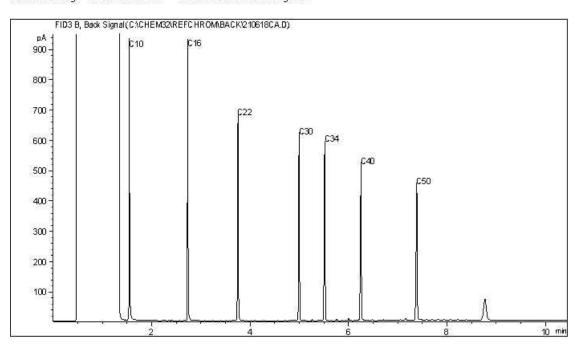
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-67-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

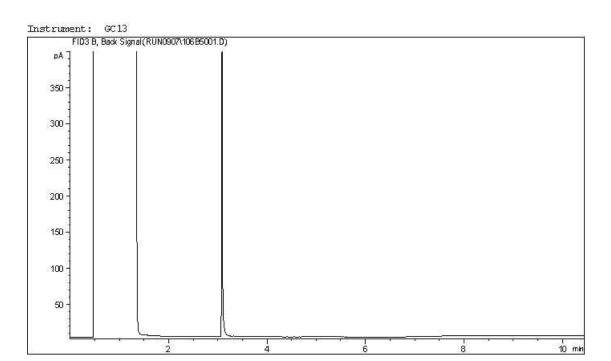
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

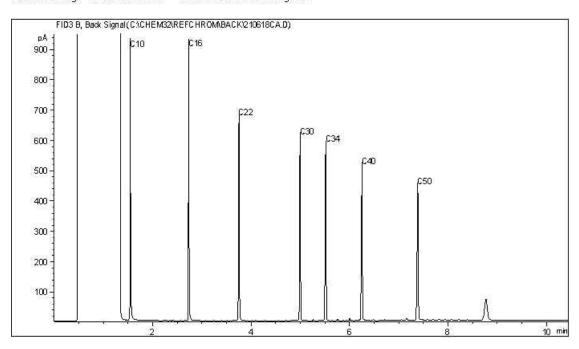
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-67-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

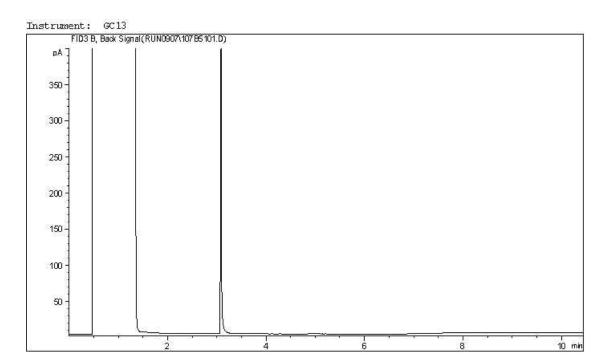
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

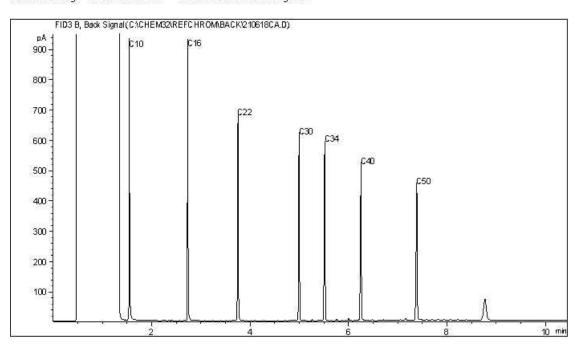
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-JJ

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

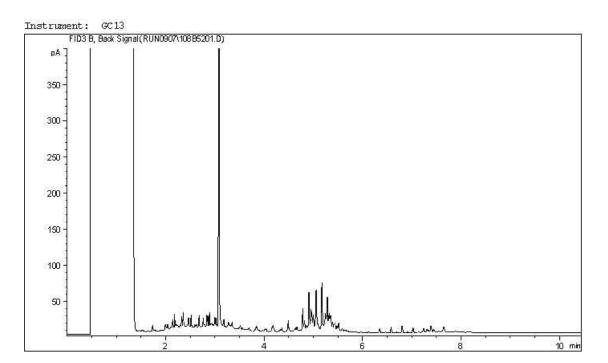
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

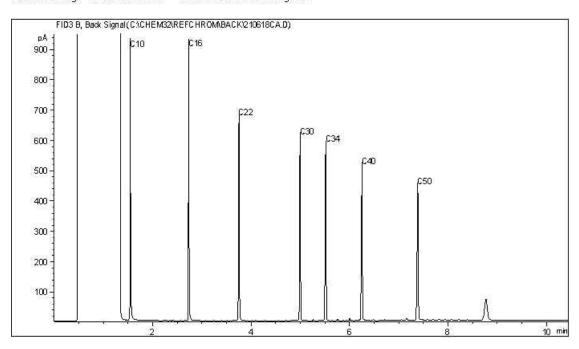
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-68-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

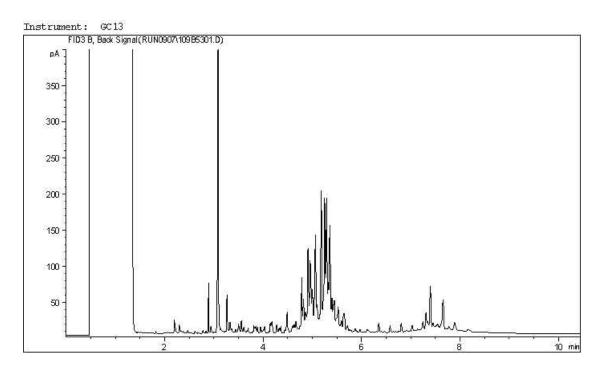
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

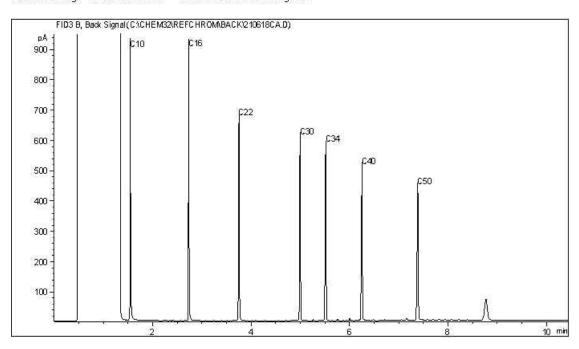
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-68-05

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

GOLDER ASSOCIATES LTD.

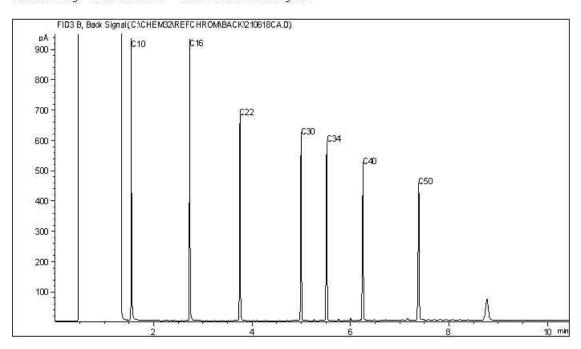
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-68-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

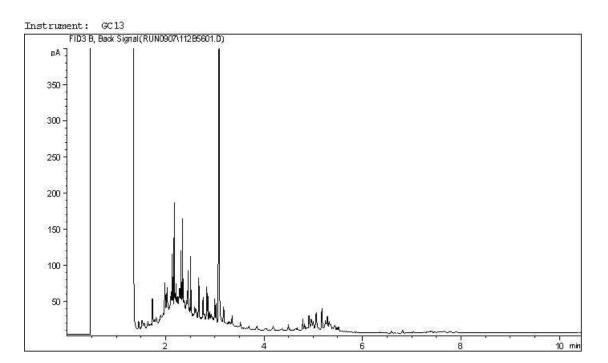
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

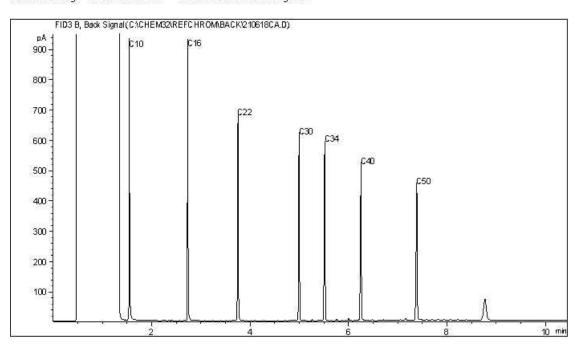
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-69-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -		C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -	÷	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	-	C60+

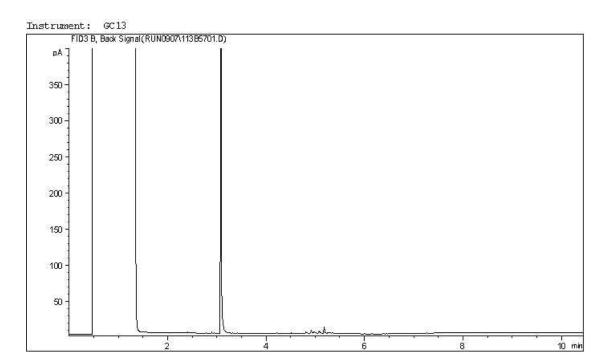
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

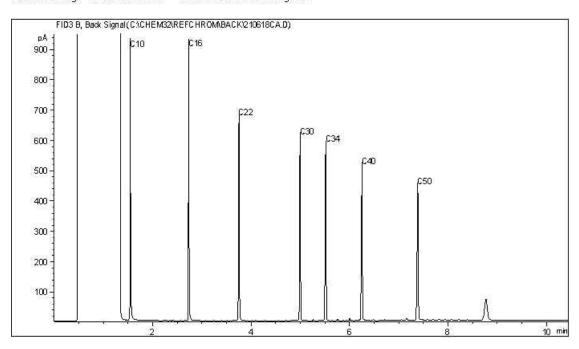
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-69-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

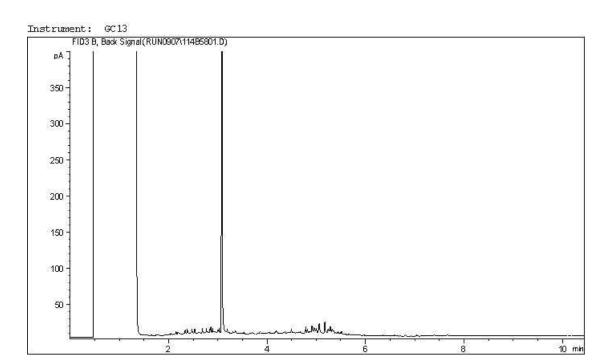
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

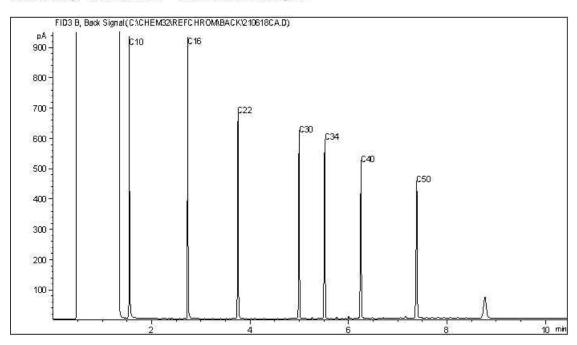
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-70-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-70-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

FID3 B, Back Signal (RUN090709383701.D)

pA

300

250

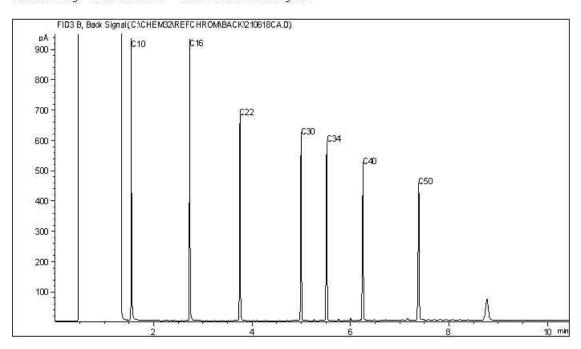
150

150

100

20 
40 6 8 10 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

Bureau Veritas Job #: C164643

Report Date: 2021/12/24

Bureau Veritas Sample: AFA016 Lab-Dup

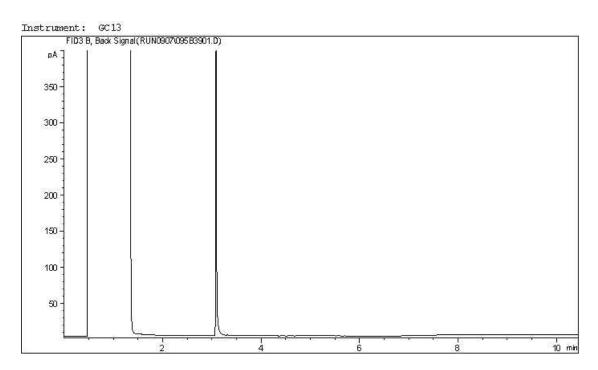
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

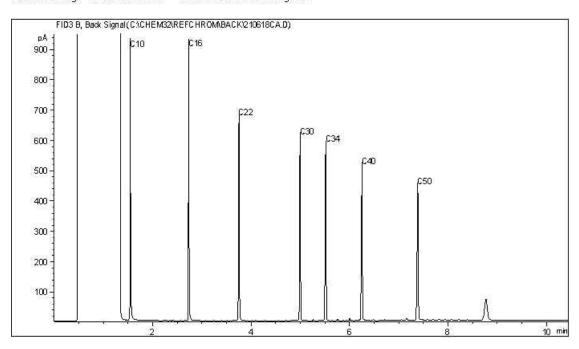
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-70-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

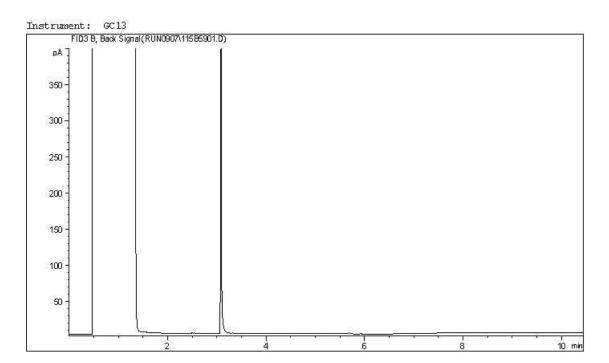
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

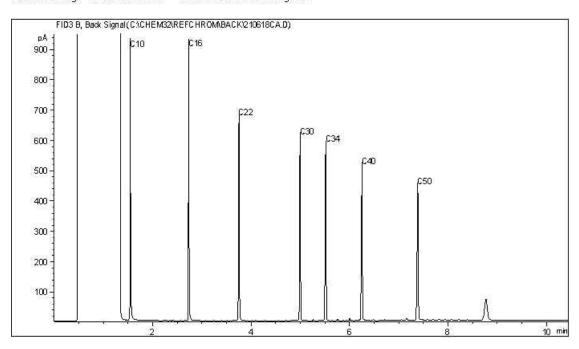
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-KK

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

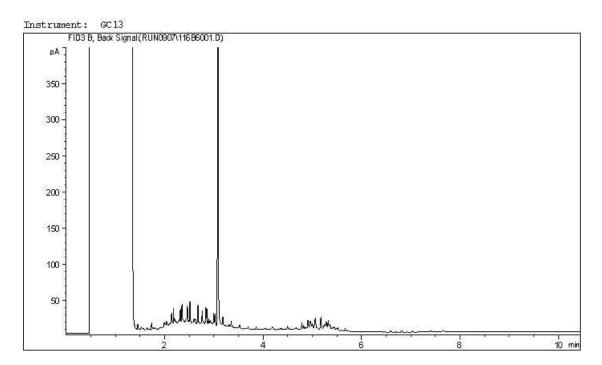
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

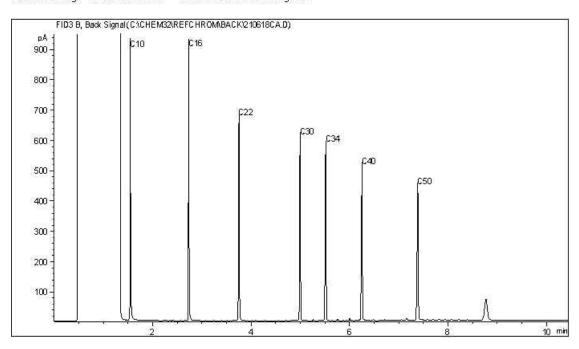
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-70-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -		C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -	÷	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	-	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-71-02

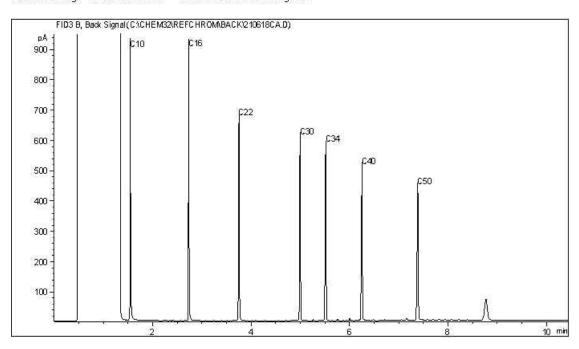
### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

FID3 B, Back Signal (RUN0907\11766101.D)

pA

300 
250 
100 
50 -

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

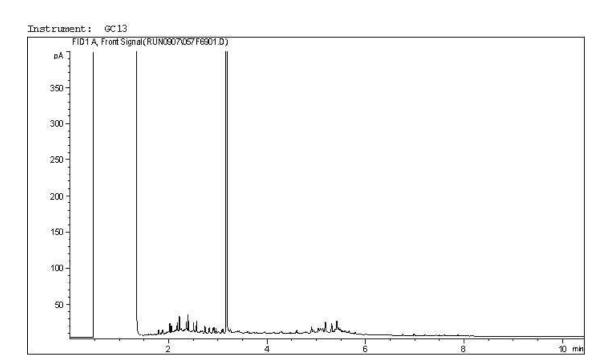
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

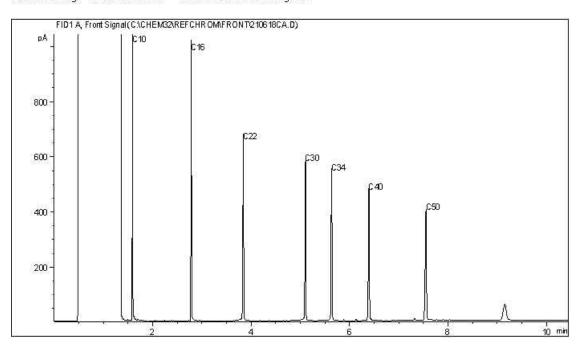
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-71-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

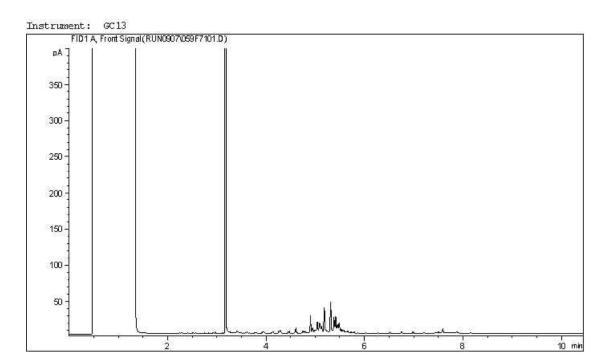
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Client Project #: 20368099-6000-1001

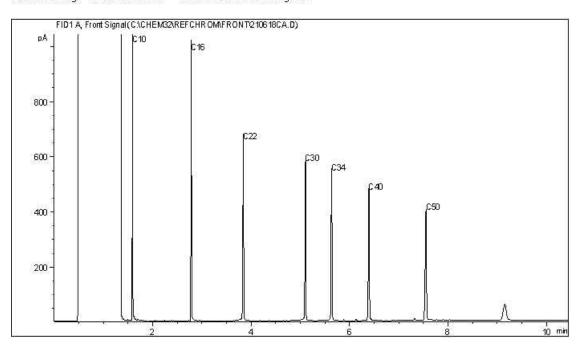
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-71-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -		C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -	÷	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	-	C60+

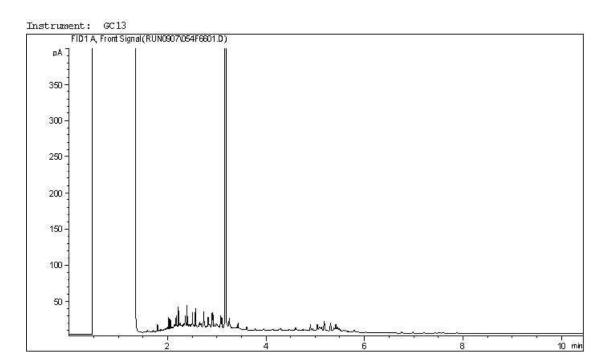
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

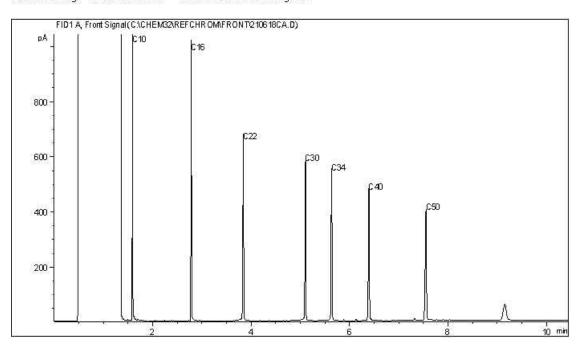
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-72-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	170	C12	Diesel:	c8	1	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

Bureau Veritas Job #: C164643

Report Date: 2021/12/24

Bureau Veritas Sample: AFA022 Lab-Dup

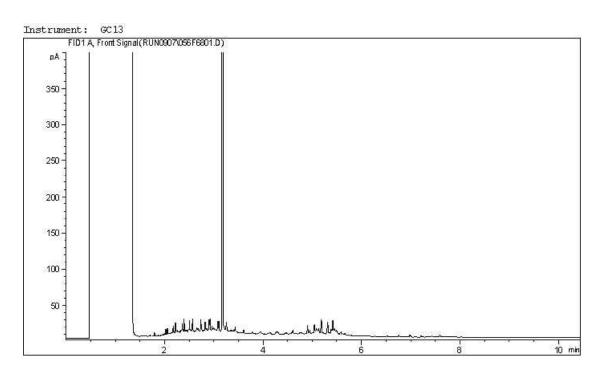
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

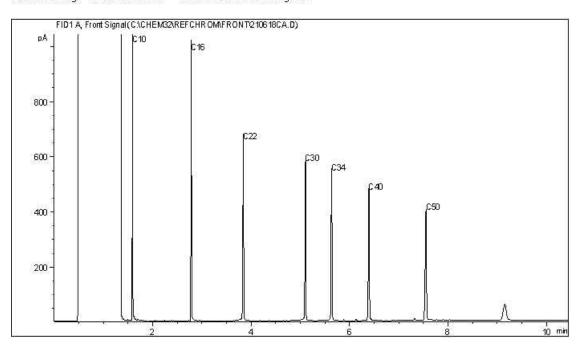
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-72-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

GOLDER ASSOCIATES LTD.

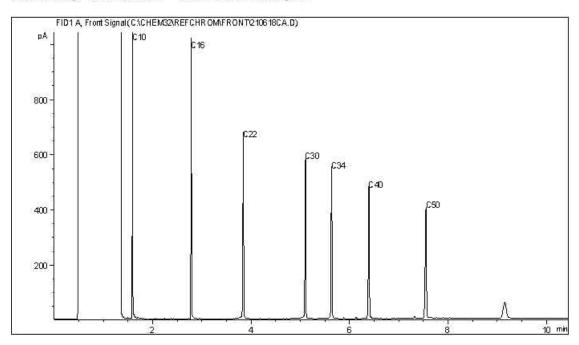
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-72-05

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

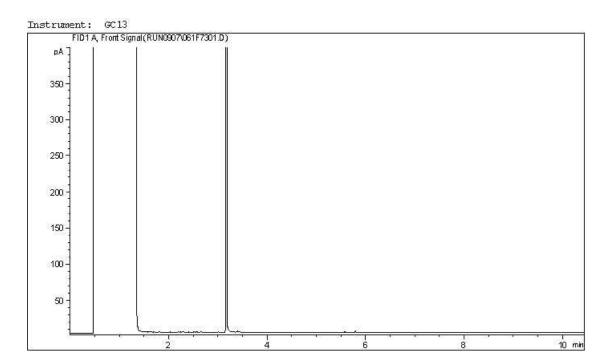
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

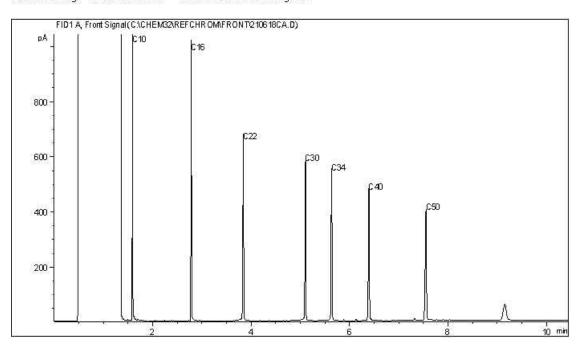
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-72-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

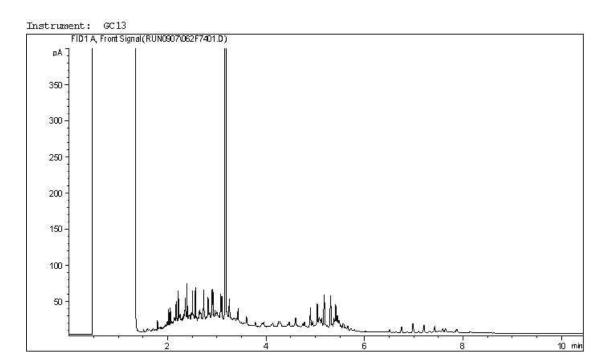
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

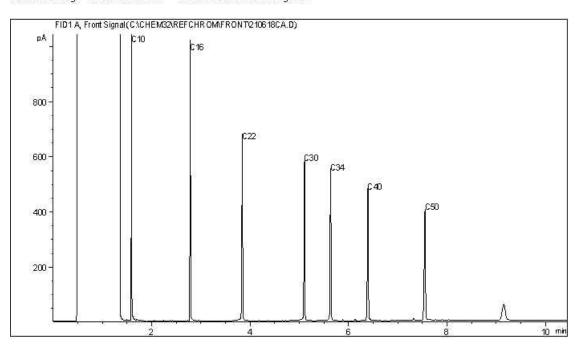
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-83-04

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

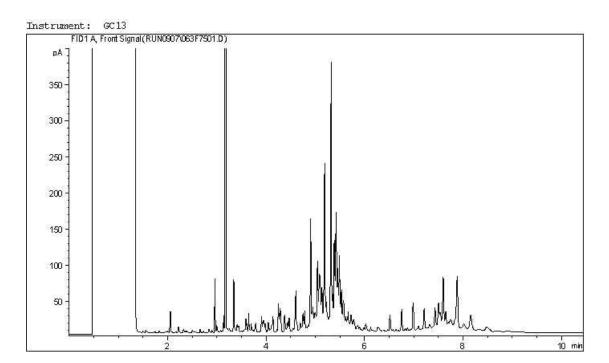
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

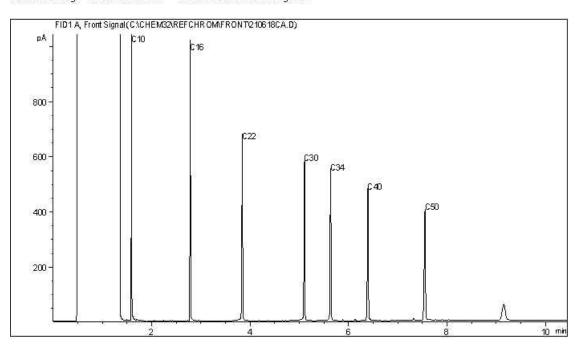
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-83-05

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

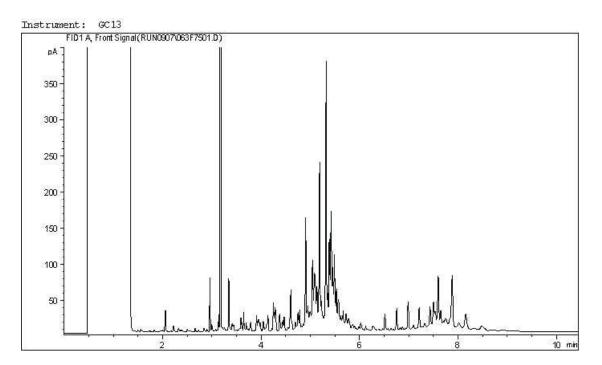
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

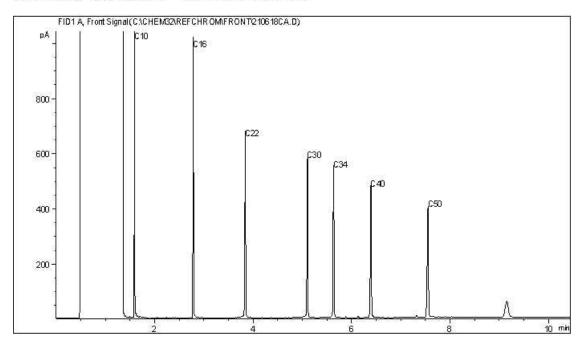
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-83-05

### CCME Hydrocarbons (F2-F4)+F3A/B in soil Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

10 min

Client ID: TP21-83-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

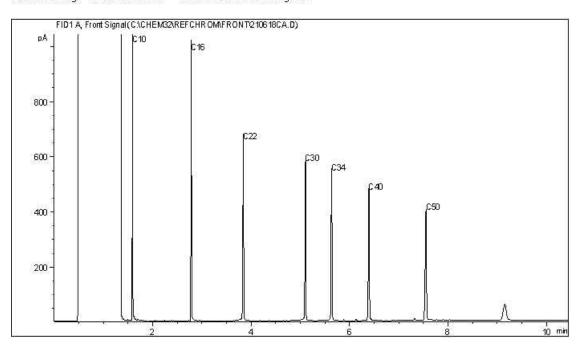
Instrument: GC13

FID1 A Front Signal(RUN0907/064F7601.D)

pA

30025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-84-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

FID3 B, Back Signal (RUN0907\12086401.D)

pA

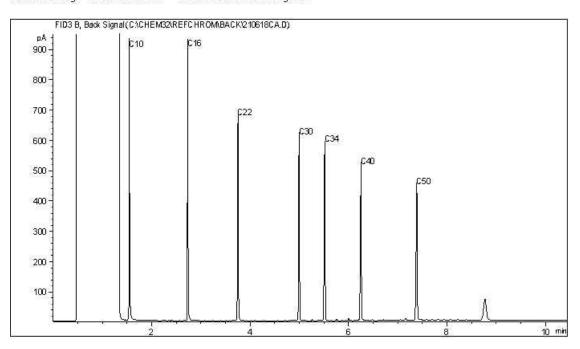
300

250

150

50

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

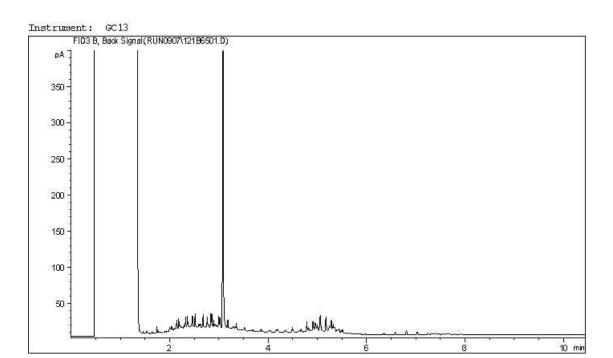
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

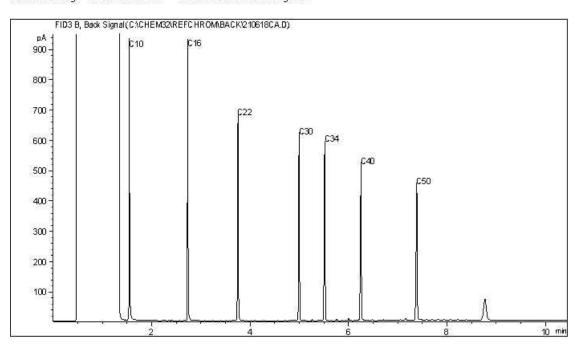
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-84-04

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

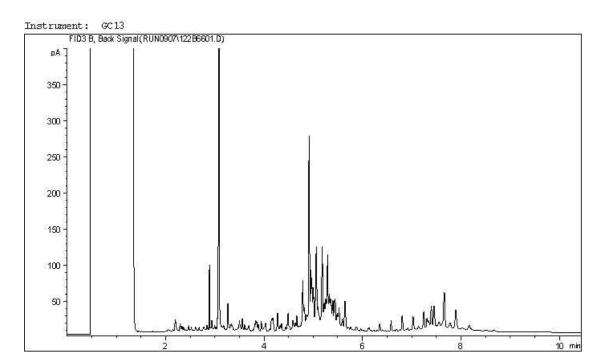
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

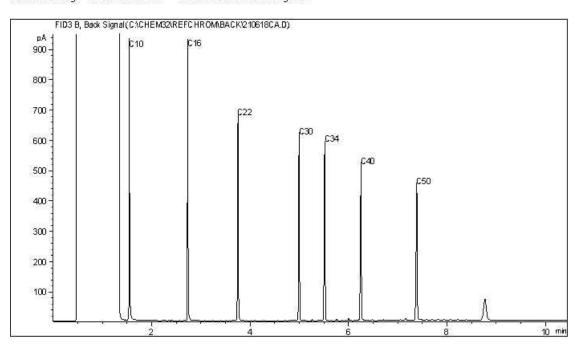
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-84-05

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

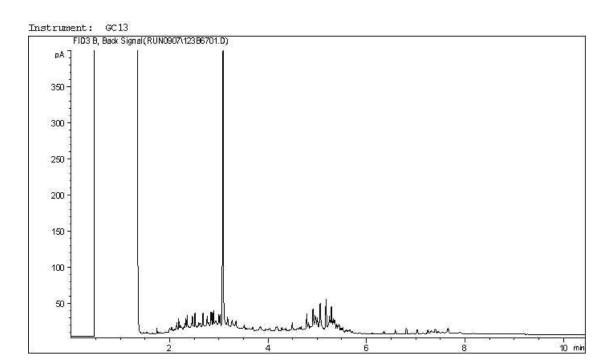
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

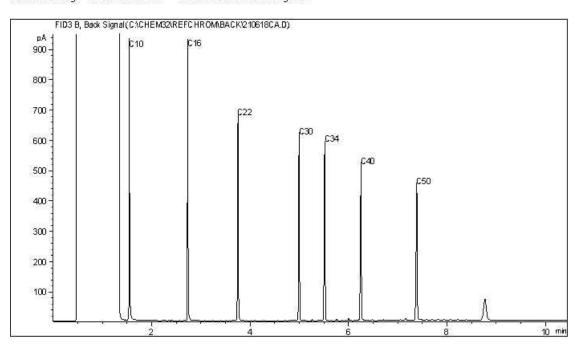
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-LL

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	170	C12	Diesel:	c8	1	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

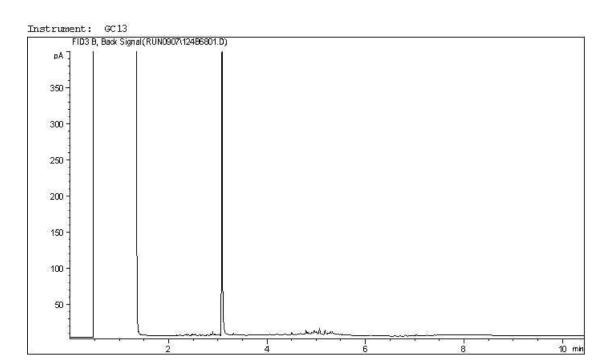
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

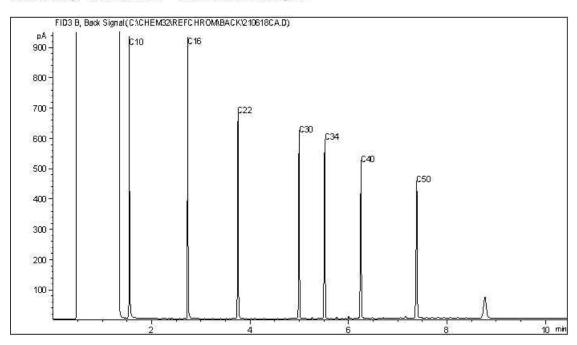
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-85-03

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

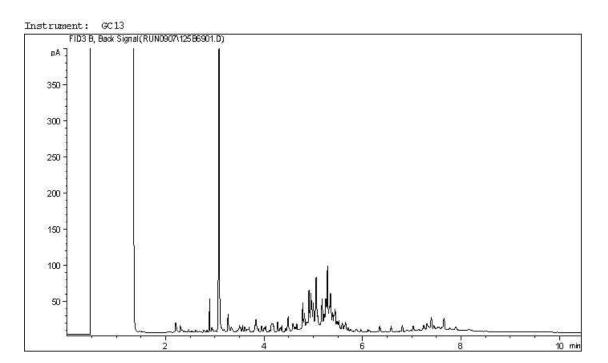
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

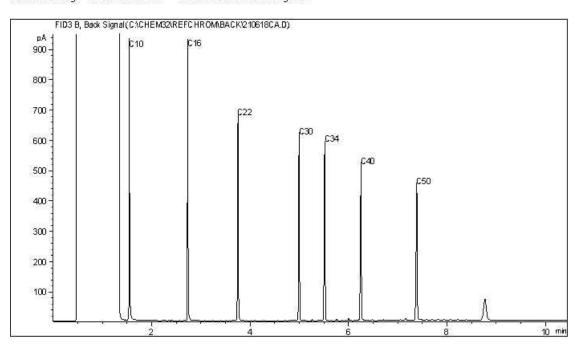
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-85-04

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-85-05

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Instrument: GC13

FID3 B, Back Signal(RUN0907\12767101.D)

pA

330

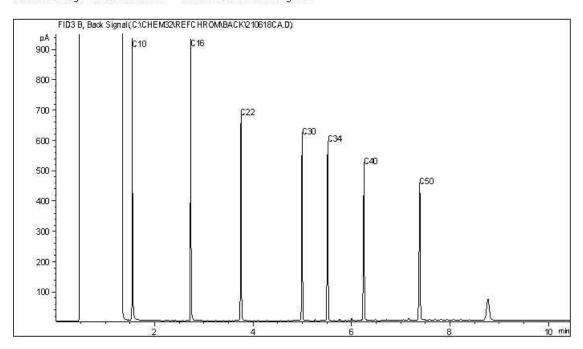
250

150

100

50

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

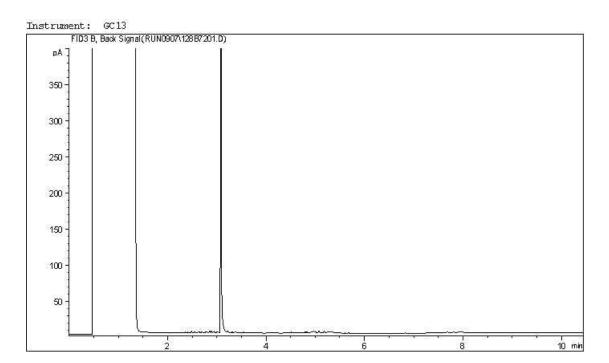
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

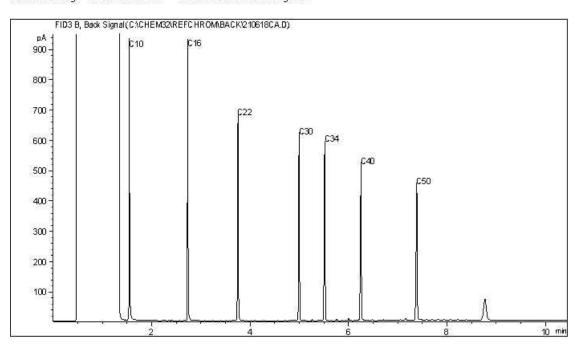
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-86-03

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

# GOLDER DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farewo	ell			Sampling Date:	August 28, 2021	
Golder Project Number: 2	20368099	9-6000-100	1	Laboratory: <u>I</u>	Bureau Veritas Edmonto	n
Lab Submission Number: <u>(</u>	C164643					
Was the Cooler Received at the lat Was proper chain of custody of the Were sample temperatures accepta Were all samples analyzed and ext Has lab warranted all tests were in Was sufficient sample provided for Has lab warranted all samples were	samples ble when racted wi statistica the requ	documented they reached thin hold time the control in dested analy	ed and keped lab?: mes?: CoA?: rsis?	ot?	Yes Yes Yes Yes Yes Yes Yes Yes	
Are All Laboratory QC Within Ac	ceptance	Criteria (Y	es, No, N	ot Applicable)?		
Surrogate Recovery Method Blank Concentration Laboratory Duplicate RPD Matrix Spike Recovery Blank Spike Recovery	Yes X X X X X X	No	NA	All laboratory QC acceptance criteria		
Are All Field QC Samples Within	Alert Lin	nits (Yes, N	o, Not Ap	oplicable)?		
Field Blank Concentration Trip Blank Concentration Field Duplicate RPD	Yes	No	NA X X	All field QC sampl alert limits.	Comments les are within	
Is data considered reliable (Yes/No If answer is "No" or "Suspect", des			ntionale:	Yes		
Data Reviewed by (Print):		bert er 17, 2021		Data Reviewed by (	Signature):	Collect



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

**Attention: Aurelie Belavance** 

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-52-01, 644511-53-01, 644511-48-01

Report Date: 2021/09/10

Report #: R3069681 Version: 2 - Revision

### **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164647 Received: 2021/08/31, 08:35

Sample Matrix: Soil # Samples Received: 26

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	<b>Laboratory Method</b>	Analytical Method
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	20	N/A	2021/09/08	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	6	N/A	2021/09/09	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	20	N/A	2021/09/08		Auto Calc
F1-BTEX (1)	6	N/A	2021/09/09		Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	6	2021/09/04	2021/09/05	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	12	2021/09/04	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	6	2021/09/05	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 3)	2	2021/09/05	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F4G in soil) (1, 3)	1	2021/09/04	2021/09/07	AB SOP-00036	CCME PHC-CWS m
				AB SOP-00040	
CCME Hydrocarbons (F4G in soil) (1, 3)	4	2021/09/04	2021/09/09	AB SOP-00036	CCME PHC-CWS m
				AB SOP-00040	
Moisture (1)	20	N/A	2021/09/05	AB SOP-00002	CCME PHC-CWS m
Moisture (1)	6	N/A	2021/09/07	AB SOP-00002	CCME PHC-CWS m

### Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

**Attention: Aurelie Belavance** 

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-52-01, 644511-53-01, 644511-48-01

Report Date: 2021/09/10

Report #: R3069681 Version: 2 - Revision

### **CERTIFICATE OF ANALYSIS – REVISED REPORT**

### **BV LABS JOB #: C164647**

Received: 2021/08/31, 08:35

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

- \* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
- (1) This test was performed by Bureau Veritas Calgary Environmental
- (2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.
- (3) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

**Encryption Key** 

Cynny Hagen
Key Account Specialist

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Cynny Hagen, Key Account Specialist Email: Cynny.HAGEN@bureauveritas.com

Phone# (403)735-2273

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

_								_	
BV Labs ID		AFA042	AFA042	AFA043		AFA044	AFA045		
Sampling Date		2021/08/24	2021/08/24	2021/08/24		2021/08/24	2021/08/24		
Jamping Date		09:16	09:16	09:17		09:14	09:36		
COC Number		644511-52-01	644511-52-01	644511-52-01		644511-52-01	644511-52-01		
	UNITS	TP21-53-03	TP21-53-03 Lab-Dup	TP21-53-05	QC Batch	TP21-53-01	TP21-54-02	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	100	N/A	<10	A342599	95	220	10	A342518
F3 (C16-C34 Hydrocarbons)	mg/kg	240	N/A	56	A342599	290	320	50	A342518
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	N/A	<50	A342599	<50	<50	50	A342518
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	A342599	Yes	Yes	N/A	A342518
Physical Properties									
Moisture	%	8.4	N/A	13	A342568	11	11	0.30	A342517
Volatiles	•	•	•	•	•		•	•	
Xylenes (Total)	mg/kg	<0.045	N/A	<0.045	A340507	<0.045	<0.045	0.045	A340507
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	<10	A340507	<10	<10	10	A340507
Field Preserved Volatiles	•	•	•	•	•	•	•	•	
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	A341585	<0.0050	<0.0050	0.0050	A341585
Toluene	mg/kg	<0.050	<0.050	0.066	A341585	<0.050	<0.050	0.050	A341585
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	A341585	<0.010	0.016	0.010	A341585
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	A341585	<0.040	<0.040	0.040	A341585
o-Xylene	mg/kg	<0.020	<0.020	<0.020	A341585	<0.020	<0.020	0.020	A341585
F1 (C6-C10)	mg/kg	<10	<10	<10	A341585	<10	<10	10	A341585
Surrogate Recovery (%)	•	•	•	•	•	•	•	•	
1,4-Difluorobenzene (sur.)	%	99	98	98	A341585	96	97	N/A	A341585
4-Bromofluorobenzene (sur.)	%	96	100	98	A341585	96	101	N/A	A341585
D10-o-Xylene (sur.)	%	94	91	101	A341585	89	94	N/A	A341585
D4-1,2-Dichloroethane (sur.)	%	97	93	95	A341585	94	96	N/A	A341585
O-TERPHENYL (sur.)	%	108	N/A	111	A342599	109	108	N/A	A342518

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

	AFA046	AFA047		AFA048		AFA049		
	2021/08/24 09:38	2021/08/24 09:39		2021/08/24 09:48		2021/08/24 09:49		
	644511-52-01	644511-52-01		644511-52-01		644511-52-01		
UNITS	TP21-54-04	TP21-54-06	QC Batch	TP21-55-02	QC Batch	TP21-55-03	RDL	QC Batch
mg/kg	89	31	A342388	110	A342390	38	10	A342599
mg/kg	590	<50	A342388	200	A342390	120	50	A342599
mg/kg	180	<50	A342388	<50	A342390	<50	50	A342599
mg/kg	Yes	Yes	A342388	Yes	A342390	Yes	N/A	A342599
%	44	17	A342384	12	A342384	11	0.30	A342568
mg/kg	0.77	0.51	A340507	<0.045	A340507	<0.045	0.045	A340507
mg/kg	21	<10	A340507	12	A340507	<10	10	A340507
mg/kg	0.072	0.068	A341585	<0.0050	A341585	<0.0050	0.0050	A341585
mg/kg	8.7	0.081	A341585	0.064	A341585	0.097	0.050	A341585
mg/kg	0.16	0.18	A341585	0.012	A341585	<0.010	0.010	A341585
mg/kg	0.40	0.19	A341585	<0.040	A341585	<0.040	0.040	A341585
mg/kg	0.37 (1)	0.31	A341585	<0.020	A341585	<0.020	0.020	A341585
mg/kg	30	<10	A341585	12	A341585	<10	10	A341585
%	99	97	A341585	96	A341585	96	N/A	A341585
%	100	102	A341585	99	A341585	101	N/A	A341585
%	108	113	A341585	97	A341585	98	N/A	A341585
%	96	93	A341585	95	A341585	94	N/A	A341585
%	105	104	A342388	97	A342390	109	N/A	A342599
	mg/kg	09:38         09:38         644511-52-01         UNITS       TP21-54-04         mg/kg       89         mg/kg       590         mg/kg       180         mg/kg       0.77         mg/kg       0.072         mg/kg       8.7         mg/kg       0.16         mg/kg       0.37 (1)         mg/kg       0.99         %       100         %       100         %       100         %       100         %       100         %       100         %       100         %	09:38       09:39         644511-52-01       644511-52-01         UNITS       TP21-54-04       TP21-54-06         mg/kg       89       31         mg/kg       590       <50	09:38         09:39           644511-52-01         644511-52-01           UNITS         TP21-54-04         TP21-54-06         QC Batch           mg/kg         89         31         A342388           mg/kg         590         <50	09:38         09:39         09:48           644511-52-01         644511-52-01         644511-52-01           UNITS         TP21-54-04         TP21-54-06         QC Batch         TP21-55-02           mg/kg         89         31         A342388         110           mg/kg         590         <50	09:38         09:39         09:48           644511-52-01         644511-52-01         644511-52-01           UNITS         TP21-54-04         TP21-54-06         QC Batch         TP21-55-02         QC Batch           mg/kg         89         31         A342388         110         A342390           mg/kg         590         <50	09:38         09:39         09:48         09:49           644511-52-01         644511-52-01         644511-52-01         644511-52-01           UNITS         TP21-54-04         TP21-54-06         QC Batch         TP21-55-02         QC Batch         TP21-55-03           mg/kg         89         31         A342388         110         A342390         38           mg/kg         590         <50	09:38

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AFA050	AFA051		AFA052	AFA053		
Sampling Date		2021/08/24	2021/08/24		2021/08/24	2021/08/24		
Sampling Date		09:49	09:50		10:04	10:05		
COC Number		644511-52-01	644511-52-01		644511-53-01	644511-53-01		
	UNITS	DUP Z	TP21-55-05	QC Batch	TP21-56-01	TP21-56-03	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	180	54	A342599	130	46	10	A342388
F3 (C16-C34 Hydrocarbons)	mg/kg	190	770	A342599	210	270	50	A342388
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	280	A342599	<50	67	50	A342388
Reached Baseline at C50	mg/kg	Yes	Yes	A342599	Yes	Yes	N/A	A342388
Physical Properties	•						-	
Moisture	%	7.5	37	A342568	11	8.9	0.30	A342384
Volatiles	•							
Xylenes (Total)	mg/kg	<0.045	<0.045	A340507	<0.045	<0.045	0.045	A340507
F1 (C6-C10) - BTEX	mg/kg	<10	<10	A340507	<10	<10	10	A340507
Field Preserved Volatiles	•							
Benzene	mg/kg	<0.0050	<0.0050	A341585	<0.0050	<0.0050	0.0050	A341585
Toluene	mg/kg	<0.050	3.0	A341585	<0.050	0.20	0.050	A341585
Ethylbenzene	mg/kg	<0.010	<0.010	A341585	<0.010	<0.010	0.010	A341585
m & p-Xylene	mg/kg	<0.040	<0.040	A341585	<0.040	<0.040	0.040	A341585
o-Xylene	mg/kg	<0.020	<0.020	A341585	<0.020	<0.020	0.020	A341585
F1 (C6-C10)	mg/kg	<10	<10	A341585	<10	<10	10	A341585
Surrogate Recovery (%)	•	•	-	•		•	3	-
1,4-Difluorobenzene (sur.)	%	96	96	A341585	97	98	N/A	A341585
4-Bromofluorobenzene (sur.)	%	100	100	A341585	98	99	N/A	A341585
D10-o-Xylene (sur.)	%	99	97	A341585	96	101	N/A	A341585
D4-1,2-Dichloroethane (sur.)	%	94	96	A341585	95	96	N/A	A341585
O-TERPHENYL (sur.)	%	114	111	A342599	104	105	N/A	A342388
RDL = Reportable Detection Li	mit			•			-	

RDL = Reportable Detection Limit



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AFA054	AFA055	AFA056	AFA057	AFA057		
Sampling Date		2021/08/24	2021/08/24	2021/08/24	2021/08/24	2021/08/24		
Sampling Date		10:06	10:22	10:23	10:25	10:25		
COC Number		644511-53-01	644511-53-01	644511-53-01	644511-53-01	644511-53-01		
	UNITS	TP21-56-06	TP21-57-01	TP21-57-03	TP21-57-05	TP21-57-05 Lab-Dup	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	87	98	<10	N/A	10	A342390
F3 (C16-C34 Hydrocarbons)	mg/kg	62	290	280	<50	N/A	50	A342390
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	<50	<50	N/A	50	A342390
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	N/A	A342390
Physical Properties								
Moisture	%	18	11	9.6	16	16	0.30	A342384
Volatiles	-							
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	<0.045	N/A	0.045	A340507
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	N/A	10	A340507
Field Preserved Volatiles	-	•	•	•	-	•	-	
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	N/A	0.0050	A341585
Toluene	mg/kg	<0.050	0.12	0.53	<0.050	N/A	0.050	A341585
Ethylbenzene	mg/kg	<0.010	0.013	<0.010	<0.010	N/A	0.010	A341585
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	N/A	0.040	A341585
o-Xylene	mg/kg	<0.020	0.024	<0.020	<0.020	N/A	0.020	A341585
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	N/A	10	A341585
Surrogate Recovery (%)	-		•				-	
1,4-Difluorobenzene (sur.)	%	98	98	98	97	N/A	N/A	A341585
4-Bromofluorobenzene (sur.)	%	100	102	101	102	N/A	N/A	A341585
D10-o-Xylene (sur.)	%	96	88	96	95	N/A	N/A	A341585
D4-1,2-Dichloroethane (sur.)	%	97	96	97	96	N/A	N/A	A341585
O-TERPHENYL (sur.)	%	91	99	98	99	N/A	N/A	A342390

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AFA058			AFA059			AFA060		
Sampling Date		2021/08/24 11:02			2021/08/24 11:02			2021/08/24 11:18		
COC Number		644511-53-01			644511-53-01			644511-53-01		
	UNITS	TP21-162-02	RDL	QC Batch	DUP-AA	RDL	QC Batch	TP21-163-02	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	360 (1)	33	A342390	160 (1)	38	A342599	460 (1)	34	A342388
F3 (C16-C34 Hydrocarbons)	mg/kg	4500 (1)	170	A342390	3100 (1)	190	A342599	9200 (1)	170	A342388
F4 (C34-C50 Hydrocarbons)	mg/kg	1600 (1)	170	A342390	1100 (1)	190	A342599	3800 (1)	170	A342388
Reached Baseline at C50	mg/kg	No	N/A	A342390	Yes	N/A	A342599	No	N/A	A342388
Physical Properties	•	•	•							
Moisture	%	70	0.30	A342384	74	0.30	A342568	70	0.30	A342384
Volatiles	•			•		•	•		•	
Xylenes (Total)	mg/kg	<0.25	0.25	A340507	<0.29	0.29	A340507	<0.29	0.29	A340507
F1 (C6-C10) - BTEX	mg/kg	<24	24	A340507	<65	65	A340507	<24	24	A340507
Field Preserved Volatiles			•							
Benzene	mg/kg	<0.028 (2)	0.028	A341585	<0.033 (2)	0.033	A341585	<0.032 (2)	0.032	A341585
Toluene	mg/kg	30 (2)	0.28	A341585	38 (2)	0.33	A341585	12 (2)	0.32	A341585
Ethylbenzene	mg/kg	<0.055 (2)	0.055	A341585	<0.065 (2)	0.065	A341585	<0.065 (2)	0.065	A341585
m & p-Xylene	mg/kg	<0.22 (2)	0.22	A341585	<0.26 (2)	0.26	A341585	<0.26 (2)	0.26	A341585
o-Xylene	mg/kg	<0.11 (2)	0.11	A341585	<0.13 (2)	0.13	A341585	<0.13 (2)	0.13	A341585
F1 (C6-C10)	mg/kg	<24 (3)	24	A341585	<65 (2)	65	A341585	<24 (3)	24	A341585
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	92	N/A	A341585	98	N/A	A341585	96	N/A	A341585
4-Bromofluorobenzene (sur.)	%	94	N/A	A341585	102	N/A	A341585	100	N/A	A341585
D10-o-Xylene (sur.)	%	83	N/A	A341585	92	N/A	A341585	86	N/A	A341585
D4-1,2-Dichloroethane (sur.)	%	92	N/A	A341585	95	N/A	A341585	96	N/A	A341585
O-TERPHENYL (sur.)	%	98	N/A	A342390	106	N/A	A342599	114	N/A	A342388
DDI - Damantahla Dataatian Li		•				_				

RDL = Reportable Detection Limit

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limits raised based on sample weight used for analysis.
- (3) Detection limits raised based on MDL and sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

BV Labs ID		AFA061			AFA062		AFA063		AFA065		
Sampling Date		2021/08/24			2021/08/24		2021/08/24		2021/08/24		
Sampling Date		14:01			14:05		14:10		14:21		
COC Number		644511-53-01			644511-48-01		644511-48-01		644511-48-01		
	UNITS	TP21-172-02	RDL	QC Batch	TP21-173-02	RDL	TP21-174-02	RDL	TP21-175-02	RDL	QC Batch
Ext. Pet. Hydrocarbon											
F2 (C10-C16 Hydrocarbons)	mg/kg	24 (1)	21	A342388	60 (1)	29	52 (1)	26	430 (1)	29	A342388
F3 (C16-C34 Hydrocarbons)	mg/kg	380 (1)	100	A342388	1100 (1)	140	720 (1)	130	5700 (1)	140	A342388
F4 (C34-C50 Hydrocarbons)	mg/kg	160 (1)	100	A342388	420 (1)	140	150 (1)	130	2100 (1)	140	A342388
Reached Baseline at C50	mg/kg	Yes	N/A	A342388	Yes	N/A	Yes	N/A	No	N/A	A342388
Physical Properties											
Moisture	%	51	0.30	A342384	66	0.30	62	0.30	65	0.30	A342384
Volatiles											
Xylenes (Total)	mg/kg	<0.12	0.12	A340507	<0.17	0.17	<0.18	0.18	<0.24	0.24	A340507
F1 (C6-C10) - BTEX	mg/kg	<24	24	A340507	<24	24	<24	24	<54	54	A340507
Field Preserved Volatiles	•	•		-	•		•				
Benzene	mg/kg	<0.013 (2)	0.013	A341585	<0.019 (2)	0.019	<0.020 (2)	0.020	<0.027 (2)	0.027	A341597
Toluene	mg/kg	<0.080 (3)	0.080	A341585	<0.080 (3)	0.080	<0.080 (3)	0.080	<0.080 (3)	0.080	A341597
Ethylbenzene	mg/kg	<0.026 (2)	0.026	A341585	<0.037 (2)	0.037	<0.040 (2)	0.040	<0.054 (2)	0.054	A341597
m & p-Xylene	mg/kg	<0.11 (2)	0.11	A341585	<0.15 (2)	0.15	<0.16 (2)	0.16	<0.22 (2)	0.22	A341597
o-Xylene	mg/kg	<0.053 (2)	0.053	A341585	<0.075 (2)	0.075	<0.079 (2)	0.079	0.17 (2)	0.11	A341597
F1 (C6-C10)	mg/kg	<24 (3)	24	A341585	<24 (3)	24	<24 (3)	24	<54 (2)	54	A341597
Surrogate Recovery (%)											
1,4-Difluorobenzene (sur.)	%	95	N/A	A341585	95	N/A	96	N/A	97	N/A	A341597
4-Bromofluorobenzene (sur.)	%	98	N/A	A341585	99	N/A	97	N/A	96	N/A	A341597
D10-o-Xylene (sur.)	%	96	N/A	A341585	85	N/A	100	N/A	97	N/A	A341597
D4-1,2-Dichloroethane (sur.)	%	93	N/A	A341585	96	N/A	95	N/A	98	N/A	A341597
O-TERPHENYL (sur.)	%	109	N/A	A342388	116	N/A	108	N/A	108	N/A	A342388
		•									

RDL = Reportable Detection Limit

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limits raised based on sample weight used for analysis.
- (3) Detection limits raised based on MDL and sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

	_		_				
BV Labs ID		AFA066		AFA068	AFA070		
Sampling Date		2021/08/24		2021/08/24	2021/08/24		
Sampling Date		14:21		14:26	14:26		
COC Number		644511-48-01		644511-48-01	644511-48-01		
	UNITS	DUP-BB	RDL	TP21-176-02	DUP-CC	RDL	QC Batch
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	860 (1)	25	180	390	10	A342388
F3 (C16-C34 Hydrocarbons)	mg/kg	1900 (1)	130	1200	1700	50	A342388
F4 (C34-C50 Hydrocarbons)	mg/kg	520 (1)	130	450	670	50	A342388
Reached Baseline at C50	mg/kg	Yes	N/A	No	No	N/A	A342388
Physical Properties							
Moisture	%	61	0.30	39	43	0.30	A342384
Volatiles							
Xylenes (Total)	mg/kg	<0.16	0.16	0.26	0.28	0.045	A340507
F1 (C6-C10) - BTEX	mg/kg	51	35	14	19	10	A340507
Field Preserved Volatiles	•	•				•	
Benzene	mg/kg	<0.018 (2)	0.018	<0.0050	<0.0050	0.0050	A341597
Toluene	mg/kg	<0.080 (3)	0.080	<0.050	<0.050	0.050	A341597
Ethylbenzene	mg/kg	<0.035 (2)	0.035	0.055	0.055	0.010	A341597
m & p-Xylene	mg/kg	<0.14 (2)	0.14	0.10	0.099	0.040	A341597
o-Xylene	mg/kg	<0.071 (2)	0.071	0.16	0.18	0.020	A341597
F1 (C6-C10)	mg/kg	51 (2)	35	15	20	10	A341597
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	96	N/A	95	95	N/A	A341597
4-Bromofluorobenzene (sur.)	%	100	N/A	99	97	N/A	A341597
D10-o-Xylene (sur.)	%	95	N/A	102	105	N/A	A341597
D4-1,2-Dichloroethane (sur.)	%	99	N/A	97	96	N/A	A341597
O-TERPHENYL (sur.)	%	128	N/A	116	124	N/A	A342388
DDI Demontalela Datastian Lin	·			•			

RDL = Reportable Detection Limit

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limits raised based on sample weight used for analysis.
- (3) Detection limits raised based on MDL and sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		AFA058			AFA060		AFA065		AFA068		
Sampling Date		2021/08/24 11:02			2021/08/24 11:18		2021/08/24 14:21		2021/08/24 14:26		
COC Number		644511-53-01			644511-53-01		644511-48-01		644511-48-01		
	UNITS	TP21-162-02	RDL	QC Batch	TP21-163-02	RDL	TP21-175-02	RDL	TP21-176-02	RDL	QC Batch
Ext. Pet. Hydrocarbon											
Ext. Pet. Hydrocarbon F4G-SG (Heavy Hydrocarbons-Grav.)	mg/kg	5300	500	A343336	11000 (1)	1700	11000 (1)	1400	2000	500	A345342

BV Labs ID		AFA070		
Sampling Date		2021/08/24		
Sampling Date		14:26		
COC Number		644511-48-01		
	UNITS	DUP-CC	RDL	QC Batch
Ext. Pet. Hydrocarbon				
F4G-SG (Heavy Hydrocarbons-Grav.)	mg/kg	2200	500	A345342
RDL = Reportable Detection Limit				



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### **GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	9.3°C
Package 3	5.7°C
Package 4	4.7°C
Package 5	6.0°C
Package 6	5.7°C
Package 7	5.7°C
Package 8	5.7°C
Package 9	5.3°C

Version #2: Report reissued to amend client sample ID on AFA050 from DUP02 to DUP Z as per the original Chain of Custody.

Results relate only to the items tested.



Report Date: 2021/09/10

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### **QUALITY ASSURANCE REPORT**

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A341585	PKL	Matrix Spike [AFA042-02]	1,4-Difluorobenzene (sur.)	2021/09/07		96	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		100	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		88	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		96	%	50 - 140
			Benzene	2021/09/07		87	%	50 - 140
			Toluene	2021/09/07		89	%	50 - 140
			Ethylbenzene	2021/09/07		96	%	50 - 140
			m & p-Xylene	2021/09/07		94	%	50 - 140
			o-Xylene	2021/09/07		98	%	50 - 140
			F1 (C6-C10)	2021/09/07		89	%	60 - 140
A341585	PKL	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/07		100	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/07		105	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/07		89	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/07		104	%	50 - 140
			Benzene	2021/09/07		83	%	60 - 130
			Toluene	2021/09/07		89	%	60 - 130
			Ethylbenzene	2021/09/07		92	%	60 - 130
			m & p-Xylene	2021/09/07		93	%	60 - 130
			o-Xylene	2021/09/07		89	%	60 - 130
			F1 (C6-C10)	2021/09/07		104	%	60 - 140
A341585	341585 PKL	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/08		98	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		100	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		81	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		96	%	50 - 140
			Benzene	2021/09/08	< 0.0050		mg/kg	
			Toluene	2021/09/08	<0.050		mg/kg	
			Ethylbenzene	2021/09/08	< 0.010		mg/kg	
			m & p-Xylene	2021/09/08	< 0.040		mg/kg	
			o-Xylene	2021/09/08	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/08	<10		mg/kg	
A341585	PKL	RPD [AFA042-02]	Benzene	2021/09/08	NC		%	50
		[]	Toluene	2021/09/08	NC		%	50
			Ethylbenzene	2021/09/08	NC		%	50
			m & p-Xylene	2021/09/08	NC		%	50
			o-Xylene	2021/09/08	NC		%	50
			F1 (C6-C10)	2021/09/08	NC		%	30
A341597	PKL	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/09		96	%	50 - 140
11337		Width Spike	4-Bromofluorobenzene (sur.)	2021/09/09		97	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/09		87	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/09		99	%	50 - 140
			Benzene	2021/09/09		88	%	50 - 140
			Toluene	2021/09/09		91	%	50 - 140
			Ethylbenzene	2021/09/09		97	%	50 - 140
			m & p-Xylene	2021/09/09		96	%	50 - 140
			o-Xylene	2021/09/09		100	%	50 - 140
			F1 (C6-C10)	2021/09/09		94	%	60 - 140
A341597	PKL	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/09		100	% %	50 - 140
U341321	FKL	שווגבע טומווג	4-Bromofluorobenzene (sur.)	2021/09/09		105	% %	50 - 140 50 - 140
			D10-o-Xylene (sur.)	2021/09/09		85	% %	50 - 140 50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/09		106	%	50 - 140



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Toluene	2021/09/09		81	%	60 - 130
			Ethylbenzene	2021/09/09		85	%	60 - 130
			m & p-Xylene	2021/09/09		84	%	60 - 130
			o-Xylene	2021/09/09		84	%	60 - 130
			F1 (C6-C10)	2021/09/09		98	%	60 - 140
A341597	PKL	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/09		97	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/09		99	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/09		86	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/09		97	%	50 - 140
			Benzene	2021/09/09	<0.0050		mg/kg	
			Toluene	2021/09/09	< 0.050		mg/kg	
			Ethylbenzene	2021/09/09	< 0.010		mg/kg	
			m & p-Xylene	2021/09/09	<0.040		mg/kg	
			o-Xylene	2021/09/09	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/09	<10		mg/kg	
A341597	PKL	RPD	Benzene	2021/09/09	NC		%	50
			Toluene	2021/09/09	NC		%	50
			Ethylbenzene	2021/09/09	NC		%	50
			m & p-Xylene	2021/09/09	NC		%	50
			o-Xylene	2021/09/09	NC		%	50
			F1 (C6-C10)	2021/09/09	NC		%	30
A342384	ARV	Method Blank	Moisture	2021/09/05	<0.30		%	
A342384	ARV	RPD [AFA057-01]	Moisture	2021/09/05	0.61		%	20
A342388	GG3	Matrix Spike	O-TERPHENYL (sur.)	2021/09/08	0.01	124	%	60 - 140
713 12300	003	Width Spine	F2 (C10-C16 Hydrocarbons)	2021/09/08		115	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08		107	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/08		106	%	60 - 140
A342388	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/08		95	%	60 - 140
A342300	003	Spikeu biatik	F2 (C10-C16 Hydrocarbons)	2021/09/08		103	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08		95	%	60 - 140
						93 92	% %	60 - 140
A 2 4 2 2 0 0	GG3	Method Blank	F4 (C34-C50 Hydrocarbons)	2021/09/08		112	% %	
A342388	GGS	Method Blank	O-TERPHENYL (sur.)	2021/09/08	-10	112		60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/08	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/08	<50		mg/kg	
A242200	663	DDD	F4 (C34-C50 Hydrocarbons)	2021/09/08	<50		mg/kg	40
A342388	GG3	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/08	NC		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/08	NC		%	40
4242200			F4 (C34-C50 Hydrocarbons)	2021/09/08	NC	422	%	40
A342390	MHF	Matrix Spike	O-TERPHENYL (sur.)	2021/09/05		123	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/05		117	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/05		124	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/05		120	%	60 - 140
A342390	MHF	Spiked Blank	O-TERPHENYL (sur.)	2021/09/05		107	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/05		101	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/05		106	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/05		102	%	60 - 140
A342390	MHF	Method Blank	O-TERPHENYL (sur.)	2021/09/05		115	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/05	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/05	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/05	<50		mg/kg	
A342390	MHF	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/05	NC		%	40



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

# QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			F3 (C16-C34 Hydrocarbons)	2021/09/05	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/05	NC		%	40
A342517	ARV	Method Blank	Moisture	2021/09/05	<0.30		%	
A342517	ARV	RPD	Moisture	2021/09/05	7.8		%	20
A342518	GG3	Matrix Spike	O-TERPHENYL (sur.)	2021/09/08		115	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/08		105	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08		115	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/08		111	%	60 - 140
A342518	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/08		112	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/08		106	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08		111	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/08		107	%	60 - 140
A342518	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/08		128	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/08	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/08	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/08	<50		mg/kg	
A342518	342518 GG3 RPD	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/08	36		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/08	8.7		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/08	NC		%	40
A342568	ARV	Method Blank	Moisture	2021/09/07	<0.30		%	
A342568	ARV	RPD	Moisture	2021/09/07	5.3		%	20
A342599	GG3	Matrix Spike	O-TERPHENYL (sur.)	2021/09/07		115	%	60 - 140
		•	F2 (C10-C16 Hydrocarbons)	2021/09/07		107	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		113	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		108	%	60 - 140
A342599	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		109	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		105	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		113	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		104	%	60 - 140
A342599	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		109	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/07	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/07	<50		mg/kg	
A342599	GG3	RPD	F2 (C10-C16 Hydrocarbons)	2021/09/07	0.42		<b>8</b> /8	40
	000	5	F3 (C16-C34 Hydrocarbons)	2021/09/07	4.5		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/07	NC		%	40
A343336	JLJ	Spiked Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/07		95	%	60 - 140
A343336	JLJ	Method Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/07	<500	55	mg/kg	55 140
A343336	JLJ	RPD	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/07	3.7		///g/kg %	40
A345342	JB9	Spiked Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/09	5.7	109	% %	60 - 140
A345342	JB9	Method Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/09	<500	103	mg/kg	00 - 140



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### QUALITY ASSURANCE REPORT(CONT'D)

Q	A/QC								
Е	3atch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A3	345342	JB9	RPD	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/09	7.1 (1)		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Detection limits raised due to high moisture content, samples contain => 50% moisture.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: PT

### **VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by:

Gita Pokhrel, Laboratory Supervisor

Janet Gao, B.Sc., QP, Supervisor, Organics

Vermicatelk

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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# ADDITIONAL COOLER TEMPERATURE RECORD CHAIN-OF-CUSTODY RECORD

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# ADDITIONAL COOLER TEMPERATURE RECORD

CHAIN-OF-CUSTODY RECORD

COOLER OBSERVATIONS:  CUSTODY SEAL YES NO COOLER ID  PRESENT Y  CUSTODY SEAL YES NO COOLER ID  PRESENT YES NO COOLER ID  PRESENT YES NO COOLER ID  CUSTODY SEAL YES NO COOLER ID  PRESENT YES NO COOLER

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Buraau Veritas Laboratories 4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel: (403) 291-3077 Toll-free 800-563-6286 Fax: (403) 291-9468 www.bvilabs

CHAIN OF CUSTODY RECORD

Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for Bottle Order #: Project Manager Carmen McKay (call lab for # Turnaround Time (TAT) Required: Laboratory Use Only: Please provide advance notice for rush pro Job Specific Rush TAT (if applies to entire submis Standard TAT = 5-7 Working days for most tests. C164647 (will be applied if Rush TAT is not specified). BV Labs Job #: Date Required: M M M M N Limited Sample C00480 20368099-7000-1001 20368099-6000-1001 PAH in Water by GC/MS PROJECT INFORMATION: DISSOIVED Regulated Metals (CCME/AT1) ANALYSIS REQUESTED (PLEASE BE SPECIFIC) Routine Water VVater CCME BTEX and F1-F2 in Project Name Extraction (True Barium) Project: P.O. # Barium on ICP using Fusion Site #. Sulphate / nitrate BIC SCALE Analysis (F2/F2+F3B) in soil 1 7 > > > > > Gos ni 44-14 bns XBT8 14A #6340 GOLDER ASSOCIATES LTD. ATA Regulated Metals - Soils Fax: Aurelie Belavance 2800, 700 -2nd Street SW CALGARY AB T2P 2W2 (403) 299-5600 Metals Field Filtered ? (Y / N ) abellavance@golder.com shellolgy egolder.com 20/1 Matrix 39 Time Sampled 6:49 36 30 84:48 : 16 T SAMPLES MUST BE KEPT COOL ( < 10°C.) FROM TIME OF SAMPLING UNTIL DELIVERY TO BY LABS 0 6 5 5 6 0 できるという Company I Attention: Date Sampled Address. emar! Tel: Email: (905) 567-6100 Ext: 1167 Fax (403) 299-5606 canadaaccountspayableinvoices@golder.com 03 01 40-hS 0--03 50 -20-15 Sample (Location) Identification 53-06 45 #254 GOLDER ASSOCIATES LTD. S TP31-53 1 1 2800, 700 -2nd Street SW CALGARY AB T2P 2W2 (905) 567-6100 Ext. 1167 Teal. - Lat Jed 1 10 gl Thal Fox ACCOUNTS PAYABLE Par Samble Parcoda Label Regulatory Criteria: CCME Other Company Name: ATI N 1 Email: Lei

TANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT UM ESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LARS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGENET AND ACCEPT.
WWW.SESSON/STERNS—ACCOMMENDERS
THE REPROPORTIENTS OF THE RELUGIOUSHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. THIS CHAIN OF CUSTODY RECORD. THAY RESULT IN ANALYTICAL TAT DELAYS.
\*\* ALL SAMPLES ARE HELD FOR 80 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER.

Time RECEIVED BY: (Signature/Print)

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Custody Seal Intact on Cooler'

Laboratory Use Only

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# jars used and not submitted

Date: (YYMM/DD) Time

Temperature (°C) on Receipt

Yellow

Yes

White: BV Labs

Bureau Veritas Canada (2019) Inc.

Bureau Veritas Laboratories 4000 1931 N.E. Calgary, Alberta Canada 12E 6PB Tel (403) 291-3077 Toll-free 800-563-5286 Fax (403) 291-9468 www.bvlabs.com

CHAIN OF CUSTODY RECORD

note. Standard TAT for certain tests are > 5 days - contact your Project Manager for Custody Seal Intact on Cooler? Project Manager: Bottle Order #: Carmen McKay Please provide advance notice for rush projects Turnaround Time (TAT) Required: Laboratory Use Only: Job Specific Rush TAT (if applies to entire submission) Standard TAT = 5-7 Working days for most lests. コピエタエク (will be applied if Rush TAT is not specified) BV Labs Job #: Rush Confirmation Number: Date Required: M MM MN M M M 1 Limited Sample # jars used and not submitted C00480 20368099-7000-1001 20368099-6000-1001 PAH in Water by GC/MS PROJECT INFORMATION: DISSOIVED Time (S) or ANALYSIS REQUESTED (PLEASE BE SPECIFIC) Routine Water Date: (YY/MM/DD) Water CCME BTEX and F1-F2 in Project Name Barium on ICP using Fusion Extraction (True Barium) Project: P.O. # Sulphate / nitrate BIC SCALE Analysis (F2/F2+F3B) in soil lioS ni 47-F4 bns X3T8 F1-F4 (Visls) > RECEIVED BY: (Signature/Print) #6340 GOLDER ASSOCIATES LTD alio2 - alateM betalugeA 1TA Fax abellavance@golder.com REPORT TO: 2800, 700 -2nd Street SW CALGARY AB T2P 2W2 (403) 299-5600 shelldgregolder.com 7/05 Matrix Aurelie Belavance 25 10:06 23 02 10:11 10:22 SO 81:11 Time Sampled 02 50 Special Instructions \* SAMPLES MUST BE KEPT COOL ( < 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS 0/ 0/ 91 0 Company Name: K/WWK Attention: Address: Date Sampled Tel: Email: emace! Date: (YY/MM/DD) (403) 299-5606 - 172-02 02 AH -02 - SA-05 -03 56-06 10-Sample (Location) Identification 56-03 - 56-01 DUPts ts CELLY A. Bell countre -162 -163 #254 GOLDER ASSOCIATES LTD. Ì C# M 1Call ラシ 1694 Kar Cal 18as ACCOUNTS PAYABLE Sample Barcode Label Regulatory Criteria: CCME Other ATI 32 V Tel: Einail:

\*\*\* THESS OTHERWISE AGREED TO IN WITHING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE ANALABLE FOR VIEWING AT THE ALEXANDERS AND CONDITIONS.

\*\*\*\* ALL SAMPLES ARE HELD FOR 80 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL ROUGHSTS CONTACT YOUR PROJECT MANAGER.

Yes

White: BV Labs

Burea - Veritas Canada (2019) Inc.

Bureau Veritas Laboratories. 4000 1951 N.E., Calgary, Alberta Canada T2E 6P8 Tel: (403) 291-3077 Toll-free 800-563-6266 Fax: (403) 291-9468 www.bvilabs.com

CHAIN OF CUSTODY RECORD

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Only:	Bottle Order #:		644511	Project Manager:	or Mole no man	California	equired:	rush projects	contact your Project Manager for	ion)		(call lab for #)	S			ii i									Custody Seal Intact on Cooler?	Yellow
Laboratory Use Only:	BV Labs Job #:	たバンバン	170707	COC #:		C#644511-48-01	Turnaround Time (TAT) Required:	Please provide advance notice for rush projects	Regular (Standard) TAT:  Regular (Standard Red) TAT:  Slandard TAT = 5-7 Working days for most leats.  Slandard TAT = 5-7 Working days for most leats.  Slandard TAT for certain lests are > 5 days - contact your Project Manager for details.	Job Specific Rush TAT (if applies to entire submission	Date Required:		Comments											Laboratory Use Only	Temperature (°C) on Receipt	TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AMALABLE FOR VIEWING AT IT CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
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*	#254 GOLDER ASSOCIATES LTD.	ACCOUNTS PAYABLE	2800, 700 -2nd Street SW	CALGARY AB T2P 2W2	(905) 567-6100 Ext. 1167	canadaaccountspayableinvoices@golder.com						$\sim 30^{\circ}$ SAMPLE8 MUST BE KEPT COOL ( < 10°C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS	abel											* RELINQUISHED BY: (Signature/Print)	2	D TO IN WR ID-CONDITI THE RELII
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	Company Name:	, uc	.52				Regulatory Criteria:	Ę	CCM A	1		S	Sample	2					/			-		•	3	- UNLESS OTHERWISE AGREED TO BN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTOOY IS SUBJECT TO BV LABS'STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTOOY TWW/WINDLABS CONTERNS AND CONDITIONS.  "IT IS THE RESPONSIBILITY OF THE RELIADUSINER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTOOY RECORD, AN INCOMPLETE CHAIN OF CUSTOOY MAY RESULT IN ANALYTICAL TAT DELAYS. " ALL SAMPLES ARE HELD FOR 80 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT WANAGER.
à.	Сотр	Attention	Address		Tel:	Email:	Rec	L		1				-	2	6	4	2	9	7	80	6	10		V	WWW.B "IT IS T. "ALL S.

Bureau Veritas Canada (2019) Inc.

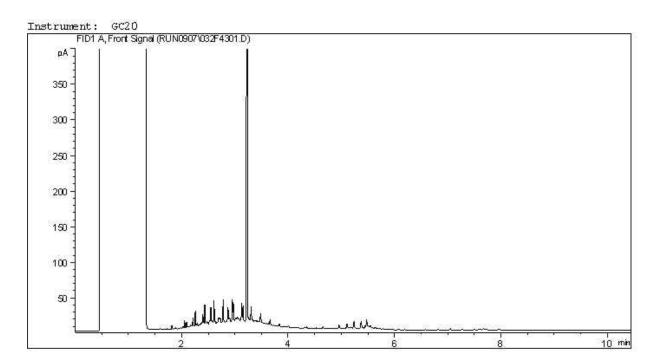
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

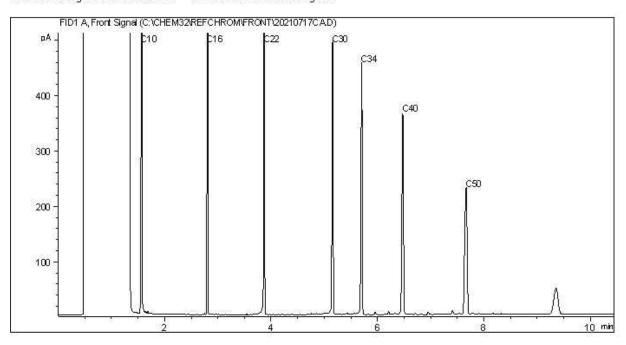
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-53-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	=	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

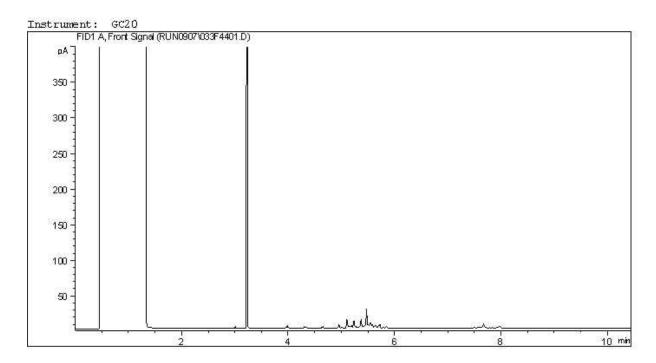
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

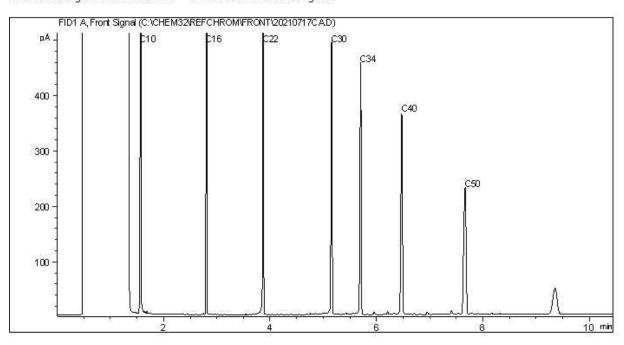
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-53-05

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	-	C12	Diesel:	c8	$\leftarrow$	C22
Varsol:	c8	_	C12	Lubricating Oils:	C20	1	C40
Kerosene:	c7	_	C16	Crude Oils:	C3	1	C60+

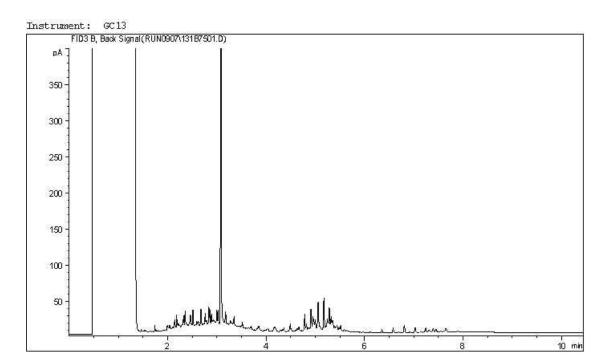
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

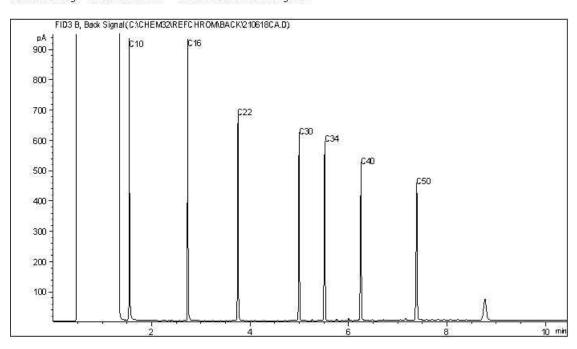
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-53-01

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	-	C22
Varsol:	c8	9 <del>4</del> 9	C12	Lubricating Oils:	c20 -	-	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	_	C60+

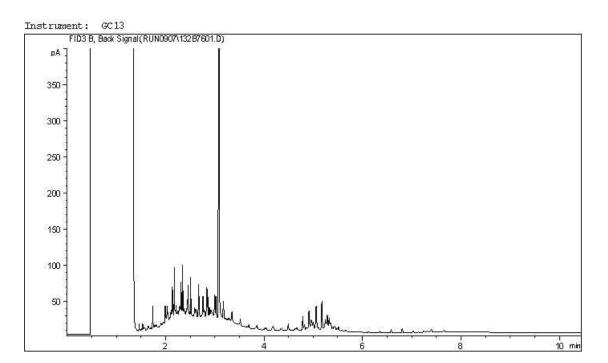
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

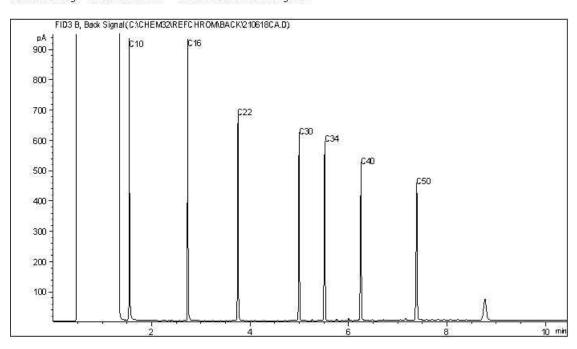
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-54-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	T	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

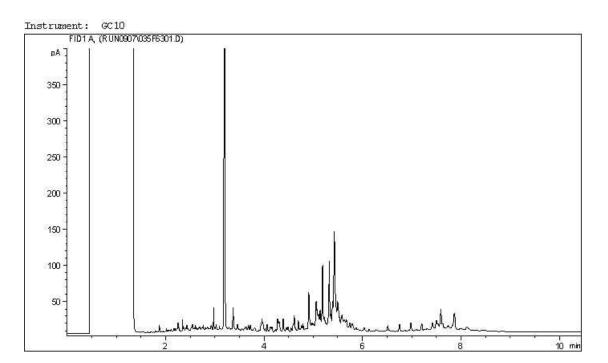
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Client Project #: 20368099-6000-1001

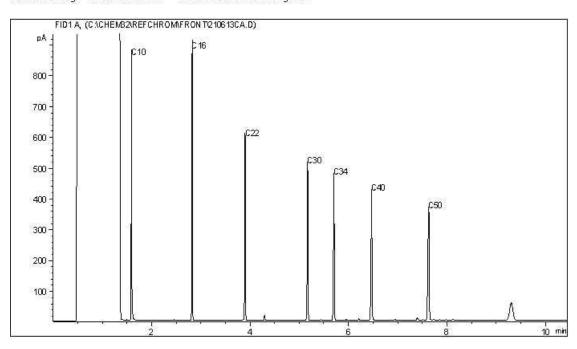
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-54-04

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	C8	7	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

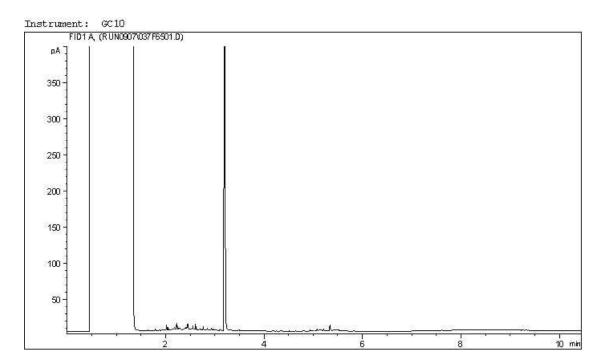
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

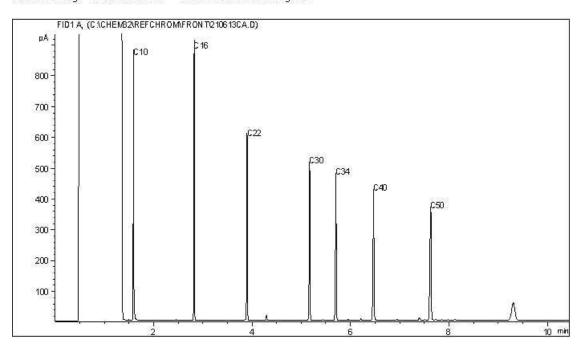
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-54-06

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

GOLDER ASSOCIATES LTD.

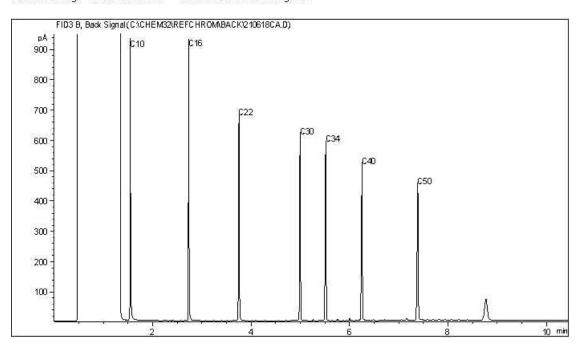
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-55-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

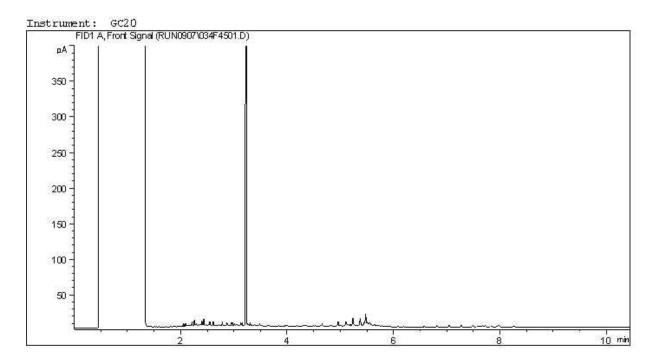
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

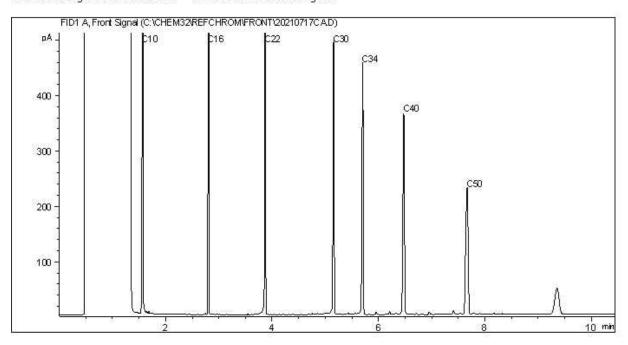
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-55-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	-	C12	Diesel:	c8	$\leftarrow$	C22
Varsol:	c8	_	C12	Lubricating Oils:	C20	1	C40
Kerosene:	c7	_	C16	Crude Oils:	C3	1	C60+

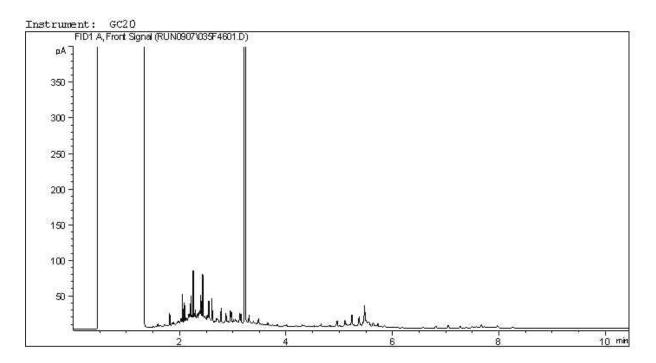
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

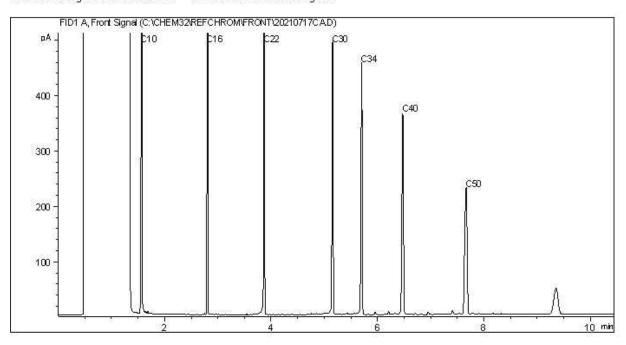
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP Z

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	=	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

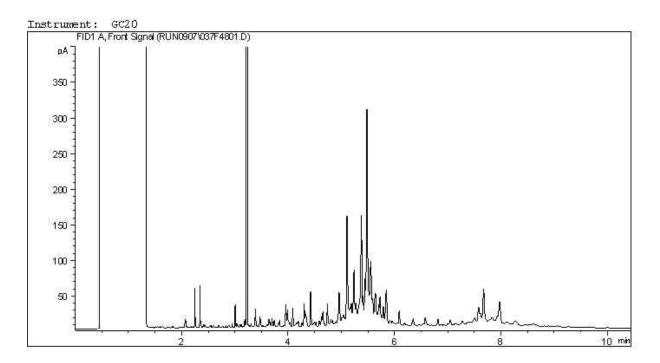
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

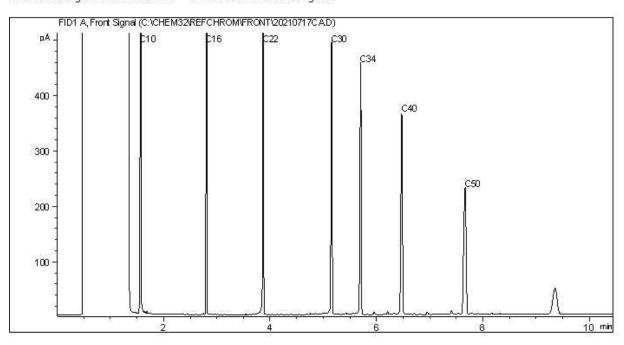
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-55-05

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	=	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

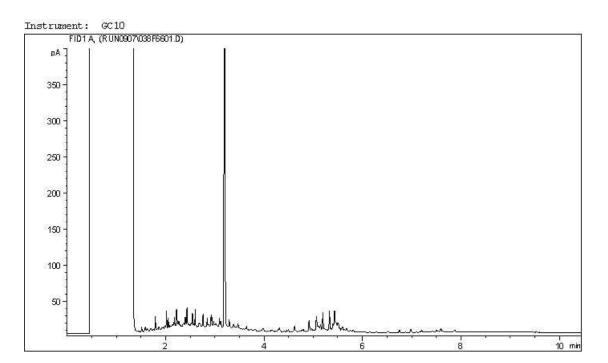
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

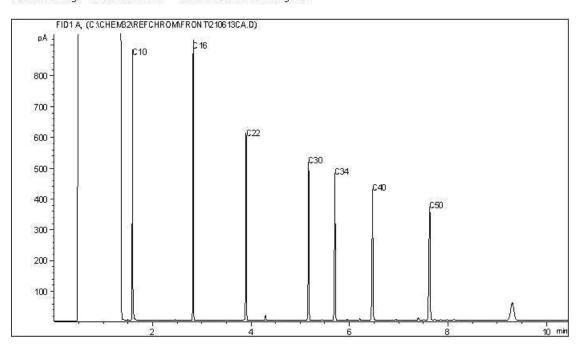
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-56-01

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	-	C22
Varsol:	c8	9 <del>4</del> 9	C12	Lubricating Oils:	c20 -	-	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	_	C60+

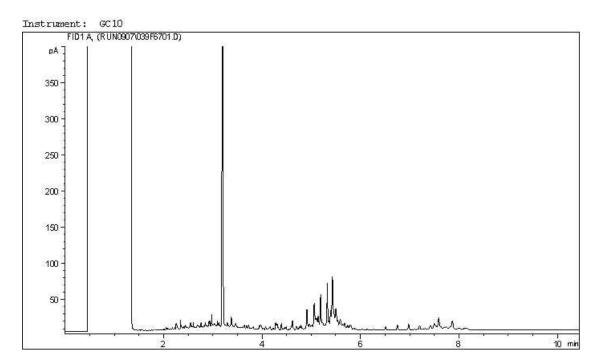
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

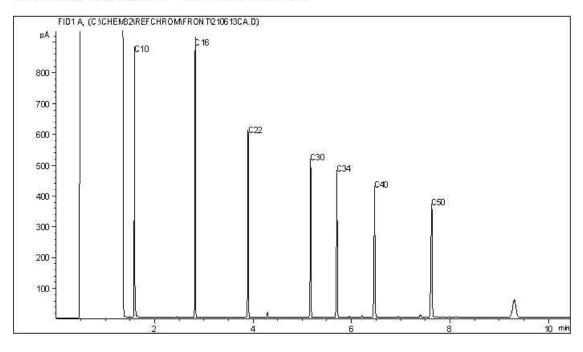
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-56-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	-	C16	Crude Oils:	C3	-	C60+

GOLDER ASSOCIATES LTD.

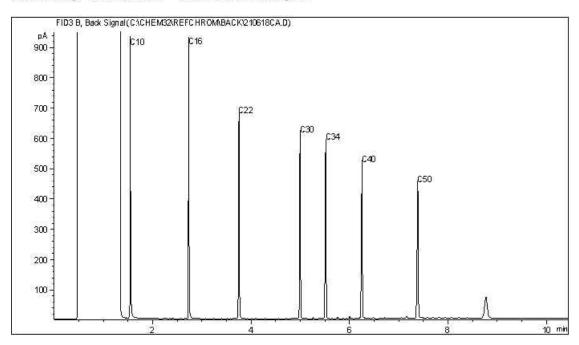
Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-56-06

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

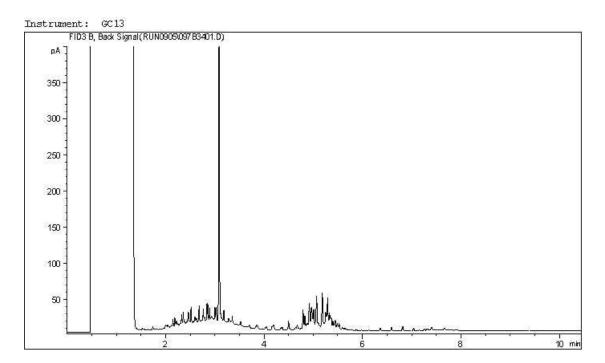
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

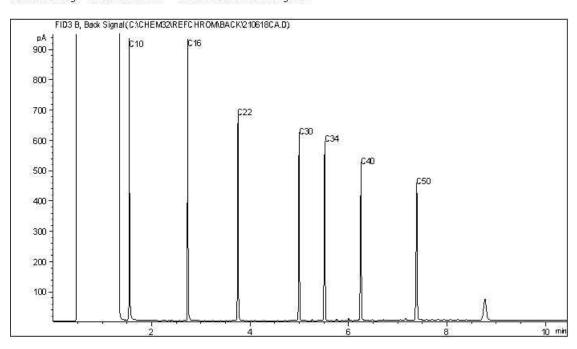
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-57-01

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	-	C16	Crude Oils:	C3	-	C60+

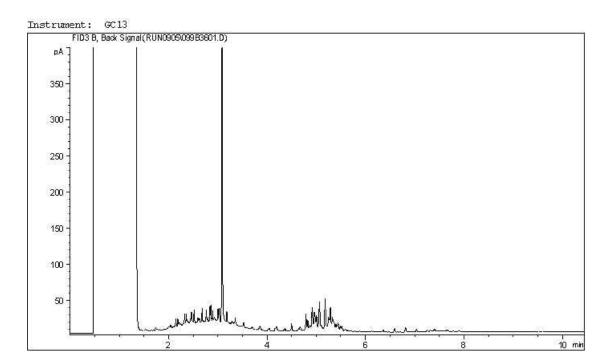
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

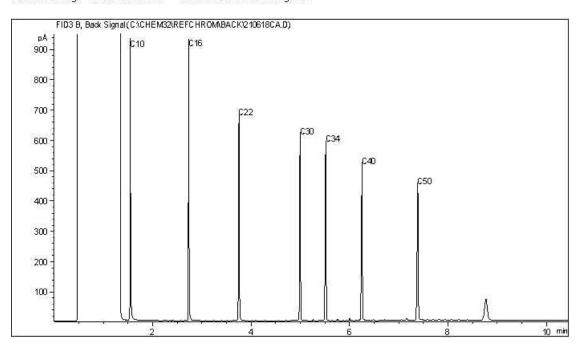
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-57-03

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	-	C22
Varsol:	c8	9 <del>4</del> 9	C12	Lubricating Oils:	c20 -	-	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	_	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-57-05

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

FID3 B, Back Signal (RUN0905\100B3701.D)

pA

330

250

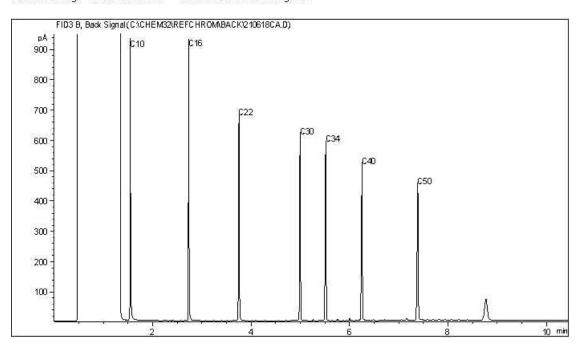
150

100

50

10 min

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

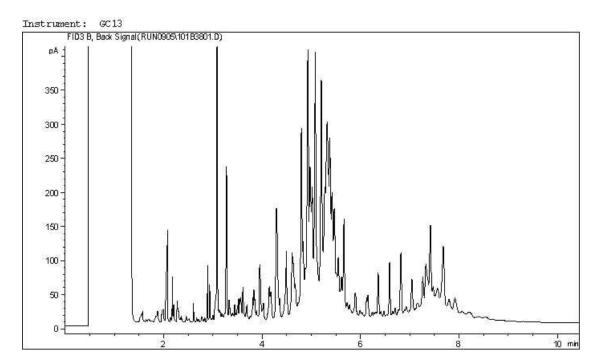
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

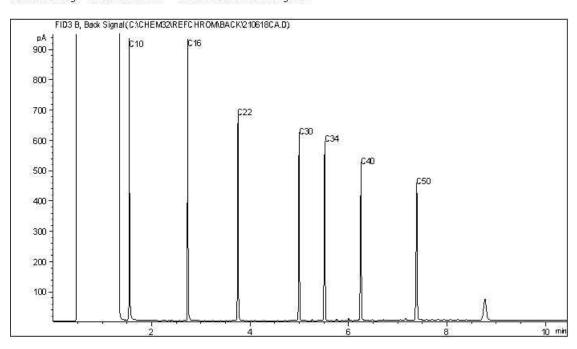
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-162-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	C8	7	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

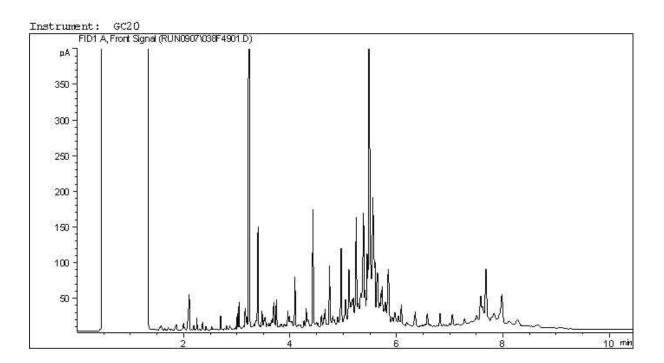
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

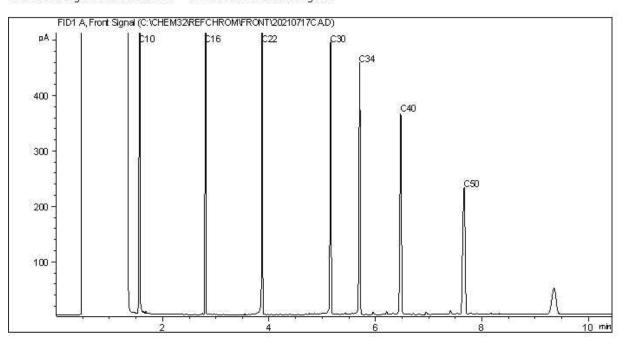
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-AA

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	-	C12	Diesel:	cs -	C22
Varsol:	c8	=	C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7	_	C16	Crude Oils:	c3 -	C60+

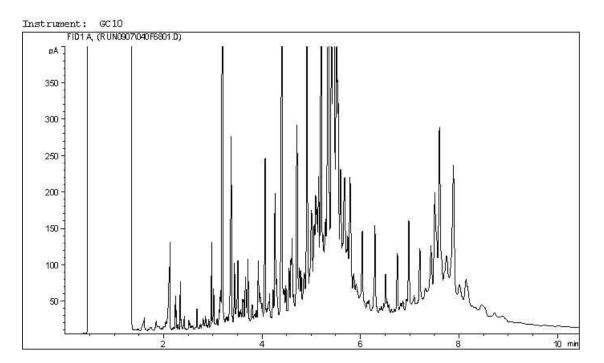
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

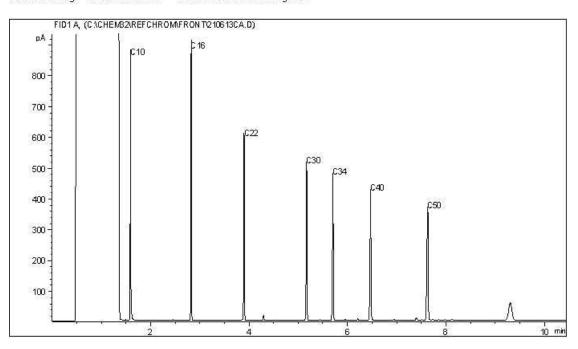
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-163-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	C8	7	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

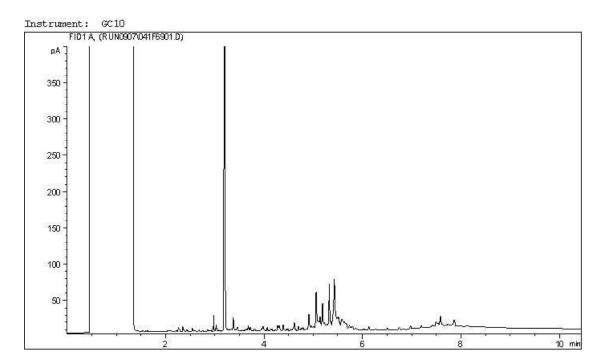
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

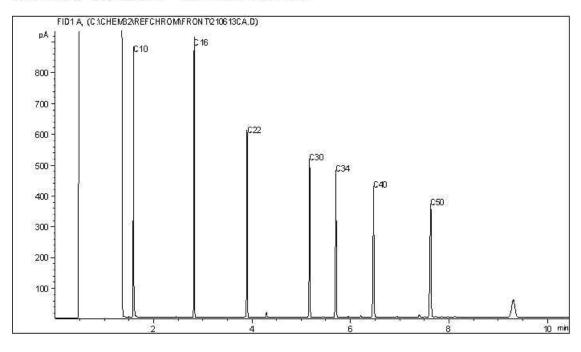
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-172-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	-	C16	Crude Oils:	C3	-	C60+

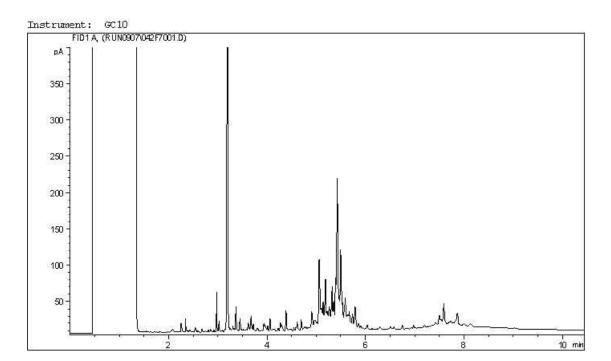
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

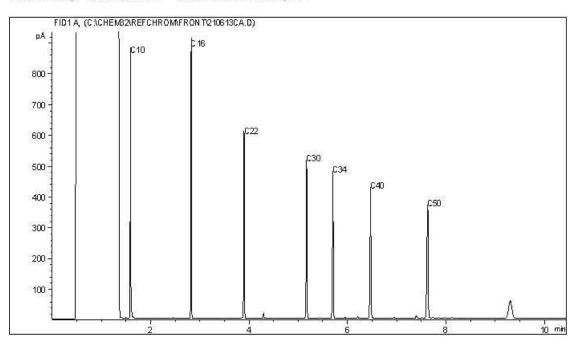
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-173-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	C8	7	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-174-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**

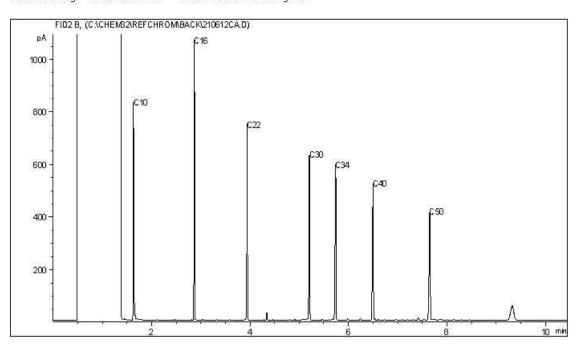
Instrument: GC10

FID2 B, (RUN0907080B6801.D)

pA

35025015010050-

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

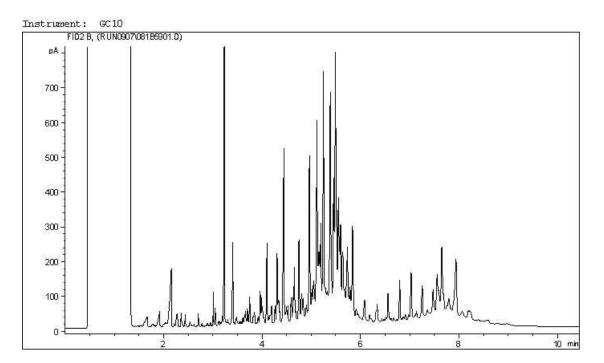
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

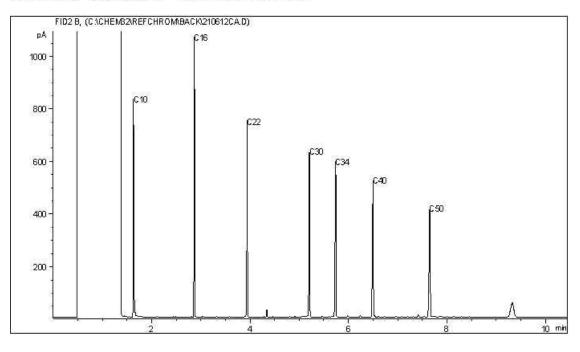
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-175-02

### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	C8	7	C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

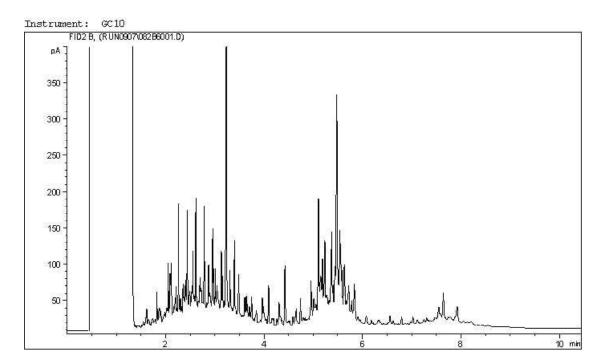
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

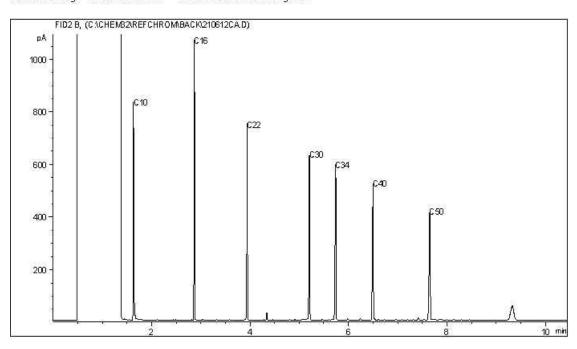
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-BB

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-176-02

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Instrument: GC10

FID2 B, (RUN0907083B6101.0)

pA

390

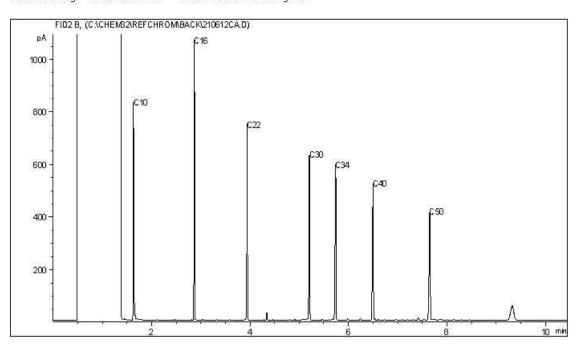
250

150

100

50

Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

 Gasoline:
 C4 - C12
 Diesel:
 C8 - C22

 Varsol:
 C8 - C12
 Lubricating Oils:
 C20 - C40

 Kerosene:
 C7 - C16
 Crude Oils:
 C3 - C60+

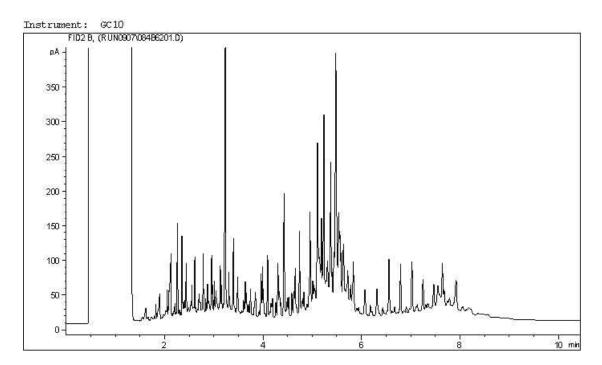
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

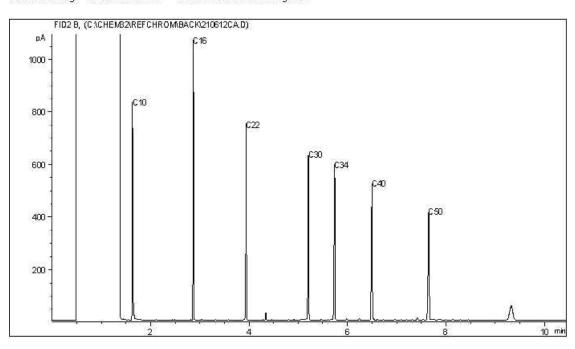
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-CC

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	T	C22
Varsol:	c8	: 4	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	_	C60+

# GOLDER DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farew	ell		Sampling Date: August 24, 2021					
Golder Project Number:	Laboratory: Bureau Veritas Edmonton							
Lab Submission Number:	C164647							
Was the Cooler Received at the law was proper chain of custody of the Were sample temperatures acceptation were all samples analyzed and extended that has lab warranted all tests were in Was sufficient sample provided for the Has lab warranted all samples were	e samples dable when the cracted with statistical or the request	locumente hey reache nin hold tin control in sted analy	d and keped lab?: nes?: CoA?: sis?	Yes Yes Yes Yes Yes Yes Yes Yes Yes				
Are All Laboratory QC Within Ac	ceptance C	criteria (Ye	es, No, No	Not Applicable)?				
Surrogate Recovery Method Blank Concentration Laboratory Duplicate RPD Matrix Spike Recovery Blank Spike Recovery	Method Blank Concentration X acceptance cri Laboratory Duplicate RPD X Matrix Spike Recovery X							
Are All Field QC Samples Within	Alert Limi	ts (Yes, N	o, Not Ap	Applicable)?				
Field Blank Concentration Trip Blank Concentration Field Duplicate RPD	Yes	No X	NA X X	Comments  Samples TP21-175-02 and DUP-BB exceed the alerts limit for F2 (67%) and F3 (100%). samples TP21-176 and DUP-CC exceed the alert limit for F2 (74%). All remaining field QC samples are within alert limits.				
Is data considered reliable (Yes/N If answer is "No" or "Suspect", de			tionale:	Yes				
Data Reviewed by (Print):  Date:	Anita Colb			Data Reviewed by (Signature): Ondo Called				



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

**Attention: Aurelie Belavance** 

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-58-01, 644511-70-01, 644511-49-01

Report Date: 2021/12/24

Report #: R3113760 Version: 2 - Revision

### **CERTIFICATE OF ANALYSIS – REVISED REPORT**

BV LABS JOB #: C164648 Received: 2021/09/01, 08:35

Sample Matrix: Soil # Samples Received: 28

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	<b>Laboratory Method</b>	<b>Analytical Method</b>
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	24	N/A	2021/09/08	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 by HS GC/MS/FID (MeOH extract) (1, 2)	4	N/A	2021/09/09	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX (1)	28	N/A	2021/09/09		Auto Calc
CCME Hydrocarbons (F2-F4)+F3A/B in soil (1, 3)	1	2021/09/03	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	17	2021/09/03	2021/09/07	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	3	2021/09/03	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2-F4 in soil) (1, 4)	8	2021/09/04	2021/09/08	AB SOP-00036	CCME PHC-CWS m
CCME Hydrocarbons (F2/F2+F3B) in soil (1, 5)	1	N/A	2021/12/23		Auto Calc
CCME Hydrocarbons (F4G in soil) (1, 4)	2	2021/09/03	2021/09/09	AB SOP-00036	CCME PHC-CWS m
				AB SOP-00040	
Moisture (1)	20	N/A	2021/09/04	AB SOP-00002	CCME PHC-CWS m
Moisture (1)	8	N/A	2021/09/05	AB SOP-00002	CCME PHC-CWS m

### Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.



Your P.O. #: 20368099-7000-1001 Your Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

**Territories** 

**Attention: Aurelie Belavance** 

GOLDER ASSOCIATES LTD. 2800, 700 -2nd Street SW CALGARY, AB CANADA T2P 2W2

Your C.O.C. #: 644511-58-01, 644511-70-01, 644511-49-01

Report Date: 2021/12/24

Report #: R3113760 Version: 2 - Revision

### **CERTIFICATE OF ANALYSIS – REVISED REPORT**

## BV LABS JOB #: C164648

Received: 2021/09/01, 08:35

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

- \* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
- (1) This test was performed by Bureau Veritas Calgary, 4000 19 St., Calgary, AB, T2E 6P8
- (2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.
- (3) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories

conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

(4) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

(5) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Validation of Performance-Based Alternative Methods September 2003. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

### **Encryption Key**



Bureau Veritas

24 Dec 2021 12:52:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Cynny Hagen, Key Account Specialist Email: Cynny.HAGEN@bureauveritas.com

Phone# (403)735-2273

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BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

	_	_		_					_	
Bureau Veritas ID		AFA064	AFA064		AFA067			AFA069		
Sampling Date		2021/08/26 08:36	2021/08/26 08:36		2021/08/26 09:06			2021/08/26 09:16		
COC Number		644511-58-01	644511-58-01		644511-58-01			644511-58-01		
	UNITS	TP21-171-02	TP21-171-02 Lab-Dup	RDL	TP21-170-02	RDL	QC Batch	TP21-169-01	RDL	QC Batch
Ext. Pet. Hydrocarbon	-		•	-	•	-				
F2 (C10-C16 Hydrocarbons)	mg/kg	1400 (1)	1600	22	130	10	A342026	84 (1)	36	A342026
F3 (C16-C34 Hydrocarbons)	mg/kg	2400 (1)	2000	110	720	50	A342026	450 (1)	180	A342026
F4 (C34-C50 Hydrocarbons)	mg/kg	660 (2)	440	110	260	50	A342026	<180 (1)	180	A342026
Reached Baseline at C50	mg/kg	No	No	N/A	Yes	N/A	A342026	Yes	N/A	A342026
Physical Properties							•			•
Moisture	%	54	N/A	0.30	30	0.30	A341991	72	0.30	A342024
Volatiles	-			•		•			•	
Xylenes (Total)	mg/kg	1.1	N/A	0.12	<0.045	0.045	A340894	<0.57	0.57	A340894
F1 (C6-C10) - BTEX	mg/kg	<28	N/A	28	<10	10	A340894	41	24	A340894
Field Preserved Volatiles	-			•		•			•	
Benzene	mg/kg	<0.014 (3)	N/A	0.014	0.025	0.0050	A343194	<0.016 (4)	0.016	A343194
Toluene	mg/kg	<0.080 (4)	N/A	0.080	<0.050	0.050	A343194	<0.080 (4)	0.080	A343194
Ethylbenzene	mg/kg	0.070 (3)	N/A	0.028	0.026	0.010	A343194	0.14 (4)	0.034	A343194
m & p-Xylene	mg/kg	0.27 (3)	N/A	0.11	<0.040	0.040	A343194	<0.51(3)	0.51	A343194
o-Xylene	mg/kg	0.80 (3)	N/A	0.055	0.036	0.020	A343194	<0.26 (3)	0.26	A343194
F1 (C6-C10)	mg/kg	<28 (3)	N/A	28	<10	10	A343194	42 (4)	24	A343194
Surrogate Recovery (%)	-		•		•	•	-			-
1,4-Difluorobenzene (sur.)	%	93	N/A	N/A	91	N/A	A343194	90	N/A	A343194
4-Bromofluorobenzene (sur.)	%	87	N/A	N/A	87	N/A	A343194	87	N/A	A343194
D10-o-Xylene (sur.)	%	78	N/A	N/A	89	N/A	A343194	95	N/A	A343194
D4-1,2-Dichloroethane (sur.)	%	84	N/A	N/A	82	N/A	A343194	83	N/A	A343194
O-TERPHENYL (sur.)	%	111	106	N/A	107	N/A	A342026	109	N/A	A342026

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limits raised due to high moisture content, sample contains => 50% moisture.

Matrix spike exceeds acceptance limits due to matrix interference.

- (3) Detection limits raised based on sample weight used for analysis.
- (4) Detection limits raised based on MDL and sample weight used for analysis.



GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

		1	i –	1	1	1	1	1		
Bureau Veritas ID		AFA071		AFA072		AFA073	AFA073	AFA074		
Sampling Date		2021/08/26		2021/08/26		2021/08/26	2021/08/26	2021/08/26		
Sumpling Date		09:18		09:25		09:35	09:35	09:41		
COC Number		644511-58-01		644511-58-01		644511-58-01	644511-58-01	644511-58-01		
	UNITS	TP21-169-02	RDL	TP21-168-02	RDL	TP21-167-01	TP21-167-01 Lab-Dup	TP21-167-03	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	45	10	15	10	53	N/A	33	10	A342026
F3 (C16-C34 Hydrocarbons)	mg/kg	1100	50	270	50	720	N/A	640	50	A342026
F4 (C34-C50 Hydrocarbons)	mg/kg	380	50	89	50	290	N/A	230	50	A342026
Reached Baseline at C50	mg/kg	No	N/A	Yes	N/A	Yes	N/A	Yes	N/A	A342026
Physical Properties										
Moisture	%	37	0.30	39	0.30	46	47	26	0.30	A342024
Volatiles										
Xylenes (Total)	mg/kg	<0.045	0.045	<0.093	0.093	<0.045	N/A	<0.045	0.045	A340894
F1 (C6-C10) - BTEX	mg/kg	<10	10	<21	21	<10	N/A	<10	10	A340894
Field Preserved Volatiles										
Benzene	mg/kg	0.0098	0.0050	<0.010 (1)	0.010	<0.0050	N/A	<0.0050	0.0050	A343194
Toluene	mg/kg	0.16	0.050	<0.10 (1)	0.10	<0.050	N/A	<0.050	0.050	A343194
Ethylbenzene	mg/kg	<0.010	0.010	<0.021 (1)	0.021	0.027	N/A	<0.010	0.010	A343194
m & p-Xylene	mg/kg	<0.040	0.040	<0.083 (1)	0.083	<0.040	N/A	<0.040	0.040	A343194
o-Xylene	mg/kg	<0.020	0.020	<0.041 (1)	0.041	<0.020	N/A	<0.020	0.020	A343194
F1 (C6-C10)	mg/kg	<10	10	<21 (1)	21	<10	N/A	<10	10	A343194
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	92	N/A	99	N/A	90	N/A	91	N/A	A343194
4-Bromofluorobenzene (sur.)	%	88	N/A	82	N/A	89	N/A	89	N/A	A343194
D10-o-Xylene (sur.)	%	78	N/A	66	N/A	91	N/A	82	N/A	A343194
D4-1,2-Dichloroethane (sur.)	%	83	N/A	75	N/A	84	N/A	85	N/A	A343194
O-TERPHENYL (sur.)	%	102	N/A	110	N/A	100	N/A	107	N/A	A342026
		•		•		-	•	•		

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Detection limits raised based on sample weight used for analysis.



GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA075			AFA076	AFA076		AFA077		
Sampling Date		2021/08/26			2021/08/26	2021/08/26		2021/08/26		
Sampling Date		09:47			10:20	10:20		10:23		
COC Number		644511-58-01			644511-58-01	644511-58-01		644511-58-01		
	UNITS	TP21-166-02	RDL	QC Batch	TP21-11-01	TP21-11-01 Lab-Dup	RDL	TP21-11-03	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	44 (1)	28	A342026	26	N/A	10	59 (1)	33	A342026
F3 (C16-C34 Hydrocarbons)	mg/kg	990 (1)	140	A342026	230	N/A	50	640 (1)	170	A342026
F4 (C34-C50 Hydrocarbons)	mg/kg	350 (1)	140	A342026	<50	N/A	50	<170 (1)	170	A342026
Reached Baseline at C50	mg/kg	Yes	N/A	A342026	Yes	N/A	N/A	Yes	N/A	A342026
Physical Properties										
Moisture	%	65	0.30	A342024	18	N/A	0.30	70	0.30	A342024
Volatiles										
Xylenes (Total)	mg/kg	<0.16	0.16	A340894	1.1	N/A	0.045	0.44	0.22	A340894
F1 (C6-C10) - BTEX	mg/kg	<24	24	A340894	110	N/A	10	<24	24	A340894
Field Preserved Volatiles										
Benzene	mg/kg	<0.018 (2)	0.018	A343194	0.20	0.19	0.0050	<0.024 (2)	0.024	A343203
Toluene	mg/kg	0.21 (2)	0.18	A343194	<0.050	<0.050	0.050	0.50 (2)	0.24	A343203
Ethylbenzene	mg/kg	<0.037 (2)	0.037	A343194	0.49	0.48	0.010	<0.049 (2)	0.049	A343203
m & p-Xylene	mg/kg	<0.15 (2)	0.15	A343194	0.60	0.58	0.040	0.31 (2)	0.20	A343203
o-Xylene	mg/kg	<0.073 (2)	0.073	A343194	0.53	0.44	0.020	0.14 (2)	0.097	A343203
F1 (C6-C10)	mg/kg	<24 (3)	24	A343194	120	120	10	<24 (3)	24	A343203
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	90	N/A	A343194	100	101	N/A	100	N/A	A343203
4-Bromofluorobenzene (sur.)	%	89	N/A	A343194	90	87	N/A	87	N/A	A343203
D10-o-Xylene (sur.)	%	85	N/A	A343194	93	90	N/A	87	N/A	A343203
D4-1,2-Dichloroethane (sur.)	%	84	N/A	A343194	78	77	N/A	78	N/A	A343203
O-TERPHENYL (sur.)	%	103	N/A	A342026	106	N/A	N/A	105	N/A	A342026

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- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limits raised based on sample weight used for analysis.
- (3) Detection limits raised based on MDL and sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

	-					_		_	
Bureau Veritas ID		AFA078	AFA079		AFA080		AFA081		
Sampling Date		2021/08/26	2021/08/26		2021/08/26		2021/08/26		
Jamping Date		10:24	10:24		10:35		10:36		
COC Number		644511-70-01	644511-70-01		644511-70-01		644511-70-01		
	UNITS	TP21-11-06	DUP-DD	RDL	TP21-10-01	RDL	TP21-10-03	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	10	68 (1)	29	<38 (1)	38	A342026
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	<50	50	2000 (1)	150	550 (1)	190	A342026
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	<50	50	730 (1)	150	190 (1)	190	A342026
Reached Baseline at C50	mg/kg	Yes	Yes	N/A	Yes	N/A	Yes	N/A	A342026
Physical Properties									
Moisture	%	19	17	0.30	66	0.30	74	0.30	A342024
Volatiles									
Xylenes (Total)	mg/kg	<0.045	<0.045	0.045	<0.20	0.20	<0.24	0.24	A340894
F1 (C6-C10) - BTEX	mg/kg	<10	<10	10	<24	24	<24	24	A340894
Field Preserved Volatiles	•		•	•	•				
Benzene	mg/kg	0.0076	0.0076	0.0050	0.030 (2)	0.022	0.18 (2)	0.027	A343203
Toluene	mg/kg	<0.050	<0.050	0.050	<0.080 (3)	0.080	<0.27 (2)	0.27	A343203
Ethylbenzene	mg/kg	<0.010	<0.010	0.010	<0.044 (2)	0.044	<0.053 (2)	0.053	A343203
m & p-Xylene	mg/kg	<0.040	<0.040	0.040	<0.18 (2)	0.18	<0.21 (2)	0.21	A343203
o-Xylene	mg/kg	<0.020	<0.020	0.020	<0.088 (2)	0.088	<0.11 (2)	0.11	A343203
F1 (C6-C10)	mg/kg	<10	<10	10	<24 (3)	24	<24 (3)	24	A343203
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	99	100	N/A	99	N/A	99	N/A	A343203
4-Bromofluorobenzene (sur.)	%	85	86	N/A	88	N/A	86	N/A	A343203
D10-o-Xylene (sur.)	%	78	76	N/A	75	N/A	80	N/A	A343203
D4-1,2-Dichloroethane (sur.)	%	78	78	N/A	77	N/A	76	N/A	A343203
O-TERPHENYL (sur.)	%	121	99	N/A	99	N/A	107	N/A	A342026
DDI Damantahla Dataatian Li	·								

RDL = Reportable Detection Limit

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limits raised based on sample weight used for analysis.
- (3) Detection limits raised based on MDL and sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA082	AFA083	AFA084		AFA085		AFA086		
Sampling Date		2021/08/26	2021/08/26	2021/08/26		2021/08/26		2021/08/26		
Jamping Date		10:40	13:18	13:23		13:31		13:32		
COC Number		644511-70-01	644511-70-01	644511-70-01		644511-70-01		644511-70-01		
	UNITS	TP21-10-04	TP21-09-02	TP21-09-05	RDL	TP21-08-01	RDL	TP21-08-04	RDL	QC Batch
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	10	9200 (1)	22	51	10	A342026
F3 (C16-C34 Hydrocarbons)	mg/kg	160	<50	<50	50	750 (1)	110	390	50	A342026
F4 (C34-C50 Hydrocarbons)	mg/kg	65	<50	<50	50	<110 (1)	110	130	50	A342026
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	N/A	Yes	N/A	Yes	N/A	A342026
Physical Properties										
Moisture	%	27	5.5	15	0.30	56	0.30	34	0.30	A342024
Volatiles										
Xylenes (Total)	mg/kg	<0.045	<0.045	<0.045	0.045	0.53	0.13	0.17	0.045	A340894
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	10	1100	30	<10	10	A340894
Field Preserved Volatiles	•	•	•	•	·	•		•	-	
Benzene	mg/kg	0.075	<0.0050	0.012	0.0050	0.026 (2)	0.015	0.28	0.0050	A343203
Toluene	mg/kg	<0.050	<0.050	<0.050	0.050	<0.080 (3)	0.080	<0.050	0.050	A343203
Ethylbenzene	mg/kg	<0.010	<0.010	0.018	0.010	0.062 (2)	0.030	0.11	0.010	A343203
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	0.31 (2)	0.12	0.17	0.040	A343203
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.020	0.22 (2)	0.060	<0.020	0.020	A343203
F1 (C6-C10)	mg/kg	<10	<10	<10	10	1100 (2)	30	<10	10	A343203
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	99	99	98	N/A	102	N/A	98	N/A	A343203
4-Bromofluorobenzene (sur.)	%	87	86	86	N/A	86	N/A	88	N/A	A343203
D10-o-Xylene (sur.)	%	68	75	82	N/A	78	N/A	84	N/A	A343203
D4-1,2-Dichloroethane (sur.)	%	78	78	78	N/A	80	N/A	76	N/A	A343203
O-TERPHENYL (sur.)	%	110	92	104	N/A	98	N/A	108	N/A	A342026
DDI Damantahla Dataatian Li		-		•		-		-		

RDL = Reportable Detection Limit

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limits raised based on sample weight used for analysis.
- (3) Detection limits raised based on MDL and sample weight used for analysis.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

Bureau Veritas ID		AFA087		AFA091	AFA091	AFA092	AFA093		
Sampling Date		2021/08/26		2021/08/26	2021/08/26	2021/08/26	2021/08/26		
Sampling Date		13:35		13:35	13:35	13:49	13:50		
COC Number		644511-70-01		644511-49-01	644511-49-01	644511-49-01	644511-49-01		
	UNITS	TP21-08-05	QC Batch	DUP-EE	DUP-EE Lab-Dup	TP21-07-01	TP21-07-03	RDL	QC Batch
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	A342026	<10	<10	140	340	10	A342388
F3 (C16-C34 Hydrocarbons)	mg/kg	<50	A342026	<50	<50	330	390	50	A342388
F4 (C34-C50 Hydrocarbons)	mg/kg	<50	A342026	<50	<50	53	<50	50	A342388
Reached Baseline at C50	mg/kg	Yes	A342026	Yes	Yes	Yes	Yes	N/A	A342388
Physical Properties									
Moisture	%	16	A342024	17	N/A	12	15	0.30	A342380
Volatiles			-		•	•		•	•
Xylenes (Total)	mg/kg	0.052	A340894	0.056	N/A	<0.045	0.12	0.045	A340894
F1 (C6-C10) - BTEX	mg/kg	<10	A340894	<10	N/A	<10	17	10	A340894
Field Preserved Volatiles	3	•	•	•	•	•	•	•	
Benzene	mg/kg	0.064	A343203	0.077	N/A	<0.0050	0.017	0.0050	A343203
Toluene	mg/kg	<0.050	A343203	<0.050	N/A	<0.050	0.30	0.050	A343203
Ethylbenzene	mg/kg	0.13	A343203	0.14	N/A	<0.010	0.031	0.010	A343203
m & p-Xylene	mg/kg	0.052	A343203	0.056	N/A	<0.040	0.073	0.040	A343203
o-Xylene	mg/kg	<0.020	A343203	<0.020	N/A	<0.020	0.050	0.020	A343203
F1 (C6-C10)	mg/kg	<10	A343203	<10	N/A	<10	17	10	A343203
Surrogate Recovery (%)	3	•	•	•	•	•	•	•	
1,4-Difluorobenzene (sur.)	%	99	A343203	100	N/A	100	101	N/A	A343203
4-Bromofluorobenzene (sur.)	%	86	A343203	86	N/A	86	88	N/A	A343203
D10-o-Xylene (sur.)	%	86	A343203	75	N/A	70	76	N/A	A343203
D4-1,2-Dichloroethane (sur.)	%	78	A343203	77	N/A	77	78	N/A	A343203
O-TERPHENYL (sur.)	%	102	A342026	116	111	115	115	N/A	A342388

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

### AT1 BTEX AND F1-F4 IN SOIL (VIALS)

	ΔΕΔΩ94	ΔΕΔΩ95	ΔΕΔ096	ΔΕΔΩ96		ΔΕΔΩ97		
	14:00	14:12	14:13	14:13		14:13		
	644511-49-01	644511-49-01	644511-49-01	644511-49-01		644511-49-01		
UNITS	TP21-07-06	TP21-06-02	TP21-06-03	TP21-06-03 Lab-Dup	QC Batch	DUP-FF	RDL	QC Batch
mg/kg	<10	230	72	N/A	A342388	200	10	A342388
mg/kg	<50	780	190	N/A	A342388	310	50	A342388
mg/kg	<50	190	<50	N/A	A342388	<50	50	A342388
mg/kg	Yes	Yes	Yes	N/A	A342388	Yes	N/A	A342388
%	13	43	18	15	A342380	14	0.30	A342384
mg/kg	<0.045	0.43	<0.045	N/A	A340894	<0.045	0.045	A340894
mg/kg	<10	26	14	N/A	A340894	14	10	A340894
							-	-
mg/kg	0.023	<0.0050	<0.0050	N/A	A343203	<0.0050	0.0050	A343203
mg/kg	<0.050	0.70	<0.050	N/A	A343203	<0.050	0.050	A343203
mg/kg	<0.010	0.071	<0.010	N/A	A343203	<0.010	0.010	A343203
mg/kg	<0.040	0.23	<0.040	N/A	A343203	<0.040	0.040	A343203
mg/kg	<0.020	0.20	<0.020	N/A	A343203	<0.020	0.020	A343203
mg/kg	<10	27	14	N/A	A343203	14	10	A343203
	•	•	•	•	•	•	•	•
%	99	99	99	N/A	A343203	99	N/A	A343203
%	87	85	87	N/A	A343203	85	N/A	A343203
%	65	80	84	N/A	A343203	82	N/A	A343203
%	77	78	79	N/A	A343203	77	N/A	A343203
%	103	104	100	N/A	A342388	117	N/A	A342388
	mg/kg mg/kg mg/kg mg/kg %  mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg % % % %	mg/kg     <10       mg/kg     <50	2021/08/26	2021/08/26	2021/08/26	2021/08/26	2021/08/26	

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

# AT1 BTEX AND F1-F4 IN SOIL (VIALS)

	AFA098		
	2021/08/26		
	14:15		
	644511-49-01		
UNITS	TP21-06-05	RDL	QC Batch
mg/kg	330	10	A342388
mg/kg	240	50	A342388
mg/kg	<50	50	A342388
mg/kg	Yes	N/A	A342388
•		_	
%	19	0.30	A342384
•		-	
mg/kg	<0.045	0.045	A340894
mg/kg	17	10	A340894
•		-	
mg/kg	<0.0050	0.0050	A343203
mg/kg	0.23	0.050	A343203
mg/kg	<0.010	0.010	A343203
mg/kg	<0.040	0.040	A343203
mg/kg	0.033	0.020	A343203
mg/kg	17	10	A343203
	•	<u>-</u>	-
%	100	N/A	A343203
%	89	N/A	A343203
%	82	N/A	A343203
%	79	N/A	A343203
	444	NI/A	A342388
%	111	N/A	A342300
mit	111	N/A	A342300
	mg/kg	2021/08/26   14:15   644511-49-01   UNITS   TP21-06-05   TP21-06-05	2021/08/26   14:15   644511-49-01   UNITS   TP21-06-05   RDL     mg/kg   330   10   mg/kg   240   50   mg/kg   40   50   mg/kg   7es   N/A     Mg/kg   17   10     Mg/kg   40.045   mg/kg   17   10     mg/kg   40.045   mg/kg   40.045   mg/kg   40.040   40.040   mg/kg   40.040



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

### PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		AFA064	AFA064		AFA071	AFA081		
Sampling Date		2021/08/26 08:36	2021/08/26 08:36		2021/08/26 09:18	2021/08/26 10:36		
COC Number		644511-58-01	644511-58-01		644511-58-01	644511-70-01		
	UNITS	TP21-171-02	TP21-171-02 Lab-Dup	RDL	TP21-169-02	TP21-10-03	RDL	QC Batch
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	N/A	N/A	N/A	N/A	<38 (1)	38	A457151
F3 (C16-C34 Hydrocarbons)	mg/kg	N/A	N/A	N/A	N/A	480	270	A453392
F3A (C16-C22)	mg/kg	N/A	N/A	N/A	N/A	<190 (1)	190	A457151
F3B (C22-C34)	mg/kg	N/A	N/A	N/A	N/A	480 (1)	190	A457151
F2% (BIC)	mg/kg	N/A	N/A	N/A	N/A	3.8	N/A	A453392
F4G-SG (Heavy Hydrocarbons-Grav.)	mg/kg	4000 (2)	3700 (2)	1100	3000	N/A	500	A345342
Surrogate Recovery (%)			•	•		•	•	
O-TERPHENYL (sur.)	%	N/A	N/A	N/A	N/A	107	N/A	A457151

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

- (1) Detection limits raised due to high moisture content, sample contains => 50% moisture.
- (2) Detection limits raised due to high moisture content, samples contain => 50% moisture.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

#### **GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	9.3°C
Package 3	5.7°C
Package 4	4.7°C
Package 5	6.0°C
Package 6	5.7°C
Package 7	5.7°C
Package 8	5.7°C
Package 9	5.3°C

Version #2: Report reissued to include results for F3A/F3B/Chromatogram on sample TP21-10-03/AFA081 as per client request received 2021/12/16.

#### HYDROCARBON RESEMBLANCE

The reported hydrocarbon resemblance was obtained by visual comparison of the sample chromatogram with a library of reference product chromatograms. Since variables such as the degree and type of weathering and the presence of non-petrogenic hydrocarbons cannot be duplicated in reference spectra, the resemblance information must be regarded as approximate and qualitative and as such, Bureau Veritas Laboratories can assume no liability for any conclusions drawn from these data.

Sample AFA081 [TP21-10-03]: The CCME F2-F4 chromatographic peak profile is consistent with biogenic organic material (e.g. peat). Chromatograms of biogenic organic material may contain peak patterns spanning the C18 to C50 range, but they are most commonly characterized by a profile of unevenly distributed sharp peaks between C28 and C34. The impacts are not consistent with a petroleum product or crude oil.

Results relate only to the items tested.



Bureau Veritas Job #: C164648 Report Date: 2021/12/24 GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

# **QUALITY ASSURANCE REPORT**

04/00								
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A341991	WLE	Method Blank	Moisture	2021/09/04	<0.30		%	
A341991	WLE	RPD	Moisture	2021/09/04	0.78		%	20
A342024	ARV	Method Blank	Moisture	2021/09/04	<0.30		%	
A342024	ARV	RPD [AFA073-01]	Moisture	2021/09/04	3.9		%	20
A342026	GG3	Matrix Spike [AFA064-01]	O-TERPHENYL (sur.)	2021/09/07		120	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		NC	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		NC	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		56 (1)	%	60 - 140
A342026	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/07		110	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07		107	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/07		100	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/07		99	%	60 - 140
A342026	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/07		113	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/07	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/07	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/07	<50		mg/kg	
A342026	GG3	RPD [AFA064-01]	F2 (C10-C16 Hydrocarbons)	2021/09/07	13		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/07	17		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/07	39		%	40
A342380	ARV	Method Blank	Moisture	2021/09/05	< 0.30		%	
A342380	ARV	RPD [AFA096-01]	Moisture	2021/09/05	18		%	20
A342384	ARV	Method Blank	Moisture	2021/09/05	< 0.30		%	
A342384	ARV	RPD	Moisture	2021/09/05	0.61		%	20
A342388	GG3	Matrix Spike [AFA091-01]	O-TERPHENYL (sur.)	2021/09/08		124	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/08		115	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08		107	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/08		106	%	60 - 140
A342388	GG3	Spiked Blank	O-TERPHENYL (sur.)	2021/09/08		95	%	60 - 140
		•	F2 (C10-C16 Hydrocarbons)	2021/09/08		103	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2021/09/08		95	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2021/09/08		92	%	60 - 140
A342388	GG3	Method Blank	O-TERPHENYL (sur.)	2021/09/08		112	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/09/08	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2021/09/08	<50		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2021/09/08	<50		mg/kg	
A342388	GG3	RPD [AFA091-01]	F2 (C10-C16 Hydrocarbons)	2021/09/08	NC		%	40
			F3 (C16-C34 Hydrocarbons)	2021/09/08	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2021/09/08	NC		%	40
A343194	PKL	Matrix Spike	1,4-Difluorobenzene (sur.)	2021/09/08		91	%	50 - 140
		,	4-Bromofluorobenzene (sur.)	2021/09/08		89	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		73	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		79	%	50 - 140
			Benzene	2021/09/08		77	%	50 - 140
			Toluene	2021/09/08		91	%	50 - 140
			Ethylbenzene	2021/09/08		93	%	50 - 140
			m & p-Xylene	2021/09/08		98	%	50 - 140
			o-Xylene	2021/09/08		97	%	50 - 140
			F1 (C6-C10)	2021/09/08		97	%	60 - 140
A343194	PKL	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/08		100	%	50 - 140
5 .5154		opca biaim	4-Bromofluorobenzene (sur.)	2021/09/08		97	%	50 - 140
			i bi bilionadi obcilecile (sui.)	2021/03/00		<i>31</i>	/0	20 - T40



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

#### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			D4-1,2-Dichloroethane (sur.)	2021/09/08		94	%	50 - 140
			Benzene	2021/09/08		79	%	60 - 130
			Toluene	2021/09/08		85	%	60 - 130
			Ethylbenzene	2021/09/08		79	%	60 - 130
			m & p-Xylene	2021/09/08		80	%	60 - 130
			o-Xylene	2021/09/08		79	%	60 - 130
			F1 (C6-C10)	2021/09/08		86	%	60 - 140
A343194	PKL	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/08		93	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		88	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		74	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		84	%	50 - 140
			Benzene	2021/09/08	<0.0050		mg/kg	
			Toluene	2021/09/08	<0.050		mg/kg	
			Ethylbenzene	2021/09/08	<0.010		mg/kg	
			m & p-Xylene	2021/09/08	<0.040		mg/kg	
			o-Xylene	2021/09/08	<0.020		mg/kg	
			F1 (C6-C10)	2021/09/08	<10		mg/kg	
A343194	PKL	RPD	Benzene	2021/09/08	NC		%	50
			Toluene	2021/09/08	NC		%	50
			Ethylbenzene	2021/09/08	NC		%	50
			m & p-Xylene	2021/09/08	NC		%	50
			o-Xylene	2021/09/08	NC		%	50
			F1 (C6-C10)	2021/09/08	NC		%	30
343203	PKL	Matrix Spike [AFA076-02]	1,4-Difluorobenzene (sur.)	2021/09/08		99	%	50 - 140
			4-Bromofluorobenzene (sur.)	2021/09/08		90	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		91	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		78	%	50 - 140
			Benzene	2021/09/08		80	%	50 - 140
			Toluene	2021/09/08		87	%	50 - 140
			Ethylbenzene	2021/09/08		88	%	50 - 140
			m & p-Xylene	2021/09/08		92	%	50 - 140
			o-Xylene	2021/09/08		94	%	50 - 140
			F1 (C6-C10)	2021/09/08		99	%	60 - 140
A343203	PKL	Spiked Blank	1,4-Difluorobenzene (sur.)	2021/09/08		113	%	50 - 140
		•	4-Bromofluorobenzene (sur.)	2021/09/08		99	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		76	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		92	%	50 - 140
			Benzene	2021/09/08		75	%	60 - 130
			Toluene	2021/09/08		84	%	60 - 130
			Ethylbenzene	2021/09/08		77	%	60 - 130
			m & p-Xylene	2021/09/08		83	%	60 - 130
			o-Xylene	2021/09/08		78	%	60 - 130
			F1 (C6-C10)	2021/09/08		99	%	60 - 140
A343203	PKL	Method Blank	1,4-Difluorobenzene (sur.)	2021/09/08		101	%	50 - 140
3.2200	=		4-Bromofluorobenzene (sur.)	2021/09/08		86	%	50 - 140
			D10-o-Xylene (sur.)	2021/09/08		68	%	50 - 140
			D4-1,2-Dichloroethane (sur.)	2021/09/08		79	%	50 - 140
			Benzene	2021/09/08	<0.0050	,,	mg/kg	30 - 140
			Toluene	2021/09/08	<0.050		mg/kg	
			Ethylbenzene	2021/09/08	<0.030			
			m & p-Xylene	2021/09/08	<0.010		mg/kg mg/kg	



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

#### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	OC Tuno	Parameter	Data Analyzad	Value	Doggvory	LINITC	OC Limits
DatCII	Init	QC Type	o-Xylene	Date Analyzed 2021/09/08	Value <0.020	Recovery	UNITS mg/kg	QC Limits
			•					
			F1 (C6-C10)	2021/09/08	<10		mg/kg	
A343203	PKL	RPD [AFA076-02]	Benzene	2021/09/08	4.9		%	50
			Toluene	2021/09/08	NC		%	50
			Ethylbenzene	2021/09/08	2.5		%	50
			m & p-Xylene	2021/09/08	4.1		%	50
			o-Xylene	2021/09/08	18		%	50
			F1 (C6-C10)	2021/09/08	5.4		%	30
A345342	JB9	Spiked Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/09		109	%	60 - 140
A345342	JB9	Method Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/09	<500		mg/kg	
A345342	JB9	RPD [AFA064-01]	F4G-SG (Heavy Hydrocarbons-Grav.)	2021/09/09	7.1 (2)		%	40
A457151	MHF	Spiked Blank	O-TERPHENYL (sur.)	2021/08/24		106	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/08/24		108	%	60 - 140
			F3A (C16-C22)	2021/08/24		109	%	60 - 140
			F3B (C22-C34)	2021/08/24		112	%	60 - 140
A457151	MHF	Method Blank	O-TERPHENYL (sur.)	2021/08/24		103	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2021/08/24	<10		mg/kg	
			F3A (C16-C22)	2021/08/24	<50		mg/kg	
			F3B (C22-C34)	2021/08/24	<50		mg/kg	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

- (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
- (2) Detection limits raised due to high moisture content, samples contain => 50% moisture.



Client Project #: 20368099-6000-1001

Site Location: Camp Farewell and Unipkat I-22, Northwest

Territories

Your P.O. #: 20368099-7000-1001

Sampler Initials: .

#### **VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by:

Gita Pokhrel, Laboratory Supervisor

Janet Gao, B.Sc., QP, Supervisor, Organics

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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NA	axyam	1
A	Bureau Veritas Group Compan	y

# ADDITIONAL COOLER TEMPERATURE RECORD

CHAIN-OF-CUSTODY RECORD

CHAIN OF CUSTODY#	COOLER OBSERV	/ATIONS:						MAX	MAXXAM JOB#: C164648								
age	CUSTODY SEAL	YES	NO	COOLER II	)	and the last of th	-	lo	USTODY SEAL	YES	NO COOLER ID						
of	PRESENT	V	-				1	lF	PRESENT								
age	INTACT	V		TEMP	1	1	1	l h	INTACT	1		TEMP		11	0		
of	ICE PRESENT	V			1	2	3	10	CE PRESENT	V		1	1	2	3		
age	CUSTODY SEAL	YES	NO	COOLER II				C	USTODY SEAL	YES	NO	COOLER I	D				
of	PRESENT	V					T .	1 1	PRESENT						I		
age	INTACT	V		TEMP	1	0			INTACT			TEMP					
of	ICE PRESENT	V			1	2	3	10	CE PRESENT		GIM		1	2	3		
age	CUSTODY SEAL	YES	NO	COOLER II	)		100	C	USTODY SEAL	YES	NO	COOLER I	D				
of	PRESENT	V.						l	PRESENT						1		
age	INTACT	V		TEMP	0	0	0		INTACT			TEMP					
of	ICE PRESENT	V			1	2	3		CE PRESENT		1000		1	2	3		
age	CUSTODY SEAL	YES	NO	COOLER II	)	of the second		C	USTODY SEAL	YES	NO	COOLER I	D				
of	PRESENT	V			a		,		PRESENT								
age	INTACT	V		TEMP	1	2	1	IL	INTACT			TEMP					
of	ICE PRESENT	V			1	. 2	3		CE PRESENT				1	2	3		
age	CUSTODY SEAL	YES	NO	COOLER II	)			C	USTODY SEAL	YES	NO	COOLER I	D				
of	PRESENT	V			900		Descri		PRESENT								
age	INTACT	V		TEMP	0	1	2		INTACT			TEMP					
of	ICE PRESENT	1			1	2	3	8 6	CE PRESENT				1	- 2	3		
age	CUSTODY SEAL	YES	NO	COOLER II	)			C	USTODY SEAL	YES	NO	COOLER I	D	-	-		
of	PRESENT	0			4	l)	1.	I	PRESENT								
age	INTACT	V		TEMP	10.00	4	4	-	INTACT			TEMP					
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age	CUSTODY SEAL	YES	NO	COOLER II	,		-	C	USTODY SEAL	YES	NO	COOLER		-			
of	PRESENT	V			10		_	l H	PRESENT			-					
of of	INTACT	V		TEMP	0	0	0	-	INTACT			TEMP	1	2	3		
age	ICE PRESENT CUSTODY SEAL	V	- NO	COOLER ID	1		3	l los	USTODY SEAL	YES	NO	COOLER I	The second second	2	3		
of	PRESENT	YES	NO	COOLER IL					PRESENT	153	NO	COOLER		r			
age	INTACT	V		TEMP	-1	j	-1	l  -	INTACT	-	-	TEMP					
of	ICE PRESENT	V	_	ILIVIP	1	2	3	-	E PRESENT	_	-	1 CIAIL	1	2	3		
age	CUSTODY SEAL	YES	NO	COOLER II	,				USTODY SEAL	YES	NO	COOLER					
of	PRESENT	123		COOLENIA				F	PRESENT		110				9		
age	INTACT	1	_	TEMP	1	0	<i>←</i> 1	lŀ	INTACT		_	TEMP					
of	ICE PRESENT	1			1	2	3	10	E PRESENT		·		1	2	3		
age	CUSTODY SEAL	YES	NO	COOLER ID				I I	USTODY SEAL	YES	NO	COOLER	D	4			
of	PRESENT	/	-		- 11			F	PRESENT								
age	INTACT	V		TEMP	2_	1	1	-	INTACT			TEMP					
of	ICE PRESENT	V			1	2	3	ī	E PRESENT	-	-		1	2	3		
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	Ju.				4	W W	Kib		1	74 lo	01.		1,0	100			

· Alexander



# ADDITIONAL COOLER TEMPERATURE RECORD

CHAIN-OF-CUSTODY RECORD

CHAIN OF CUSTODY #	* Some	COC	15	were	2 4	OAK	60	MAXXAM JOB#: C164	46	18				
33	CUSTODY SEAL		L NO	COOLER	10	-			-		- Indian			
_/ tc	PRESENT	1	-	- COULT	T	_	1	CUSTODY SEAL	YES	NO	COOLER	D		
2	INTACT	1	-	TEMP	5	4	15	PRESENT	-	-	1			
of	ICE PRESENT	17	-	1.0	3	1 -1	3	ICE PRESENT	-	-	TEMP		1	
=	CUSTODY SEAL	YES	NO	COOLER	D			CUSTODY SEAL	YES	NO	5001501	1	2	]
of	PRESENT	17	_	1	1	1 .	1	PRESENT	162	NO	COOLER	D .		
3	INTACT	17		TEMP	9	10	9	INTACT	-		TEMP	1		
Oř	ICE PRESENT	1		1	1	2	3	ICE PRESENT	-		TEIVIP			
-	CUSTODY SEAL	YES	NO	COOLER	D			CUSTODY SEAL	YES	NO	COOLERI	1	2	3
1c	FRESENT	1/			_	1.0	T	PRESENT	1123	NO	COOLEKT		1	7
	INTACT	1		TEMP	6	4	17	NTACT	-	-	TELED			i
of	ICE PRESENT	1		1	1	2	1 3	ICE PRESENT	-		TEMP		2	1 .
	CUSTODY SEAL	YES	NO	COOLERII	0			CUSTODY SEAL	YES	NO	COOLERII	1	- 4	3
	PRESENT	1/				T	T	PRESENT	-	110	COOLENI			7
	INTACT	1		TEMP	4	11	10	INTACT	-		TEMP			
of	ICE PRESENT	1/			7	14	0	ICE PRESENT	-	-	LEIVIE	,	2	
	CUSTOD Y SEAL	(E5	NO	COULER :			-	CUSTODY SEAL	YES	NO	COOLER I		-	. 3
ot	PREJEW?	1/				7		PRESENT	142	11.0	COOLENIE		-	-
	IN ACT	1/		TEMP	4	17	171	T_A_T	-	_	TEMP			
0;	ICE PRESENT	1/			1	2	3	ICE PRESENT	-		1 CIVIE	190	2	3
	CUSTODY SEAL	YES	NO	COOLERIE	)		-	CUSTODY SEAL	YES	NO	COOLERIE		-	1 3
1c	PAGSENT	1/1			and the same		1	PHESENT .	-		COSCENIE			7
-	INTACT	1./		TEMP	3	7	7	INTACT		-	TEMP			
0	ICE PRESENT	1/			1	2	3	ICE PRESENT	-		12.00	1	2	3
	CUSTODY SEAL	YES	NO	COOLERID		den		CUSTODY SEAL	YES	NO	COOLERIC		-	
01	PREJEWI	1/			and a second second			PRESENT		20.50			W. H. C. S.	
a.f	INT ACT	1/		TEMP	4	6	7	INTACT			TEMP	- 1	- 7	
of	ICE PRESENT			9	1	2	/3	ICE PRESENT		_		,	2	3
25	CUSTODY SEAL	YE5	NO	COOLERID		-		CUSTODY SEAL	YES	NO	COOLER ID			-
or	PRESENT	1/						PRESENT		a Telephone		-	4.1	
ot	-NTACT	1/1		TEMP	6	4,	7	INTACT			TEMP	- 1		
of	ICE PRESENT	11			1	1/2	3	ICE PRESENT				1	2	3
of	CUSTODY SEAL	YES	CN	נטטננא ם				CUSTOD / SEAL	YES	NO	COOLER ID		-	-
	PHEAENT	1/			4	1	ai l	29636NT						-
of	INT4CT	1/1		TEMP	6	6	4	INTACT			TEMP			
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of	CUSTODY SEAL	YES	NO	COOLER ID				CUSTODY SEAL	YES .	NO	COOLER ID		-	
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BUREAU	,	Bureau Veritas Laboratories 4000 19st N.E. Calgary, Alberta Cana	da T2E 6P8 Tel:(	(403) 291-307	7 Toll-free:800-5	663-6266 Fax	(403)	291-9468	www.bvlabs	s.com		ř					)	CHAIN (	OF CUSTODY RECORD	Page of
		INVOICE TO:				REPOR	RT TO:							PROJECT	INFORMA	TION:			Laboratory Use	Only:
Company Name	#254 GOLD	ER ASSOCIATES LTD.	Co	ompany Name:	#6340 GC	DLDER AS	SOC	IATES	LTD.			Quotation#		C0048	0				BV Labs Job #:	Bottle Order #:
Attention:	ACCOUNTS	PAYABLE	200	tention:	Aurelie Bel	lavance						P.O. #:		20368	099-7000	-1001			Cil 11/ 127	
Address:	2800, 700 -2r	IN THE PARTY OF TH	Ade	ddress:	2800, 700	-2nd Street	t SW					Project:		20368	099-6000	-1001			C164648	644511
	CALGARY A	- 1-1			CALGARY	AB T2P 2	W2					Project Nam	ie:	-	***************************************				COC #:	Project Manager:
Tel: Email:		00 Ext: 1167 Fax: (403) 299-56 intspayableinvoices@golder.com	Tel		(403) 299-		.com	Fax:			-	Site #: Sampled By	ŧ						C#644511-58-01	Carmen McKay
Regulatory C	iteria:			Special In	nstructions			1		ANA	ALYSIS R	EQUESTED	(PLEASE	BE SPEC	IFIC)				Turnaround Time (TAT) Re	quired:
Sampl		KEPT CÔŒL (<10°C) FROM TIME OF SÂN Sancte (Location) identification	shell shell pacily PRINGUNTLD	dare	9	Matrix	Metals Field Filtered ? ( Y / N )	A∓1 Regulated Metals - Soils	전라 BTEX and F1-F4 in Soil (Vials)	BIC SCALE Analysis (F2/F2+F3B) in soil	Sulphate / nitrate	Barium on ICP using Fusion Extraction (True Barium)	CCME BTEX and F1-F2 in Water	Routine Water	Regulated Metals (CCME/AT1) - Dissolved	PAH in Water by GC/MS	Limited Sample	(will be a Standard Please in details Job Spe Date Re	ofirmation Number:	oontact your Project Manager fo
1 N/A	1	TP21-171-62	21/08,	126 8	7:36	SOLL			5									3		
2		TP21-170-02	21/08		9.06	1			V									3		
3		TP21-169-01	1		9:16				1/									3		
4	<del>                                     </del>	TPZ1-169-02			9:18		1		1									7	Received in Yel	lowknife
5		TP21-168-02			9:25		T		V			1						3	By: J.MeRA	KAV
6		TPZ1-167-01			9:35				V									3	AUG 312	
7		TPZ1-167-03		(	7-41				V									3	Ste AC	

RECEIVED BY: (Signature/Print)

Dawit

\*UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BY LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT 11 IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. \*\* ALL SAMPLES ARE HELD FOR 50 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

03

Date: (YY/MM/DD)

10

\* RELINGUISHED BY: (Signature/Print)

Cellavince

10:20

Time

Bureau Veritas Canada (2019) Inc.

Date: (YY/MM/DD)

2021/09/01/15/20

Custody Seal Intact on Cooler?

No

Yellow: Client

Yes

White: BV Labs

3

3

Time Sensitive

# jars used and

not submitted

Temp:

Temperature (°C) on Receipt

SEL ACTR

Laboratory Use Only

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Bureau Veritas Laboratories 4000 19st N E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free 800-563-6266 Fax:(403) 291-9468 www.bvlabs.com

#### CHAIN OF CUSTODY RECORD

Page of 2

VERITAS																			
	v.	INVOICE TO:				REPORT TO:						1	PROJECT	INFORMA	TION:			Laboratory Use	Only:
Company Name:		R ASSOCIATES LTD.		Company Na	#6340 GO	LDER ASSOC	IATES L	TD.		Q	uotation#:		C00480	)				BV Labs Job #:	Bottle Order #:
Attention:	ACCOUNTS P			Attention:	Aurelie Bela					P.	O. #:			99-7000	-			C16 4648	
Address:	2800, 700 -2nd			Address:	The second secon	2nd Street SW				P	roject:		203680	99-6000	-1001				644511
	CALGARY AB	A STATE OF THE STA	.000	-		AB T2P 2W2				P	roject Name:							COC #:	Project Manager:
Tel:		Ext: 1167 Fax: (403) 299-		Tel:	(403) 299-5	e@golder.com	_ Fax:				te #:								Carmen McKay
Email:	Canadaaccoun	spayable invoices@goider.com		Email:		e@goider.com				S	ampled By:							C#644511-70-01	
Regulatory Cr	iteria:		-		ial Instructions				ANA	LYSIS RE	QUESTED (	PLEASE I	BE SPECII	IC)				Turnaround Time (TAT) Re	equired:
ITA ATI			em	aul:	Shelldan	agolder.	com	_						F				Please provide advance notice for r	rush projects
				. (	shelldan codo:	Î	Soils	in Soil			ICP using Fusion (True Barium)	.⊑		E/A1			,	Standard) TAT: plied if Rush TAT is not specified):	
CCW	E		Fa	cill ty	(000):	tered ? ( Y / N )	<u>v</u>	.⊑			Fug (m)	-F2		CME	GC/MS		The second second	AT = 5-7 Working days for most tests	
Other	r		L	1175	9544	2 P	leta	<u>+</u>	ysis		Sari	F		0)	90		Please note details	e: Standard TAT for certain tests are > 5 days -	contact your Project Manager for
				1,00	12-1	tere	2 0	DE T	Anal in s	rate	Le Li	and	Ę.	stals	. by	<u>e</u>	Job Speci	fic Rush TAT (if applies to entire submiss	ion)
						<u>E</u>	Regulated Metals	AT4 BTEX and F1-F4 (Vials)	BIC SCALE Analysis (F2/F2+F3B) in soil	Sulphate / nitrate	9 E	CCME BTEX and F1-F2 in Water	Routine Water	Regulated Metals (CCME/AT1) - Dissolved	PAH in Water by	Sample	Date Requ	ired:	The second second second
	AMPLES MUST BE K	EPT COOL ( ≤ 10°C ) FROM TIME OF S	AMPLING UN	ITII DELIVERY	TO BV LARS	Fig.	Segi	3TE	CA 2+F	ate	Barium on I Extraction (	B	ЭΕ	atec	3	o o	Rush Confir	nation Number:	(call lab for #)
						Metals Metals	<u> </u>	Tals /als	IC S	hdh	ariun	CM	outin	egul	Ŧ	Limited	# of Bottles	Comment	
Sampl	e Barcode Label	Sample (Location) Identification	Da	ate Sampled	Time Sampled	Matrix Ž	8	* =	ш <u>г</u>	Ś	மீயி	ŌŚ	ŭ	87	Δ.	تَ		Conment	5
1 NA		TP21-11-06	115	108/26	10:24	SOIL		1									3		
2		TPH DUP-DE		1	10: 24												3	w <sup>2</sup>	
3		TP21-10-01			10:35			V									3	and the second second	
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4		TP21-10-03		-	10:36			V									3		177
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6		TP21-09-02			13:18			1/							4		3	AUG 31	2021
7		TP21- 09-05	5		13:23												3	CCL AT	CIK
8		TP21-08-0			13:31			.1									3	Temp:	/
9	/	TP21-08-04			13:32			V									3		
10	J	TDZ1-08-05	_	1	13:35	V		, T								-	5		
100	RELINQUISHED BY:		e: (YY/MM/DI	D) Time		RECEIVED BY	(Signatur	re/Print)			ate: (YY/MN	MDD)	Time	# jars	used and		5	Laboratory Use Only	
Ceel			10817			awit 6					Ulor		151	-	submitted	Time S	Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
										-	1107	101	- 3	7				See ACTR	Yes No
* UNLESS OTHERW WWW.BVLABS.CO	VISE AGREED TO IN WRI	TING, WORK SUBMITTED ON THIS CHAIN OF	CUSTODY IS S	SUBJECT TO BY I	ABS' STANDARD TERMS	AND CONDITIONS.	SIGNING OF	F THIS CHAIR	OF CUSTOE	Y DOCUM	ENT IS ACKNO	OWLEDGME	ENT AND A	CEPTANCE	OF OUR TER	MS WHICH	ARE AVAILA	BLE FOR VIEWING AT	Thite: BV Labs Yellow: Client
IT IS THE RESPO		QUISHER TO ENSURE THE ACCURACY OF T	HE CHAIN OF C	CUSTODY RECOR	D. AN INCOMPLETE CHA	IN OF CUSTODY MA	Y RESULT IN	N ANALYTICA	AL TAT DELA	YS.									

Bureau Veritas Canada (2019) Inc.

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Bureau Veritas Laboratories 4000 19st N.E., Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free:800-563-6266 Fax.(403) 291-9468 www.bvlabs.com

#### CHAIN OF CUSTODY RECORD

Page o	f
9,3	3

	INVOICE TO: REPORT TO:													PROJECT	INFORMA	TION:			Laboratory Use Only:			
Company Name	#254 GOLD	ER ASSOCIATES LTD.		Company Na	ame: #6340 GO	LDER ASS	OCIA	TES LT	ΓD.			Quotation#		C0048	0				BV Labs Job #:	Bottle Order #:		
Attention:	ACCOUNTS	PAYABLE		Attention:	Aurelie Bela	avance						P.O. #:		203680	99-7000	0-1001			C164648			
Address:	2800, 700 -2	nd Street SW		Address:	2800, 700 -	2nd Street S	sw					Project:		203680	99-6000	0-1001			C104648	644511		
	CALGARY A	B T2P 2W2		- I riddious.	CALGARY	AB T2P 2W	12					Project Name							COC #:	Project Manager:		
Tel:	(905) 567-61	00 Ext: 1167 Fax: (403) 29	9-5606	Tel:	(403) 299-5	600	-	Fax:				Site #.	z.									
Email:	canadaaccou	intspayableinvoices@golder.co		Email:	abellavanc	e@golder.c		rax				Sampled By:							C#644511-49-01	Carmen McKay		
			1	1													-	_				
Regulatory Cr	riteria:		_		ial Instructions		-			ANA	ALYSIS R	EQUESTED	(PLEASE	BE SPECI	FIC)				Turnaround Time (TAT) R	MA-ALALAMANI		
I ATI			em.	cevl.				(0							£		1	請求整	Please provide advance notice for	rush projects		
							~	Soils	Soil			Fusion um)	.⊆		IA.	1 1			Standard) TAT: plied if Rush TAT is not specified):			
CCM	E		SN	elldo	100000	Q[.(ON	7					ις E			ME	GC/MS			FAT = 5-7 Working days for most tests			
				411	1. 6	(0.	2	tals	F1-F4	Sis =		ariu	7		20	C		Please note	e: Standard TAT for certain tests are > 5 days	- contact your Project Manager for		
Other	r		Fac	elli 7	code:		eg eg	Me	E	sol	<u>a</u>	usir Ba	Б		SE .	5		details				
				413	regold		ite	per	pue	An (	itra	G P	ā	ē	leta	9	eld		fic Rush TAT (if applies to entire submis-	sion)		
							P	ngal	×	385	u/	20	É	Nat	2 p	Vate	au	Date Requ				
.s	AMPLES MUST BE	KEPT COOL ( < 10°C ) FROM TIME OF	F SAMPLING UN	TII DELIVERY	TO BV LARS		Fie	Regulated Metals	AT4 BTEX and F (Vials)	BIC SCALE Analysis (F2/F2+F3B) in soil	Sulphate / nitrate	Barium on ICP using Fus Extraction (True Barium)	CCME BTEX and F1-F2 Water	Routine Water	Regulated Metals (CCME/AT1) - Dissolved	in Water by	Limited Sample	Rush Confin	mation Number:	(call lab for #)		
		ALEXANDER DE LA LINE DE		XIII THE			etals		A SE	C S 2/F	hdi	ariun	ater	ifi	egu	PAH	nite	of Bottles		No open control of the control of th		
Sample	Barcode Label	Sample (Location) Identification	on Da	ate Sampled	Time Sampled	Matrix	Me	K	23	E F	S	m m	ວ≥	8	8 7	P	Ė		Commen	lS .		
1 N/A		DUP-E	E al	SAUGA!	13:35	SOIL			V									3				
2		1021-07-01			13:49				V									3				
3		TP21-07-0	3	1	13:50				1									2	Received in Y			
4				- 1			$\top$		1									3	By: J.Mer	Min		
1		MA - 07-0	6		14:00	-			V										Q,	8:35 AL		
5		TPA - 06-0	2		14:12				$\sqrt{}$									3	AUG 31	2021		
6		TP21-06-0	3		14:13				V									3	Set 1	fera		
7		THE DUP-F	F		14:13				V									3	Temp:	<i>! !</i>		
8		TPH - 06-0	110	/	14:15	1			1									3	*	,		
9		TOPE				1	7		*									3				
	/			/			4		2													
10		TO		V		V			St.	-								3				
• R	RELINQUISHED BY		Date: (YY/MM/DD	) Time		RECEIVED	BY: (S	ignature/	(Print)		1	Date: (YY/M	M/DD)	Time	# jar	s used and			Laboratory Use Only			
Cee	eld	A. Bellavance Z	1108126	16:0	a Dun D	awit	Ki	bre	ab			ozilos		15:0	not	submitted	Time S	ensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?		
					1				6			-/10	1.0	1 -					SEL ACTR	Yes No		
* UNLESS OTHERWIS	SE AGREED TO IN WR	ITING, WORK SUBMITTED ON THIS CHAIN O	OF CUSTODY IS SU	IBJECT TO BV LA	ABS' STANDARD TERMS	AND CONDITIO	NS. SIG	NING OF T	THIS CHAIN	OF CUSTO	DY DOCUM	ENT IS ACKN	IOWLEDGM	ENT AND A	CCEPTANCE	OF OUR TER	RMS WHICH	ARE AVAILA	BLE FOR VIEWING AT			
* IT IS THE RESPONS	BIBILITY OF THE RELI	DNS. NQUISHER TO ENSURE THE ACCURACY OF	THE CHAIN OF CU	STODY RECORE	D. AN INCOMPLETE CHA	IN OF CUSTODY	MAY RE	ESULT IN A	NALYTICA	L TAT DELA	vys.								- '	White: BV Labs Yellow: Client		
		AFTER SAMPLE RECEIPT, FOR SPECIAL RE																		ļ		

Bureau Veritas Canada (2019) Inc.

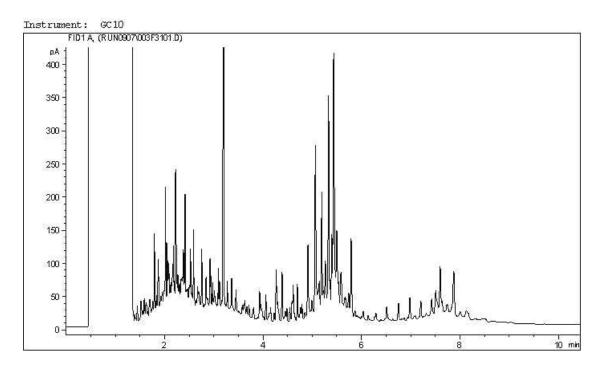
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

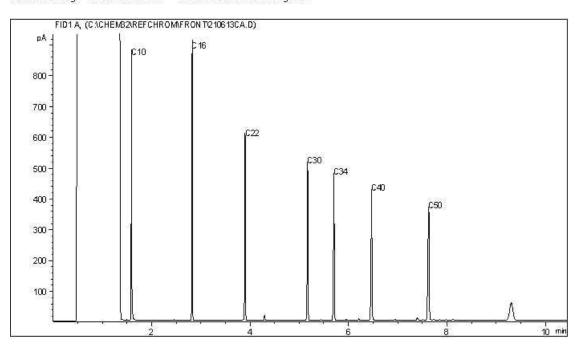
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-171-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

Bureau Veritas Job #: C164648 Report Date: 2021/12/24

Bureau Veritas Sample: AFA064 Lab-Dup

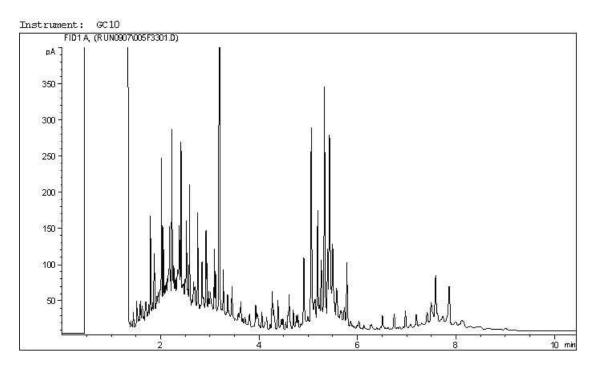
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

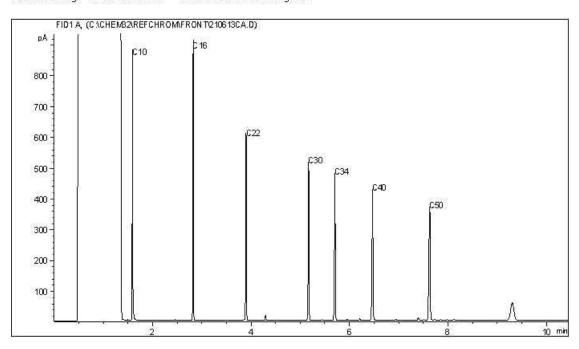
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-171-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	c20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

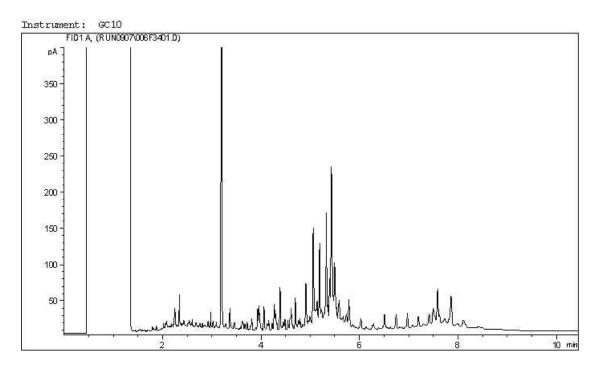
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

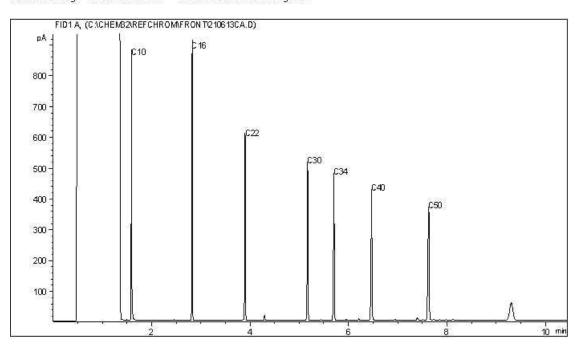
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-170-02

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

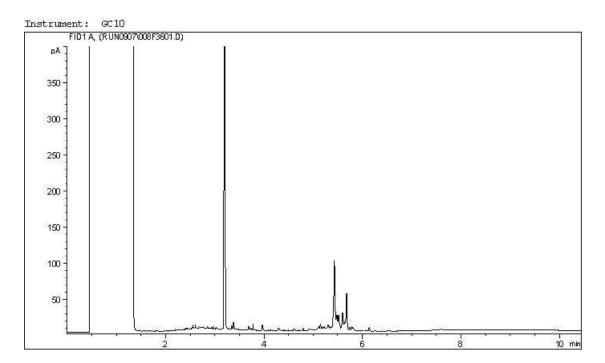
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

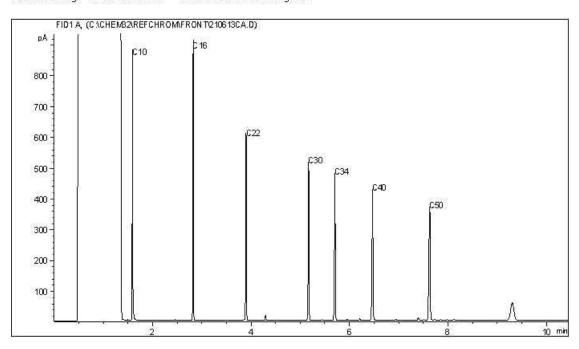
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-169-01

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

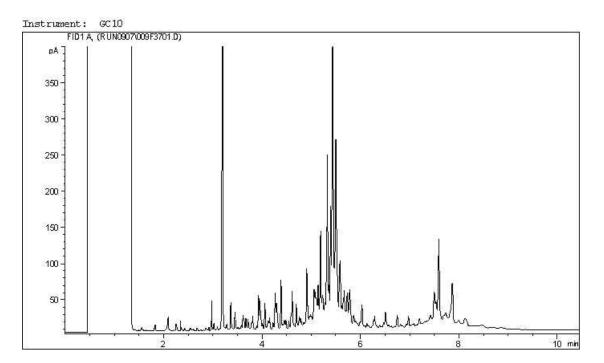
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

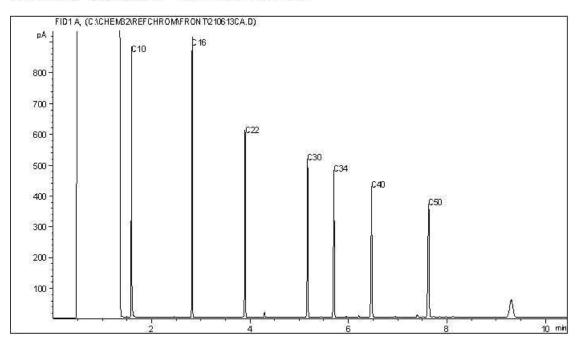
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-169-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

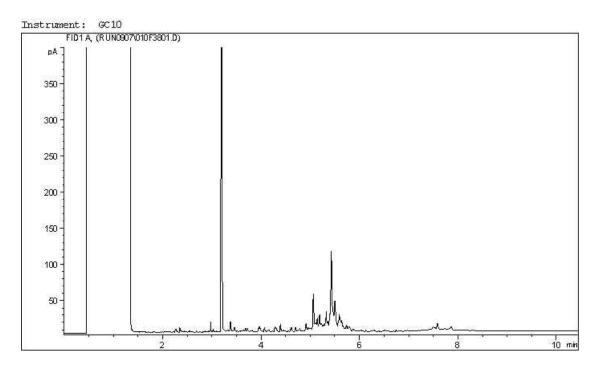
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Client Project #: 20368099-6000-1001

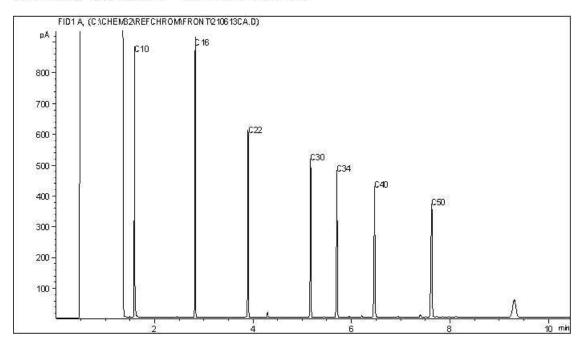
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-168-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

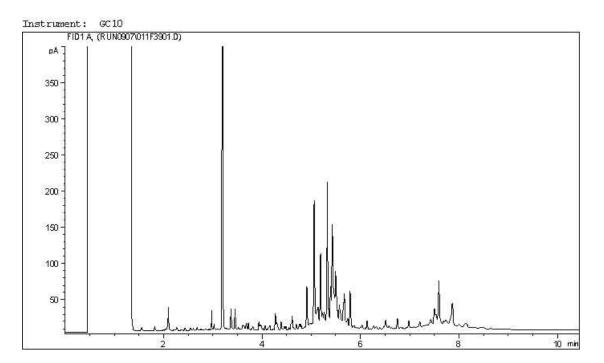
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

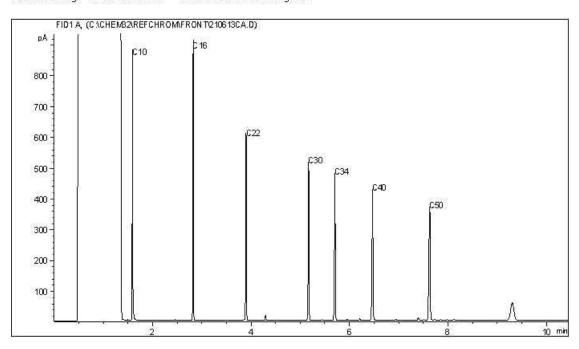
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-167-01

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

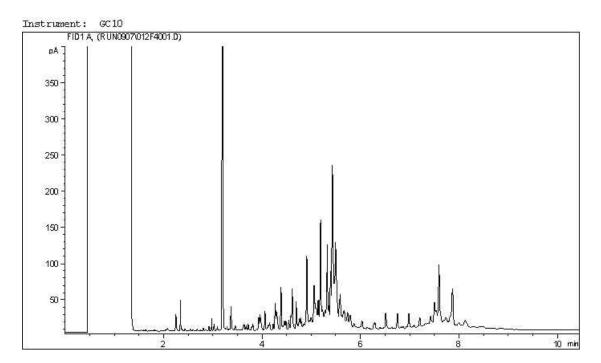
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

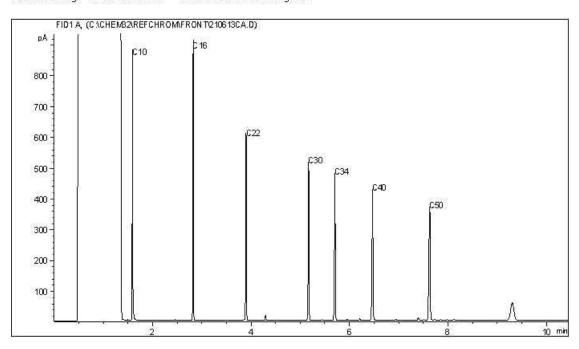
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-167-03

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

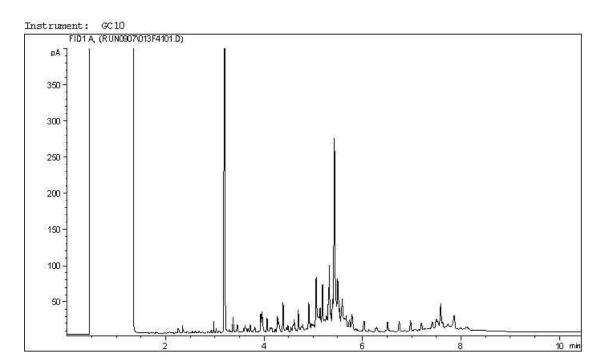
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

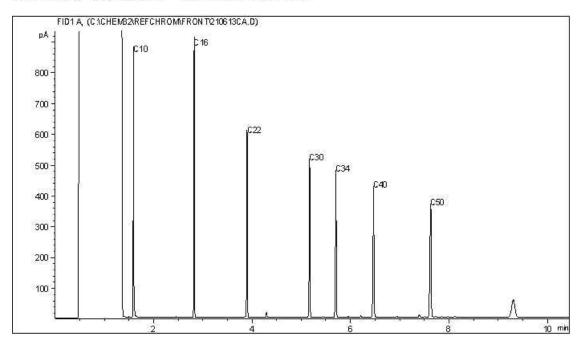
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-166-02

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

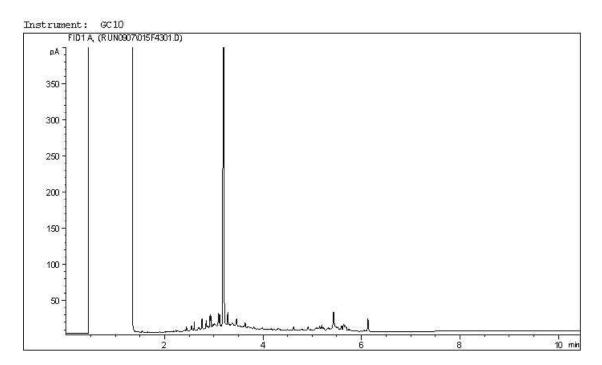
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

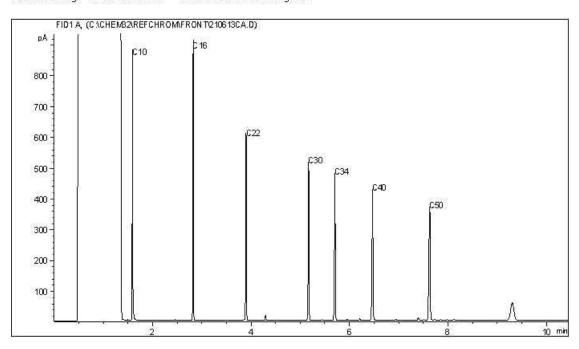
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-11-01

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

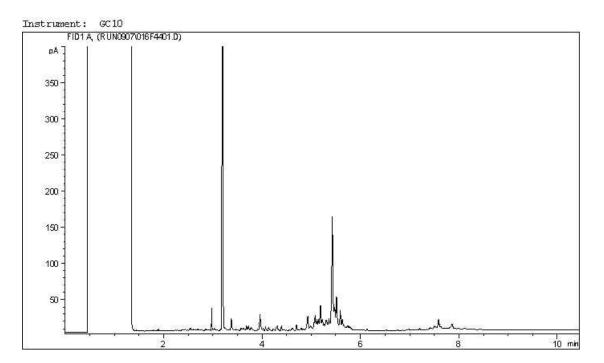
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

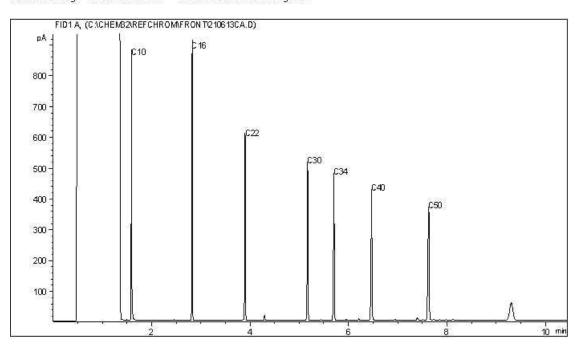
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-11-03

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

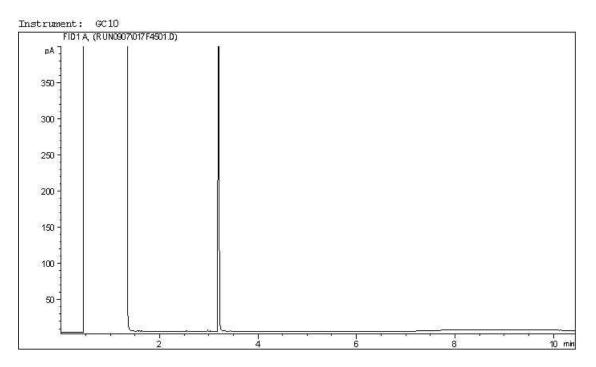
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

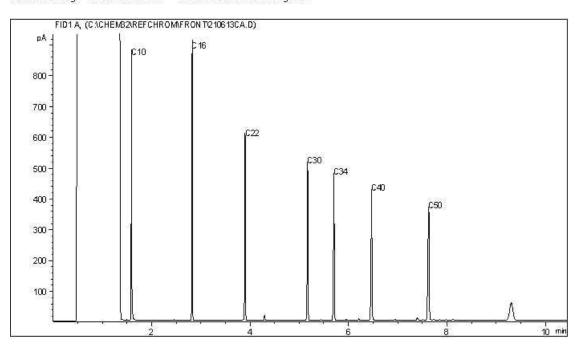
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-11-06

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

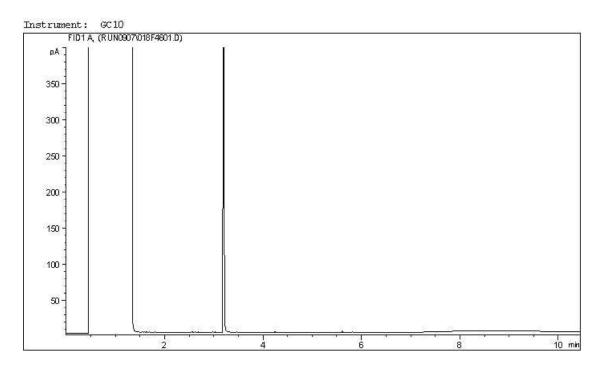
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

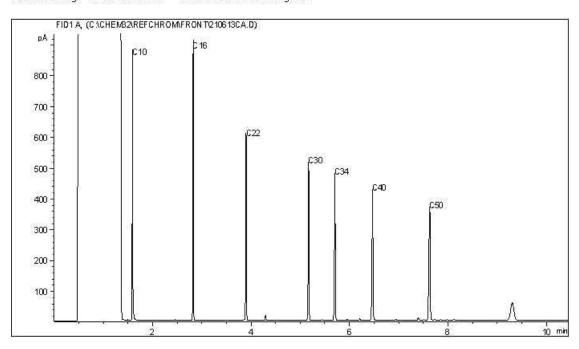
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-DD

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

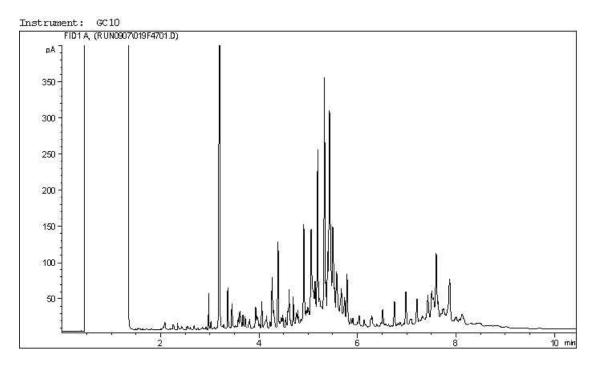
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

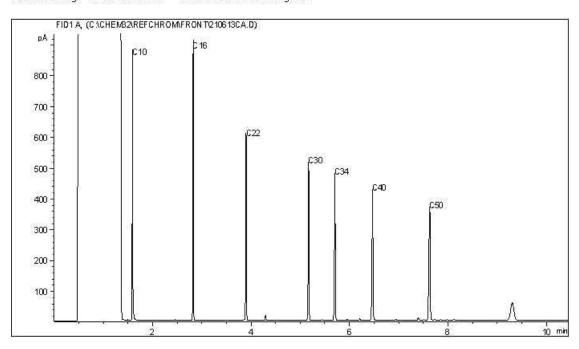
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-10-01

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

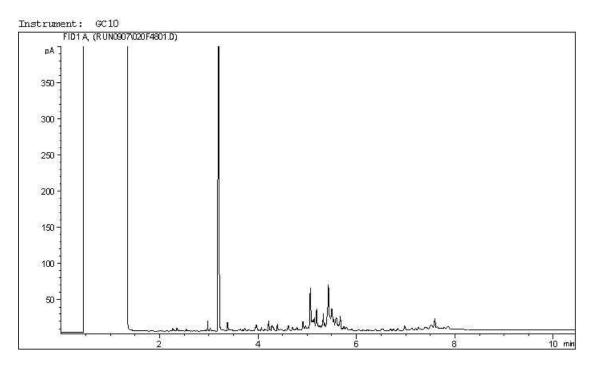
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

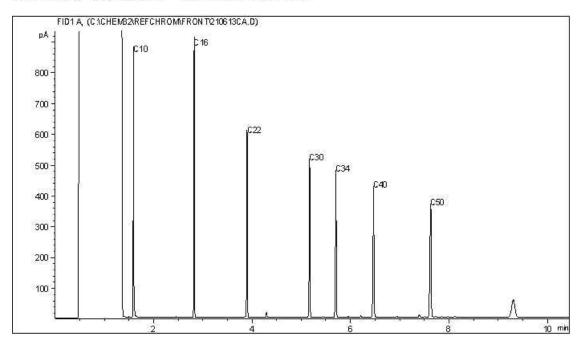
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-10-03

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

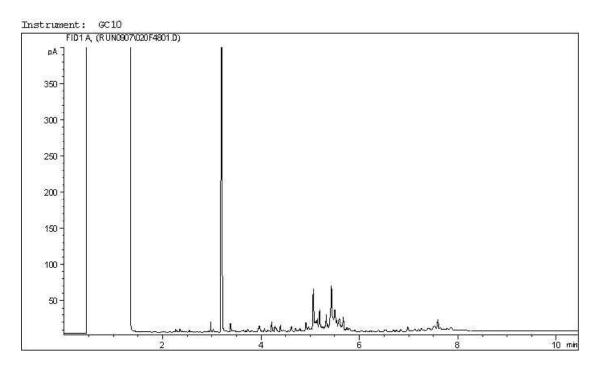
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

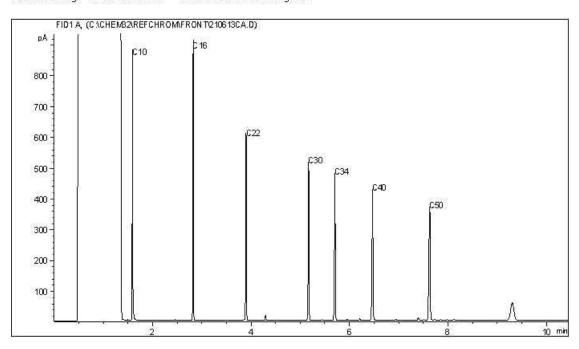
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-10-03

#### CCME Hydrocarbons (F2-F4)+F3A/B in soil Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

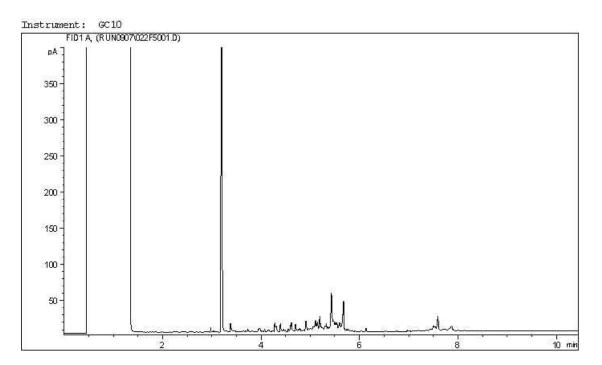
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Client Project #: 20368099-6000-1001

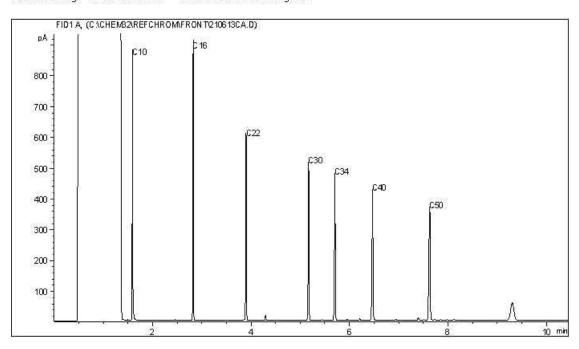
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-10-04

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

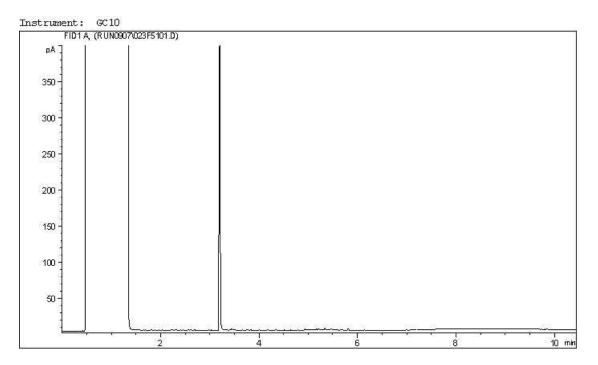
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

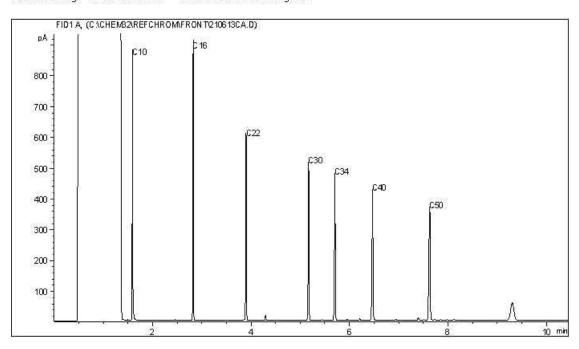
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-09-02

#### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

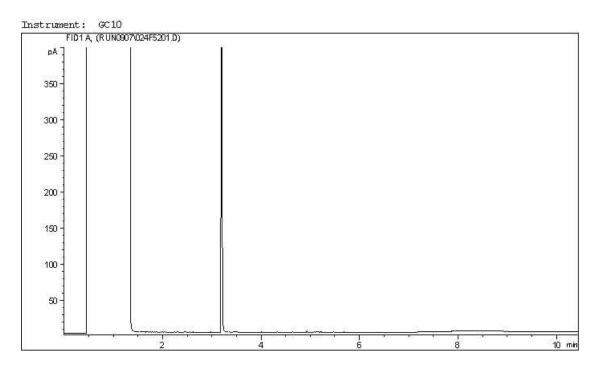
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

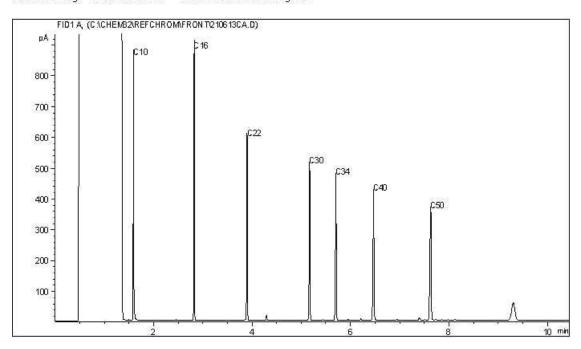
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-09-05

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

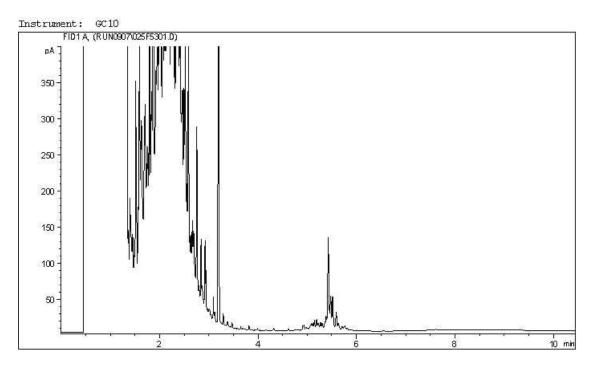
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

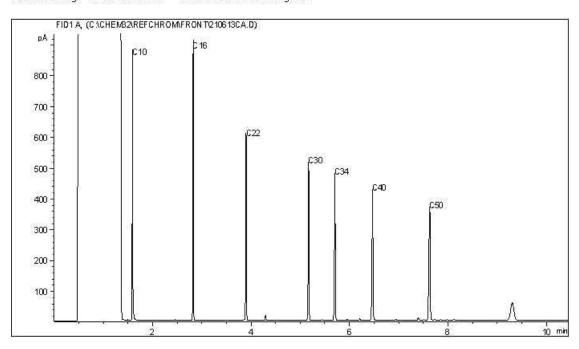
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-08-01

#### **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	100	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

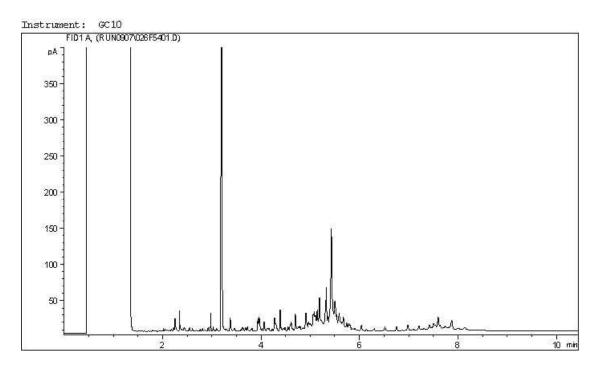
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

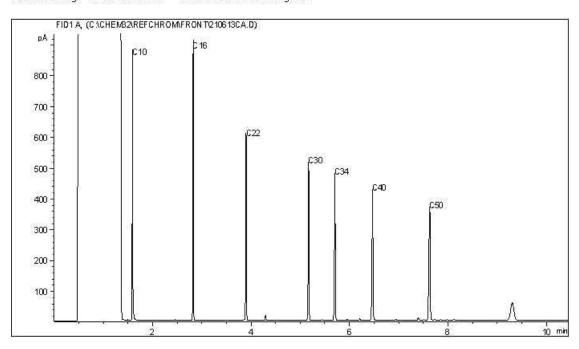
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-08-04

## **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

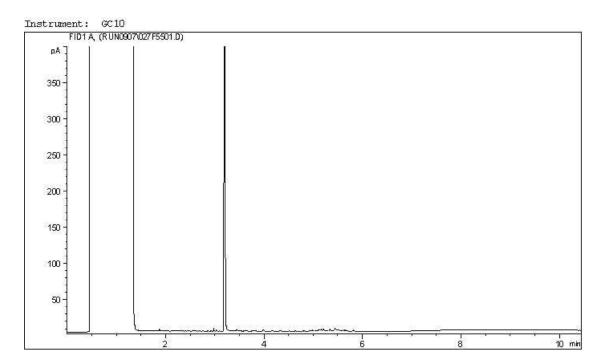
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

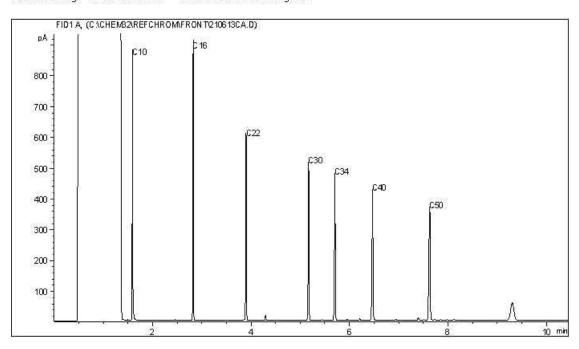
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-08-05

## **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

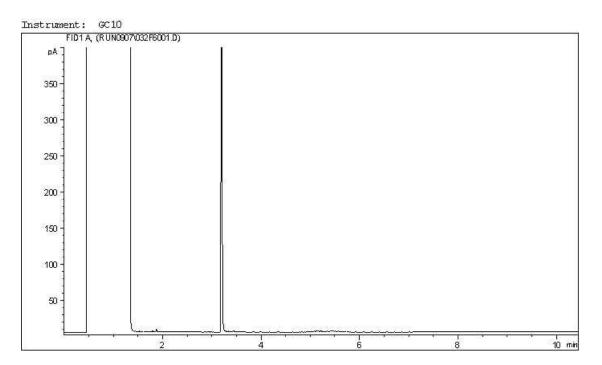
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

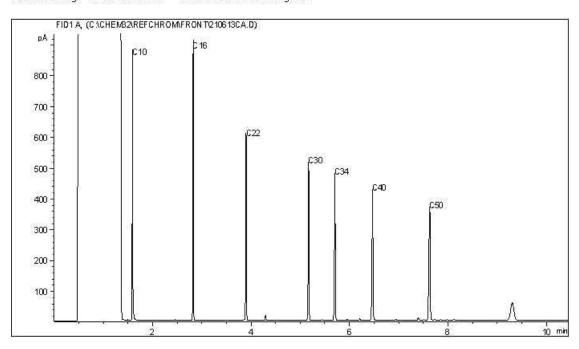
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-EE

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

Bureau Veritas Job #: C164648

Report Date: 2021/12/24

Bureau Veritas Sample: AFA091 Lab-Dup

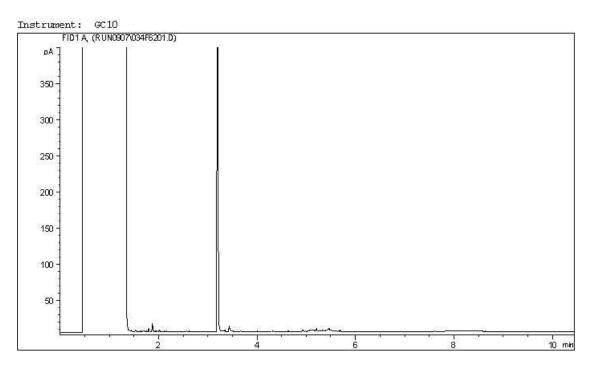
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

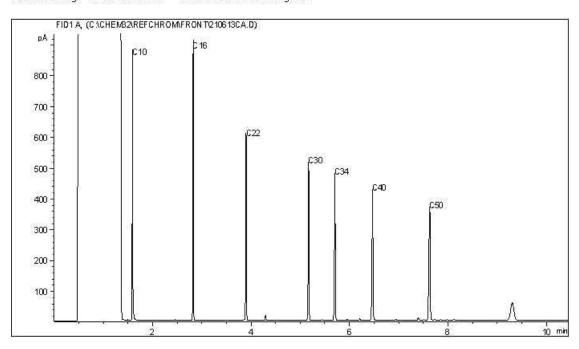
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-EE

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

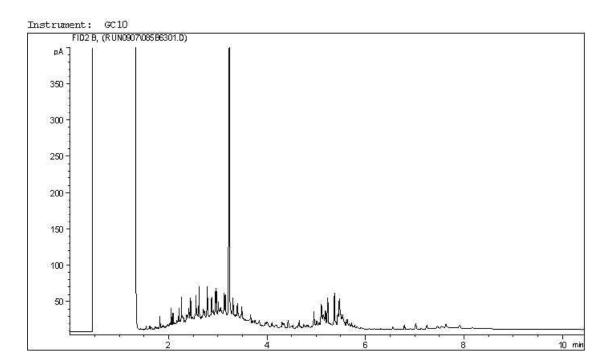
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

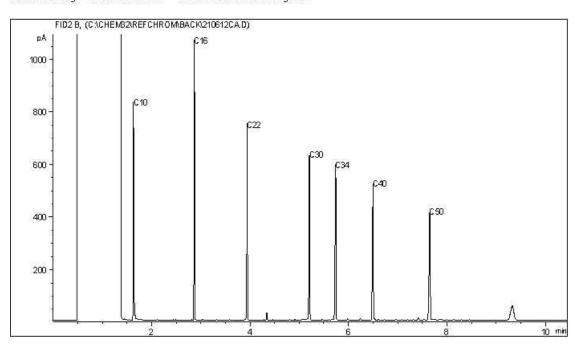
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-07-01

## **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	1	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

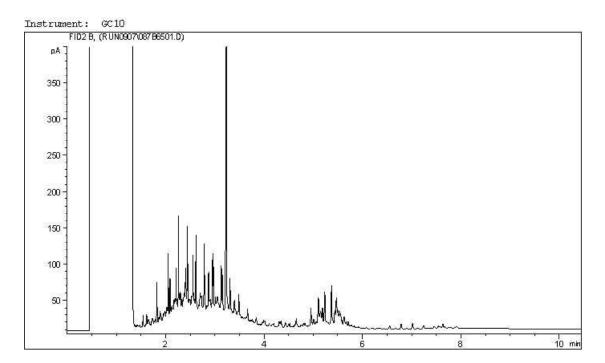
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

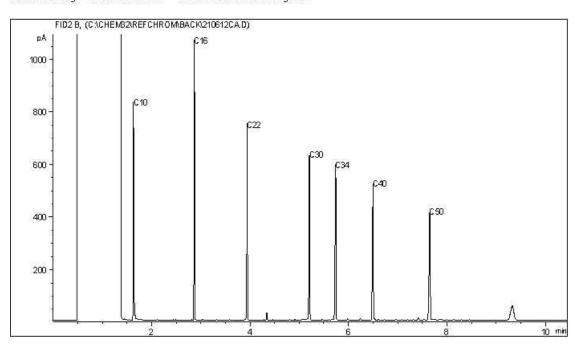
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-07-03

## **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 -	- C12	Diesel:	cs -	C22
Varsol:	c8 -	- C12	Lubricating Oils:	c20 -	C40
Kerosene:	c7 -	- c16	Crude Oils:	c3 -	C60+

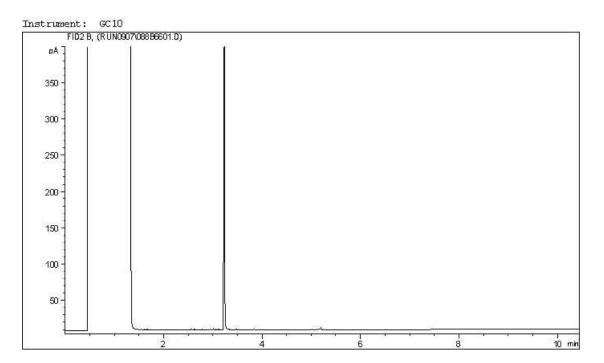
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

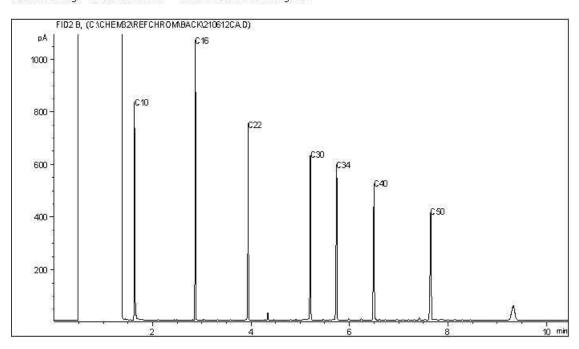
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-07-06

## **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8		C22
Varsol:	c8	: <del></del> :	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	4	C60+

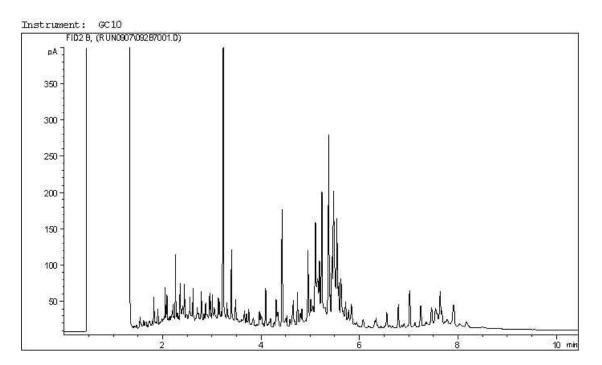
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

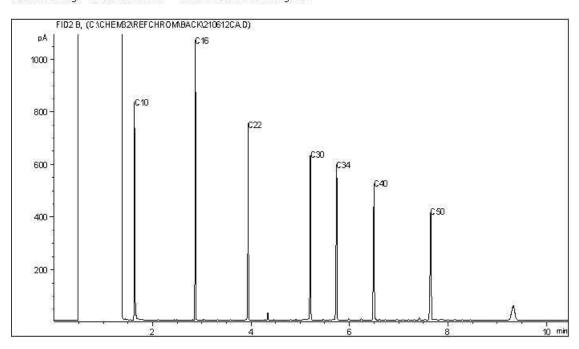
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-06-02

## **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	c4	1	C12	Diesel:	c8	1	C22
Varsol:	c8	Η.	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	_	C16	Crude Oils:	C3		C60+

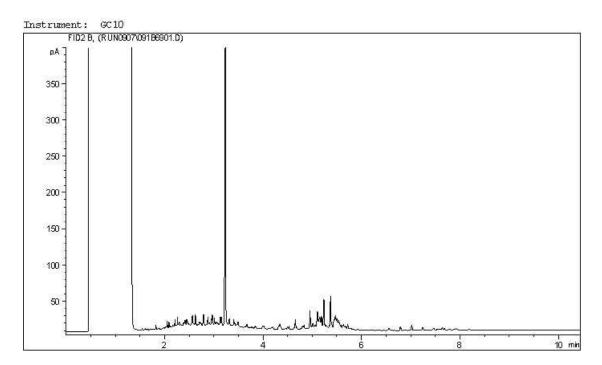
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

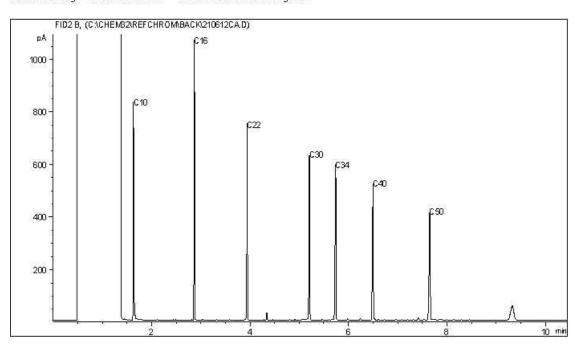
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-06-03

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

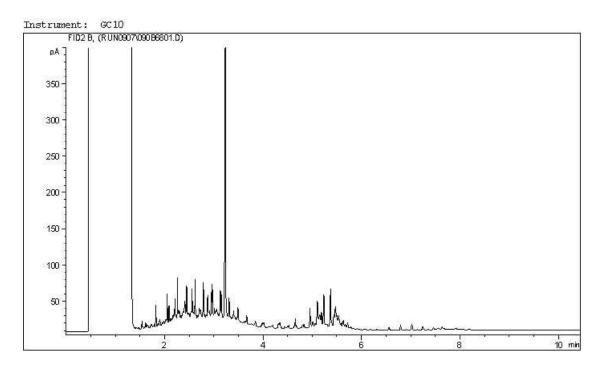
GOLDER ASSOCIATES LTD.

Client Project #: 20368099-6000-1001

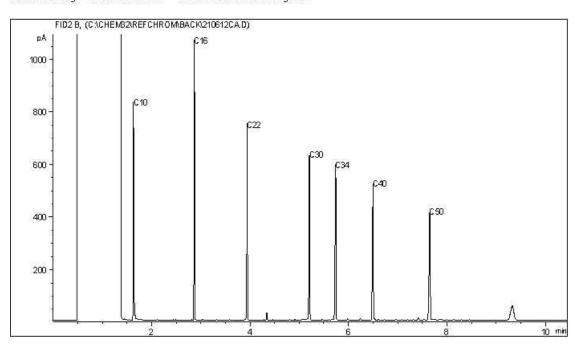
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: DUP-FF

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4	1	C12	Diesel:	c8 -	S	C22
Varsol:	c8	: <del>- )</del> :	C12	Lubricating Oils:	C20 -		C40
Kerosene:	c7	_	C16	Crude Oils:	C3 -	3	C60+

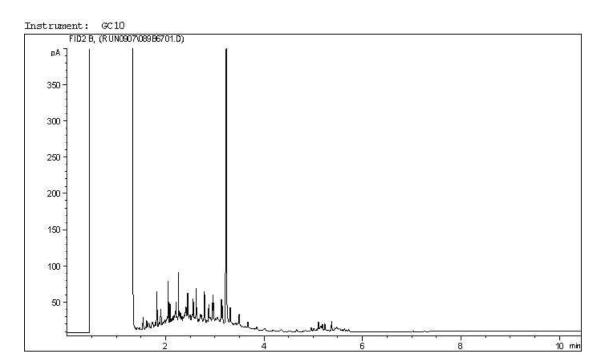
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Client Project #: 20368099-6000-1001

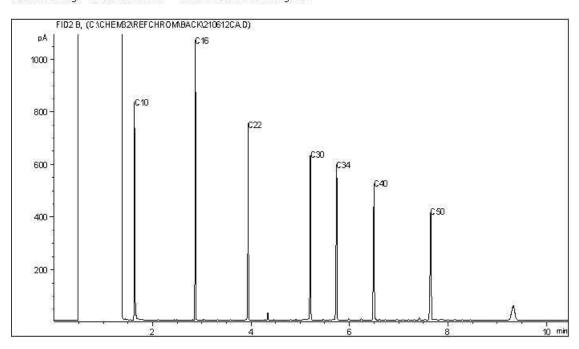
Site Reference: Camp Farewell and Unipkat I-22, Northwest Territories

Client ID: TP21-06-05

## **CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4		C12	Diesel:	c8	10	C22
Varsol:	c8	$(\frac{1}{2})^{\frac{1}{2}}$	C12	Lubricating Oils:	C20	-	C40
Kerosene:	c7	4	C16	Crude Oils:	C3	-1	C60+

# GOLDER DATA QUALITY REVIEW CHECKLIST

Site Location: Camp Farew	ell			Sampling Date: August 26, 2021				
Golder Project Number:	20368099	9-6000-100	1	Laborator	y: Bureau Veritas Edmonton			
		0000 100	ř	240014401	J. Sareda - Critas Bantonion			
Lab Submission Number:	C164648		•					
Was the Cooler Received at the lat Was proper chain of custody of the Were sample temperatures accepta Were all samples analyzed and ext Has lab warranted all tests were in Was sufficient sample provided fo Has lab warranted all samples were	e samples ble when racted wi statistica r the requ	documented they reached thin hold title control in dested analy	ed and keped lab?: mes?: CoA?: sis?	ot?	Yes			
Are All Laboratory QC Within Ac	ceptance	Criteria (Y	es, No, N	ot Applicable)?				
	Yes	No	NA		Comments			
Surrogate Recovery	X			Matrix spike re	covery for F4 (56%) below the			
Method Blank Concentration	X			acceptance crite	eria of (60-140%).			
Laboratory Duplicate RPD	X			All remaining la	aboratory QC results are within			
Matrix Spike Recovery		X		acceptance crite	eria.			
Blank Spike Recovery	X							
_								
Are All Field QC Samples Within	Alert Lin	nits (Yes, N	o, Not A	pplicable)?				
	Yes	No	NA		Comments			
Field Blank Concentration			X	Samples TP21-	06-03 and DUP FF exceed the alert			
Trip Blank Concentration			X	limit for F2 (94	%).			
Field Duplicate RPD		X						
Is data considered reliable (Yes/No/Suspect)?:  If answer is "No" or "Suspect", describe and provide rationale:  Please see QA/QC appendix.								
Data Reviewed by (Print): Anita Colbert  Data Reviewed by (Signature): Only  Date: September 13, 2021								